Cultural Intelligence and Individual Performance in Global Virtual Teams

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Abstract

The purpose of this research was to find the relationship that exists between cultural intelligence and contextual performance, when moderated by cultural diversity in global virtual teams. A sample of 215 employees from a multinational services company was used. Data analysis was performed using a multi-group invariance structural equation model (x^2/d_f = 1.22, p > .01; RMSEA = .05; CFI = .97; SRMR = .08). There was a positive and significant correlation between cultural intelligence and contextual performance, which led to accept hypothesis 1 (Group 1: H_1, γ_{11}=.52, p<.01; γ_{12}=.74, p<..01. Group 2: γ_{11}=.28, p<.01; γ_{12}=.39, p<.01). Categorical moderation revealed that a high cultural diversity, increases the relationship between the independent and dependent constructs, therefore hypothesis 2 was also accepted (H_2, γ_{11}=.52, γ_{12}=.74 > γ_{11}=.28, γ_{12}=.39). This allowed concluding that having cultural intelligence impacts positively individual contextual performance in global virtual teams, and that the more culturally diverse people are in the work unit, the higher is this link.

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Chapter 1: Introduction

New ways of working have appeared that take advantage of information and communication technologies, and work teams are created to optimize the competencies, skills, knowledge and cultural diversity of globally dispersed workers. These are called global virtual teams. Teams are used for many purposes, such as to rationalize tasks, optimize resources, resolve complicated problem-solving activities, develop new products; and overall, to perform a number of important functions that could not be completed optimally by an individual (Turner, Zimmerman, & Allen, 2012). From this perspective, organizational behavior can be analyzed at several levels: individual, group and organizational, and all of these are intimately related and interdependent. At an individual level, personal characteristics are consistent with the competencies approach, which are of an individual nature but have consequences for groups of people and, ultimately, for the organization as a whole (Carneiro, 2000). Therefore, the units of analysis for this study are the individuals who are part of global virtual teams, as their personal characteristics, competencies and performance, are crucial for the success of global virtual teams within organizations.

The current network paradigm (Borgatti & Foster, 2003) is based on the assumption that individual (and team-based) behavior is "partly determined by personal attributes and partly determined by the social context within which the individual is embedded. Thus, the social connections to other individuals are considered important determinants of behavior" (Aubke, Woeber, Scott, & Baggio, 2014, p. 151). Organizations require the capabilities of teams for collaborating and working effectively toward solving complex problems. This means they rely on teams when facing assignments too complex for any one individual to handle (Turner et al., 2012). Virtual teams bring greater complexity to this scenario, in which knowledge must be shared between geographically distant team members and organizational units. Here, team members must compensate for the lack of convenience that traditional face-

to-face teams typically provide, by relying on technological platforms and virtual communication tools (Turner et al., 2012).

Apart from this, one way of determining the success of work teams within organizations, is to analyze or measure their effectiveness, and, in a contemporary approach, knowledge management is already considered a key factor for organizational performance (Carneiro, 2000). In global virtual teams, as in any other group, each individual within the team brings to the table a different skillset, background, knowledge, life experience, and different perspectives based on each individual's position within the organization's hierarchy and their cultural background over their lifetime. These skills, experiences, and knowledge are shared while identifying problems, achieving tasks, and interacting with other members as the team works towards a common goal. It is here that the critical dimensions of knowledge management are made manifest, as knowledge is created, retained and transferred (Turner et al., 2012).

Furthermore, performance has been studied from numerous perspectives, and when the term is used in organizational behavior research, it is referred to in a non-financial quantitative manner. Performance is more related to the human characteristics of the organization's results, like how committed, satisfied, connected and efficient people are within a group (Motowidlo, 2003). Performance metrics can also cover competency use, idea generation, coordination amongst members, among others (Asendorpf & Wilpers, 1998; Maynard, Mathieu, Rapp, & Gilson, 2012). Certain other characteristics have been studied in order to rate a global virtual team as well-performing. These include trust, quality communications, group cohesiveness, and cultural adaptation (Aubke et al., 2014; Chang, Chuang, & Chao, 2011; Du Plessis, 2007; Webber & Donahue, 2001). Certain other aspects have been added to the list of characteristics that make up an effective team, including the

task itself, technology use, training and development, and work and team-related processes (Berry, 2011).

Besides knowledge management for dealing with performance, there is also the issue of diversity. In some cases, human resources practices may unintentionally result in teams that are diverse but unskilled in diversity management. “Such organizations are more likely to experience negative outcomes, such as disruptive conflict and increased turnover, which can harm performance” (Kochan et al., 2003, p. 7). It is important to state that the relationship between cultural intelligence and the effectiveness of culturally diverse global virtual teams is highly influenced by the organizational context in which the work takes place. To illustrate this, it is evident that the impact of diversity on performance might be more positive if team members, along with leaders and project managers develop creativity and information within teams. Also, diversity would be more likely to improve performance when global virtual team members are qualified to deal with group issues, mostly those involving communications and problem solving within a scenario of diversity.

Therefore, “human resource practices for recruiting, selecting, motivating, and rewarding employees partially determine whether team members and leaders are skilled in communicating with and coordinating the members of diverse teams” (Kochan et al., 2003, p. 7). Based on the foregoing statements, this research studied the role of cultural intelligence in global virtual teams, to adequately manage diversity and facilitate high levels of achievement in individual contextual performance, thus contributing to overall organizational performance. These factors include cultural intelligence, understood as a set of competencies possessed by individuals that would allow them to improve their performance in diverse global virtual teams created by organizations for specific purposes.

Background of the Problem

Globalization has increased the use of virtual teams by multinationals, as channels for knowledge and information-sharing, and as mechanisms for carrying out international projects (Beranek & Martz, 2005; Horwitz, Bravington, & Silvis, 2006). Intra and inter organizational cooperation is becoming increasingly common in the world of international business. There is also a growing search for new organizational forms and structures that will facilitate these types of cooperation, and virtual teams can be an alternative for satisfying these evolving requirements (Paul & McDaniel, 2004; Roebuck & Britt, 2002). This use of virtual teams has profoundly changed the way organizations collect and distribute information, as well as the dynamics and relationships between their members (Flanagin & Waldeck, 2004).

Although Global Virtual Teams (GVT) offer many benefits, their implementation may present risks if the organization does not deal adequately with the challenges they pose. These challenges arise due to distance, different time zones, language and cultural differences, technology adoption, interactions between members, a lack of trust and mutual understanding, among other reasons (Lloyd & Haertel, 2010; Pinjani & Palvia, 2013). The benefits of virtual teams include: helping to bridge the time and space gaps within the company, contributing to cost efficiency by avoiding staff movement, and providing ways to improve human resource utilization, taking into account the location, functions and competencies of the organization's people (Berry, 2011).

For multinationals, some of these challenges and benefits mean they need personnel with appropriate intercultural competencies on their virtual teams, who will contribute to their effectiveness and proper performance. Thus, "firms need individuals whose abilities allow them to deftly work across multiple cultures to achieve organizational objectives" (Lovvorn & Chen, 2011, p. 275). Given that teams are usually set up to take advantage of the knowledge,

competencies and skills of workers located around the world (Lewis, 2004), it is important team members be capable of understanding, aligning and using these to obtain high levels of effectiveness. In this sense, "GVTs should be better able to understand, align, and leverage the specialized expertise that resides within their teams and improve their overall effectiveness" (Maynard et al., 2012, p. 343).

When discussing culturally diverse teams, it is important to understand the role that diversity plays in team performance, and how it can boost or decrease the possibilities for taking advantage of GVT member competencies. In this regard, cultural diversity would moderate the relationship between cultural intelligence and individuals' contextual performance in global virtual teams. In this matter, it could be said that cultural diversity can be favorable when a high level of cultural intelligence exists.

Statement of the Problem

Nowadays, the characteristics of the persons within organizations are increasingly more diverse, with cultural diversity as one of the most significant of these. Besides this reality, organizations use teams to increase organizational efficiency and effectiveness (outcomes achieved and high performance), and, because of the location of their members, these become global virtual teams. Different cultural backgrounds give rise to actions required for identifying intercultural competencies, which, if possessed by the individuals working in culturally diverse teams, will enable more positive outcomes for individual team members, and consequently, for diverse teams overall.

A lack of cultural intelligence for successfully dealing with the everyday challenges of global virtual teams, would therefore considerably affect the performance of their members, especially where there are high levels of cultural diversity. So, to reduce cultural gaps and achieve high levels of performance in virtual teams, companies can offer cultural training, cultural sensibility initiatives and workshops on teamwork as part of their global virtual team

structure (Gurung & Pratter, 2006). In this sense, intercultural competencies, and especially cultural intelligence, are what ultimately determine and impact the results expected from the creation of global virtual teams. This idea refers to the fact that the more culturally intelligent a person is, the more competent he or she can be in the face of cultural diversity and can, therefore, contribute more to the performance of a global virtual team.

Purpose of the Study

The purpose of this quantitative, non-experimental, cross-sectional and correlational study was to analyze the relationship between Cultural Intelligence (CQ) and the contextual performance of individuals in Global Virtual Teams (GVTs). Also, to identify how this relationship is moderated by high or low levels of cultural diversity. The model proposed for this study consisted of cultural intelligence as a predictor, individual performance (contextual performance) as an outcome, and cultural diversity as a moderator of their relationship. It is important to note that all variables, whether independent, dependent or moderating, were individual level constructs.

Significance of the Problem

This research constitutes a disciplinary contribution to international human resource management, keeping in mind that the formation of virtual teams in multinational enterprises, and management of the cultural diversity therein, are realities that present organizations with challenges and opportunities. International human resource management contemplates all aspects related with the management of people in an intercultural context (Stahl & Björkman, 2006). In this sense, it is important to understand to what extent a company's global strategy is aligned with the development of human resources capabilities required for implementing its strategy. This creates the need to establish certain selection criteria: to select people with competencies inherent to their personality on the one hand, and training and capacity building

criteria on the other, for developing competencies that can in fact arise from experience and interactions with other people.

This is also a contribution to intercultural management as it studies the way in which people build competencies to help them deal with the challenges of intercultural aspects in virtual environments; in this case, global virtual teams, and cope with the intercultural challenges that will help GVT members work together successfully. Also, it is important to state that the formation and successful use of global virtual teams can contribute to generating competitive advantage. According to the definition of competitive advantage, global virtual teams can create uniqueness through the combined capabilities of their members and their collaboration. This uniqueness is evidently economically and strategically useful because the ultimate goal of GVTs is to accomplish certain tasks or projects, and this mix of capabilities and knowledge flow and creation can be very difficult to imitate (Barney, Ketchen, & Wright, 2011).

By effectively managing knowledge and monitoring team outcomes, managers can request more updated information, consider alternative solutions, and encourage the creation of innovative proposals. They can also anticipate problems better, analyze and evaluate environmental scenarios, and provide adequate alternative responses in light of global objectives (Carneiro, 2000). All this impacts the effectiveness of global virtual teams and overall organizational performance. Therefore, in order to avoid low performance levels, the development of knowledge-based cultures that enhance the exchange of shared and unshared knowledge among individuals is critical. Unshared knowledge can be transformed into shared knowledge by creating productive teams, meaning one way to achieve a knowledge-based culture is through the use of teams and learning communities within the organization (Turner et al., 2012).

While a large body of qualitative research regarding cultural diversity in groups exists, some authors mention the need for empirical studies to validate the relation between diversity and effectiveness or performance in teams, and help understand virtual communications in virtual contexts (Connaughton & Shuffler, 2007; Gibson & Gibbs, 2006; Harrison & Klein, 2007; Klitmoller & Lauring, 2013; Pinjani & Palvia, 2013). Studies are also needed on the interactions between people from different cultures on virtual teams (Chang et al., 2011), which require understanding intercultural competencies and intercultural intelligence. There are also those that state that few studies exist that evaluate the effect of cultural diversity on virtual teams (Gurung & Pratter, 2006), as the cultural realities that affect virtual team members are important determinants for the success of any project.

Nature of the Study

The purpose of this research was to analyze the relationship between cultural intelligence and individual performance in global virtual teams. This led to the need to identify intercultural competencies associated with global virtual team members, which in turn enhance their performance. All this to obtain results that would help organizations with worker selection, training programs, team conformation and leadership development for global virtual teams.

This was an empirical, quantitative, non-experimental, basic research study with a correlational scope, which analyzed individuals belonging to global virtual teams. The study was carried out in a multinational service company with virtual teams located around the world. The independent variable was cultural intelligence and the dependent variable was contextual performance. All variables were presented to identify relations between them, and a moderating variable, cultural diversity, was introduced to measure how culturally diverse the members of a global virtual team are and how this influenced the relationship between the independent and dependent variables. Subsequently, Structural Equation Modelling (ML-

SEM) was used to analyze quantitative data and evaluate the validity of substantive theories using empirical data. “The goal is to determine whether a hypothesized theoretical model is consistent with the data collected to reflect this theory” (Pui-Wa & Qiong, 2007).

Research Questions

The current organizational dynamic of multinational enterprises when forming global virtual work teams, and the need for empirical studies on the relationship between cultural intelligence and performance in culturally diverse global virtual teams, raise the following research questions:

Is there a relationship between Cultural Intelligence (CQ) and Individual Performance (IP) in Global Virtual Teams (GVTs)?

Does cultural diversity moderate the relationship between cultural intelligence and individual performance?

Hypotheses

The hypotheses proposed for this study were:

H_1= Cultural Intelligence is positively related to individual performance in Global Virtual Teams.

H_2= Cultural diversity moderates the relationship between cultural intelligence and individual performance in Global Virtual Teams.

Theoretical Framework

The concepts of cultural intelligence, individual performance, cultural diversity, and global virtual teams are framed within several fields of study: international human resource management, organizational and cognitive psychology, organizational behavior and cross-cultural studies in international business. It is assumed that practices for recruiting, selecting, training, motivating, and rewarding employees partially determine whether team members and leaders are skilled in getting along with members of diverse teams (Kochan et al., 2003;

Stahl & Björkman, 2006). Another topic international human resource management is concerned with, is understanding how diversity management practices affect employee well-being and effectiveness at organizational, group and individual levels.

Organizational behavior within international human resource management also seeks to manage diversity by forming teams with people from different locations around the world. This is based on the network paradigm that assumes individual behavior (and, subsequently, team behavior) is determined partly by personal attributes and partly by the social context in which the individual is embedded. Thus, social connections with other individuals are considered important determinants of behavior (Aubke et al., 2014). A better definition of this paradigm states that a set of actors are connected by a set of ties; and that the actors (often called “nodes”) can be individuals, teams, organizations, concepts, etc. (Borgatti & Foster, 2003).

In spite of ample literature contributing to the design of effective diversity management systems for organizations, there is not much literature about how these systems and practices affect the psychological processes and dynamics underlying the relationship between diversity and work-related outcomes (Guillaume et al., 2014). In other words, how diversity affects individual employees, and how this in turn affects their effectiveness (Guillaume, Brodbeck, & Riketta, 2012). This is what organizational psychology focuses on.

Organizational psychology exists to take care of this issue. Cultural diversity and therefore, cultural intelligence are definitely on the organizational psychology research agenda. Regarding the latter, cultural intelligence is a psychological construct based on the multiple intelligence theoretical framework (Ang & Van Dyne, 2008; Earley & Ang, 2003; Sternberg & Detterman, 1986), and contributes to obtaining positive individual outcomes to further enhance team and organizational effectiveness. This study was based on information/decision-making theories, which postulate that diversity in group composition

might have a positive direct impact due the different contributions it brings since a diverse team covers a broader territory of information, taps a larger range of networks and perspectives, and might enhance innovation, creativity and problem-solving (Stahl, Maznevski, Voigt, & Jonsen, 2010). The information/decision-making approach is opposite to the social categorization perspective that states that people prefer to work with others similar to themselves, and that, when working in diverse conditions, there might be increased conflict, less communication, commitment or cohesion, and, in consequence, decreased performance. In this sense, cultural differences in perspectives and frameworks can bring different sources and means of information-processing to a team (Hofstede & Hofstede, 2005; Stahl et al., 2010).

As for diversity, it is important to note that the focus was on the individual, and so relational theory was used, which defines diversity as the dissimilarity between a focal individual and other group members or peers. Accordingly, diversity is described as the dissimilarity or extent to which an individual's demographic, or idiosyncratic attributes are shared by others in the unit . The relational approach also focuses on individual rather than group-level outcomes, hence, it uses an individual-within-the-group perspective and suggests that diversity affects individual-level processes and individual-level outcomes as a function of the relative level of dissimilarity between people in a unit (Guillaume et al., 2012).

This suggestion that dissimilarity undermines rather than facilitates group members' work-related outcomes, is in line with the social categorization approach. But the information/decision-making approach states the effects of diversity include encouraging people's motivation and therefore, positively affects their effectiveness in work groups (Chattopadhyay, George, & Lawrence, 2004; Guillaume et al., 2012; Stahl et al., 2010). So, a motivational perspective is also used to explain how diversity affects individual work-related

outcomes (Meyer, Becker, & Vandenberghe, 2004; Meyer, Becker, & Van Dick, 2006; van Knippenberg, 2000).

Cultural diversity is a more specific term that relies on deep-level theory, which states that heterogeneity among members includes differences in attitudes, beliefs, and values; and that dissimilarities are not only based on demographic characteristics such as age, gender, or tenure (Harrison, Price, Gavin, & Florey, 2002; Stahl et al., 2010). Therefore, by belonging to a certain nationality or cultural group, its members share values, norms, and thought systems. The reasoning behind this is that any group of individuals that share such elements could be regarded as a cultural group (Ferdman & Sagiv, 2012), and that the deep-level traits most commonly measured are those values or attitudes associated with culture (Kirkman & Shapiro, 2001; Stahl et al., 2010).

When referring to cultural intelligence, besides being rooted in the multiple intelligence theoretical framework, the situated learning theory also explains how it can be acquired. According to this theory, learning is “an integral and inseparable aspect of social practice” (Lave & Wenger, 1991, p. 31) and, from this perspective, cultural intelligence is based on capabilities that can be enhanced through training, experience, and education (Earley & Peterson, 2004; Ng, Van Dyne, & Ang, 2012). In this matter, exposure to different cultural environments provides individuals with social context and authentic activities for learning how to live and work in different cultural environments (Ng et al., 2012). This is an important focus of study in international human resources management with regard to new organizational dynamics that require moving workers around the world and sharing the workplace with people from different cultural latitudes (Bucker & Poutsma, 2010).

Global virtual teams are characterized by different aspects and conditions that make performance evaluations more specific. Usually performance is analyzed at a team level, taking into account outcomes achieved and time spent on tasks. But individual performance is

a more complex construct that requires going deeper into aspects like attachment, trust, commitment, motivation, satisfaction that will eventually impact team and organizational results. This type of performance is called contextual performance, and consists of non-job-specific behaviors such as cooperation with coworkers and showing dedication; behaviors based on disposition and personality (Borman & Motowidlo, 1993). Contextual performance is identical to Organ's (1997) concept of organizational citizenship behavior, and both terms can be used interchangeably.

People belonging to global virtual teams might experience different levels of individual performance, compared to those ones obtained while performing individual tasks or belonging to face-to-face teams. This is because the factors contributing to the effectiveness of face-to-face and virtual teams are not necessarily the same (Potter & Balthazard, 2002). Although co-located or face-to-face teams and virtual teams share many common characteristics including task performance metrics, the nature of their environments differ along several dimensions. In particular, virtual team members cooperate on global projects while resident in their home geographies and cultures and using various technologies to facilitate communications.

Contextual performance implies going beyond one's job description and helping others complete their own tasks to fulfil broad organizational objectives. Therefore, people should be encouraged to work in groups rather than as individuals. "Setting task for groups implies that the whole group stands or falls together and hence employees will be more corporative and help each other" (Asiedu-Appiah & Addai, 2014, p. 113).

The theoretical model for this study is presented in Figure 1. The model suggests that cultural intelligence will lead to favorable individual performance within global virtual teams. This means that when team members have high cultural intelligence, this enables them to perform more effectively in their global virtual teams. Cultural diversity moderates this

relationship by increasing the influence, therefore, the more diverse a team is, the easier is for cultural intelligence to enhance individual performance.

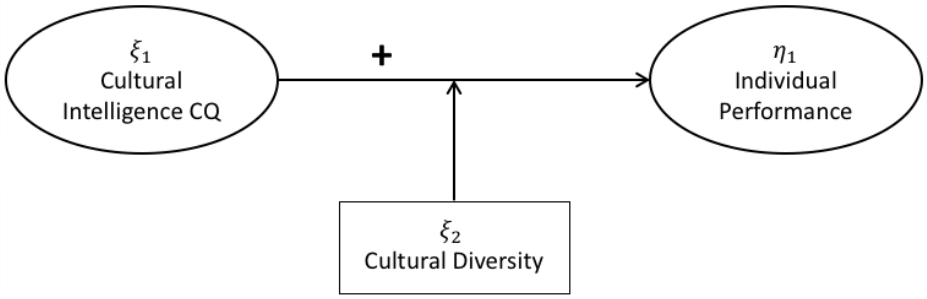

Figure 1. Theoretical model
Hypothesized processes linking cultural intelligence to individual performance in global virtual teams. Cultural diversity has a moderating impact on the relationship. The purpose of the validation of this model was not to demonstrate a causal relationship between variables, but to validate a nomological network by following the object of SEM analysis described in Chapter III.

Definition of Terms

The cultural intelligence construct represents a more dynamic view of intercultural competencies, by looking not only at potential capabilities but also at how these capabilities can be actively used and translated into effective behavior. This dynamic, active aspect is embedded in the metacognitive dimension of cultural intelligence and in the behavioral dimension of cross-cultural o intercultural encounters. The main authors for this construct are Earley and Ang (2003), Thomas and Inkson (2004), and Ang and Van Dyne (2008).

Earley and Ang (2003) defined cultural intelligence as “a person’s capability to adapt effectively to new cultural contexts” (p. 59). The concept is a multidimensional construct that consists of four components: Metacognitive (individual consciousness and awareness during intercultural interactions), cognitive (general knowledge of a culture’s norms and practices), motivational (capability to invest attention and energy in learning appropriate responses and functioning effectively), and behavioral CQ (flexibility for exhibiting situationally appropriate verbal and nonverbal actions during intercultural interactions) (Ang & Van Dyne, 2008; Ng & Earley, 2006). Therefore, Cultural Intelligence (CQ) is defined as the “capability of an

individual to function and manage effectively in situations characterized by cultural diversity" (Ang & Van Dyne, 2008, p. 3).

A work group or team is a set of more than two people that performs organizationally relevant tasks, interacts socially, maintains and manages boundaries, and is embedded within a wider organizational context. It is characterized by interdependence, or the extent to which there are goal, reward, and task structures in place that promote a relationship between its members, who are mutually responsible to and dependent on the others (Guillaume et al., 2012). Berry (2011) mentions that for a team to be considered virtual, it has to have certain attributes. A virtual team usually has a definable and limited membership, and team members are aware of this shared membership. Its members function interdependently, usually with a shared sense of purpose that is either given to them or constructed by the team itself; they are jointly responsible for outcomes, manage their relationships across organizational boundaries, and might be geographically dispersed. And finally, people in it predominately rely on computer-mediated communication rather than face-to-face communication to accomplish their tasks (Berry, 2011; Maznevski & Chudoba, 2000).

Organizations are implementing work teams with greater frequency to integrate the knowledge of workers across broad specializations, as well as geographic locations, and "two of the most complex phenomena in the work place: diversity and work teams, are being merged together with the goal of creating more high-performing organizations" (Webber & Donahue, 2001, p. 141). Global virtual teams have been defined from the perspective of the location of their members, the objectives they are formed for, their characteristics, the goals to be achieved, or the resources their members use to communicate. Table 1 shows a list of the most important definitions of global virtual teams, according to the most cited authors studying the topic.

Table 1. *Definitions of Global Virtual Teams According to the Most-Cited Authors.*

Author	Definition: Global Virtual Team
Fuller, Hardin, and Davison, 2006	Technologically-mediated groups of people from different countries that work on common tasks
Dekker, Rutte, and Van den Berg, 2008	People from different national cultures with different native languages and different value systems
Lee-Kelley & Sankey, 2008	Geographically dispersed team members who communicate with each other using some variant mix of information and communication technologies
Townsend, DeMarie, and Hendrickson, 1998	Groups of geographically and/or organizationally dispersed coworkers assembled using a combination of telecommunications and information technologies to accomplish an organizational task
Lipnack & Stamps, 2000	Groups of people that work interdependently with a shared purpose across space, time, and organizational boundaries using technology
Lilian, 2014	Temporary, culturally diverse, geographically dispersed teams that communicate electronically
Shachaf, 2008	Building blocks of virtual organizations whose members are often dispersed world-wide, where technology facilitates communications and the sharing of information among team members
Maznevski and Chudoba, 2000	Groups that (a) are identified by their organization(s) and members as a team; (b) are responsible for making and/or implementing decisions important to the organization's global strategy; (c) use technology-supported communication substantially more than face-to-face communication; and (d) work and live in different countries
Jarvenpaa and Leidner, 1999; Martins, Gilson, and Maynard, 2004**;**	Teams whose members rely on technology-mediated communication to work across geographical, organizational, and/or temporal boundaries to accomplish team tasks and achieve team goals
Baba, Gluesing, Ratner, and Wagner, 2004	Global virtual teams are culturally diverse, involve two or more nations, work across temporal and physical distance, are interdependent, and rely on technologically- mediated communications
Mowshowitz, 1997	Where individuals with differing competencies are located across different time zones, geographic places, and culture
Bell & Kozlowski, 2002	Groups of geographically dispersed individuals who communicate using information and communication technologies (ICT)

Based on the literature, the following definition of global virtual teams has been found to be the most suitable for studying cultural diversity and individual performance: a group of geographically dispersed and culturally diverse people, whose members work together over technological communication networks to complete a specific project (Anderson & Shane, 2002; Berry, 2011; Chang et al., 2011; Chang, Hung, & Hsieh, 2014; DeRosa et al., 2004; Kirkman et al., 2004; Paul & McDaniel, 2004; Pauleen & Yoong, 2001; Qureshi & Vogel, 2001; Roebuck & Britt, 2002). A virtual team is considered global when backgrounds are culturally diverse, and members are able to think and work within a diverse global environment. In other terms, global virtual teams are not only separated by time and space,

but have differing national, cultural and linguistic attributes, while using information and communication technologies as their primary means of communication and work structure (Zakaria, Amelinckx, & Wilemon, 2004).

Although the research has focused on the lack of physical presence and other challenges emerging from the cross-cultural nature of such teams, what has not been explored is that "the knowledge that is generated is itself culturally constructed, defined and constrained by the global virtual team members" (Zakaria et al., 2004, p.16). Thus, diversity in GVTs becomes a challenge, as their culturally mediated knowledge structure and shared knowledge base give rise to the creativity and problem-solving capabilities of global virtual teams, which need to be effectively applied to ensure positive outcomes.

In order to assess performance in global virtual teams, Zakaria et al. (2004) suggested identifying issues with global virtual team tasks as well as team satisfaction, examining and then comprehensively measuring them in additional research. Extra-role and in-role behaviors of workers have been studied within the concepts of task performance and contextual performance (Organ, 1988, 1997; Williams & Anderson, 1991). These take into account the motivations and actions of employees to promote effective organizational operations (Organ, 1988). More specifically, contextual performance "contributes to the maintenance and enhancement of the social and psychological context that supports task performance" (Organ, 1997, p. 91). Based on this, individual performance is measured based on the employees' accomplishment of the tasks and objectives given to them, but also on further actions wherein workers give more based on affection, cognition, motivation and levels of satisfaction, among others (Organ, 1988; Podsakoff, Ahearne, & MacKenzie, 1997).

Individual performance refers to desirable contributions made by an employee to his or her work role, such as high in-role and extra-role performance, low absenteeism, satisfaction, and low counterproductive work behaviors (Guillaume et al., 2014). Individual

performance comprises many aspects that can be used as performance indicators, which are non-financial (Berry, 2011; Chang et al., 2011; Maynard et al., 2012; Messner, 2015). Individual performance is referred to contextual performance, also known as organizational citizenship behavior, which is the "behavior that supports the organizational, social, and psychological environment in which task performance takes place" (van Knippenberg, 2000, p. 361). These behaviors include helping others, taking care of organizational resources, considering others' interests, and contributing to the organization's good image by presenting it as such to outsiders, among others (Borman & Motowidlo, 1993; Organ, 1988).

Cultural diversity is inherent to global virtual teams, and this diversity usually makes the team's dynamic more complex, but it can lead to greater performance only if the members of the virtual team are able to understand each other, and combine and build on each other's ideas (Maznevski & Chudoba, 2000). Cultural diversity is understood as heterogeneity amongst team members' national culture. It is a construct measured at group level to show dissimilarities amongst the members of a global virtual team (Guillaume et al., 2012, 2014). However, in the end, it focuses more on individual rather than group-level outcomes (Guillaume et al., 2012, 2014; Riordan, 2000). National culture refers to an individual's country of origin or upbringing, since it is during their early years that people acquire values, beliefs, principles, worldviews, etc. (Hofstede & Hofstede, 2005; Shachaf, 2008).

The definitions displayed above show why having and applying cultural intelligence, is positively related to contextual performance of global virtual team members. Due to their specific nature, global virtual teams present their own challenges for organizations and managers to ensure performance. One of the challenges is to effectively manage diversity by providing proper training, and successfully applying the right skillsets and competences for dealing with dissimilar co-members within GVTs.

Assumptions

In this study, it was assumed that all intercultural competencies are necessary when belonging to a global virtual team, and cultural intelligence is considered an intercultural competence. Also, that the dynamic in both the company and the industry where fieldwork was conducted, influence worker's cultural intelligence in a positive way. It was also assumed that individual performance in virtual teams can be measured using indicators that can be self-reported or reported by someone else.

Limitations

Since the information gathered was self-reported by the informants, the research contains certain bias. A second limitation is that information was gathered at only one multinational company. Cross-sectional measurement is also a limitation since information gathering is complex and depends on the availability of the people providing it. In this study, people were spread-out around the world, making information gathering even more complicated. Finally, the information also depended on access approval from the company where fieldwork was performed. Regarding measurement, the cultural diversity index used only measures differences in nationality among members, and does not intend to measure psychic distance (Van der Zee, Atsma, & Brodbeck, 2004) or consider how culturally different countries are.

Delimitations

The study was undertaken at a multinational consulting services company on a global level with many active virtual teams with members from over 30 countries. The information obtained in the field was collected using a survey containing demographic information and standardized scales to measure cultural intelligence and contextual performance. All variables, cultural intelligence, individual performance, and cultural diversity were operationalized at the individual level.

Summary

Globalization and new organizational ways of work have increased the formation of global virtual teams, but, at times, the people assigned to these teams have no prior preparation, suitable training, or are not properly selected for the task. Performance in global virtual teams is achieved, among others, through special competences that members possess and apply to perform adequately in culturally diverse scenarios. This research provides an empirical study for understanding the relationship between cultural intelligence and individual contextual performance in global virtual teams. Therefore, possession of the right set of competencies will positively impact work-related outcomes, which, in turn, contribute to advantageous group and organizational results.

Chapter 2: Literature Review

A systemic revision of literature was made to identify the relevant existing theories of the constructs studied in this research, and the relationship among them. The literature of cultural intelligence and individual performance in global virtual teams is scarce, due to the recent usage of these units within organizations, so the relationship between these two constructs is lacking empirical studies. Therefore, this literature review points out the gaps referring to the relationships proposed in the research model by showing variables in a sequential manner, and presenting the theoretical findings associated to the research question from general to particular.

Documentation

The variables that made up the research question and title for this study became key terms when searching for literature in different databases. The starting point for this documentation was a search for peer reviewed articles related to each of the concepts under this study. Searches in different databases were performed using the key terms “global virtual teams”, “effectiveness”, “intercultural competencies”, “cultural intelligence”, and “cultural diversity”. Literature was collected from scholarly databases as EBSCO, ProQuest, Jstor, Emerald, Sage, ScienceDirect and ISI Web of Knowledge, and from books containing the main theories and models for the variables to be studied and their links. The ISI database was especially emphasized as it contains the best-ranked academic journals.

The articles found were entered into a personally designed table containing their main features, and classified into different categories to facilitate information processing for the researcher, as follows: 1. Quantitative: if empirical and applies statistical proofs. 2. Qualitative: if theoretical, reflexive or simply introduces concepts or relationships between concepts. 3. Key term: Diversity, global virtual teams, intercultural competences or cultural intelligence. 4. Type: Article, book or book chapter. The list also contains relevant

information for each article tagged within the recorded data, including name (article title), author (list of authors in the order they appear for citation), year (year of article publication), and database (where it was retrieved from). After compiling this list, a more detailed search was performed on each variable by using the conjunction AND within the search bar in the database. The search conducted on the key term “global virtual teams” appears below as an example of this process.

The keyword was typed into the ISI Web of Knowledge, in both title and topic. The search covered articles from 1985 to 2015 (the database sets this range by default), ending on October 10, 2015. Around 540 articles were found in the first search. In order to filter for the most relevant articles, the search was then performed using key words for the title alone, with a total of 95 results. Finally, the search emphasized the highest impact indexed journals according to the Journal Citations Report (JCR), Scimago ranking, and ranking in several areas by the Chartered Association of Business Schools (CABS). Likewise, articles that only covered very specific cases or emphasized variables that weren’t of interest were dismissed.

When moving from the more general topic to a more specific one, the search provides the following results: Topic: Human Resource Management. Results: 121.861; Refined by topic: Global virtual teams and document type: article. Results: 13; Topic: Global Virtual Teams. Results: 540; and Title: Global Virtual Teams. Results: 95. Then, relations between variables were queried to identify whether or not literature has been published on them. A more refined search was conducted as follows: Topic: Global virtual teams, refined by topic: cultural intelligence and document type: article. Results: 5.

Also, the topic of global virtual teams along with the conjunction AND was entered the main search bar in ISI Web of Knowledge, and cultural intelligence was entered into the second search bar. 6 results were found. The same search was performed for global virtual teams AND effectiveness, with 55 results, and for global virtual teams AND intercultural

competencies, with 4 results. This search helped show that the topic of global virtual teams has been studied extensively, but from different perspectives, and that further research is still required for study of cultural intelligence in global virtual teams, particularly empirical studies like the one proposed. When reading these articles, it was found that many authors working on the topic of global virtual teams, have approached the topic alongside other ones like diversity in teams, technology use, computer mediation, virtuality, innovation, and leadership, among others. Also, that when relating cultural intelligence with global virtual teams, studies have focused mainly on traditional global teams and have used samples with students. A graphic briefing of the literature review carried out for this study can be seen in Figure 2 Literature Map.

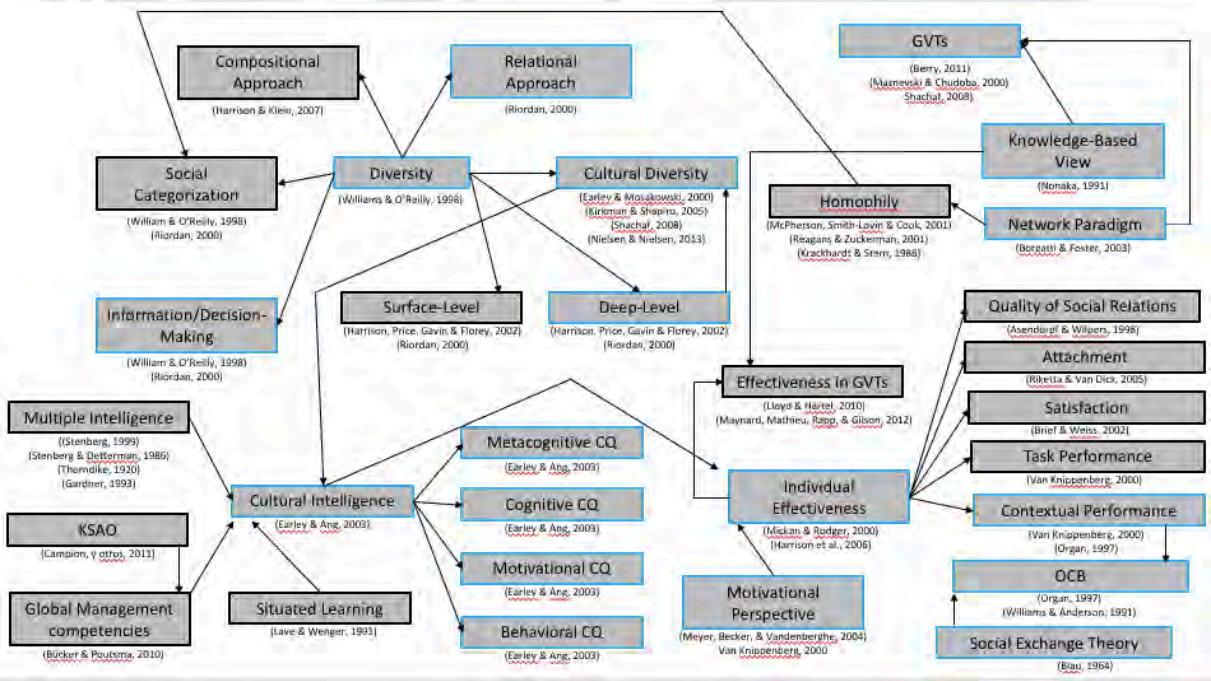

Figure 2. Literature map.
The theories in blue are the ones chosen in the study to support the formulation of the hypotheses.

Cultural Intelligence Related to Individual Performance in Global Virtual Teams

Until the early 2000s, none of the KSAOs or multiple intelligence frameworks studied focused on abilities for solving cross-cultural problems. This gap prompted Earley and Ang's (2003) work on cultural intelligence (CQ), wherein they first coined the concept by drawing

on Sternberg and Detterman's (1986) integrative theoretical framework on multiple loci of intelligences. It was in their book *Cultural Intelligence: Individual Interactions Across Cultures* where the term was formally introduced.

In 2008, Ang and Van Dyne published the *Handbook of Cultural Intelligence: Theory, Measurement, and Applications*, containing 24 conceptual and empirical contributions from scholars from different cultural and disciplinary backgrounds. This is when the construct of cultural intelligence evolved from a theoretical concept to a measurable construct with sound psychometric properties and construct validity evidence. The concept, the predictive validity of which has already been tested, has experienced extraordinary growth, and the evolution of its research can be attributed to the "theoretical foundation of the construct, [and] rigorous psychometric properties of the Cultural Intelligence Scale" (Ng et al., 2012, p. 31).

Intercultural competencies refer to an individual's set of abilities, knowledge, attitudes and skills (Hunt & Wallace, 1997) that are used to interact with members of culturally diverse teams. Therefore, competencies and skills are used indistinctly, even though conceptually they are different. Competency can be defined as the potential capacity of an individual to successfully handle certain situations or complete certain tasks or jobs (Bucker & Poutsma, 2010), ans skills are the ability to put knowledge into action, and in this specific study, for managing diversity (Kedia & Mukherji, 1999). All competency models refer to collections of knowledge, skills, abilities, and other characteristics or personality traits (KSAOs) needed for effective job performance, and they have been studied by several authors in the field of organizational psychology (Bucker & Poutsma, 2010; Campion et al., 2011; Rodriguez, Patel, Bright, Gregory, & Gowing, 2002; Schippmann et al., 2000).

Intercultural competences are defined as the ability of individuals to function effectively in another culture (Gertsen, 1990; Hammer, Bennett, & Wiseman, 2003; Johnson, Lenartowicz, & Apud, 2006; Lloyd & Haertel, 2010). Three dimensions make up the

intercultural competence concept and model. The knowledge dimension refers to cultural literacy or the acquisition of knowledge and information regarding different cultural groups. The skills or behavioral dimension includes both abilities or specific skills acquired over time, and aptitudes or capacity for acquiring additional abilities within a specific skill-set. Finally, the personal attributes or affective dimension relates to personality traits in addition to the internalized values, norms and beliefs of one's own culture (Johnson et al., 2006; Lloyd & Haertel, 2010).

In this sense, and using KSAO terminology, the three dimensions encompass the requisite knowledge, skills and abilities necessary for using them effectively (Leiba-O'Sullivan, 1999). However, Johnson et al (2006) noted that possession of the requisite set of knowledge, skills, and personal attributes is insufficient, as it needs to be applied under what can often be "difficult and trying circumstances" (Johnson et al., 2006, p. 530). In their review, they found that researchers had not adequately distinguished between the possession of various attributes, knowledge, and skills, and the ability to use and adapt them within cross-cultural environments. In doing so, they identified a gap between knowing and doing.

In addition to competencies, the constructs of intercultural sensitivity and intercultural competences also have certain theoretical gaps in the literature, since the most cited frameworks come from authors that treat these two concepts indistinctly, coming up with models that refer to cultural awareness exclusively or to the factors of the potential effectiveness of the people possessing these competences. To address these particular gaps, and to find a more concrete concept to refer to within intercultural competences, cultural intelligence (CQ) comes into play. This construct covers the main assumptions of previous concepts such as cultural competencies, cultural sensitivity and cultural awareness; but adds a metacognitive dimension and is rooted in psychology and organizational behavior.

Postulates of cultural intelligence, assert that a person with this set of skills, knowledge and abilities, not only possesses them, but also knows how to apply them within intercultural environments. The construct then adds a fourth, metacognitive, component (Earley, 2002; Earley & Ang, 2003; Thomas & Inkson, 2004), that refers to cognitive control, or the connection between knowledge and behavior. Cultural intelligence is defined, therefore, as a system where knowledge and skills interact, articulated by cultural metacognition, allowing people to adapt, select, and shape the cultural aspects of their environment (Thomas et al., 2008).

Cultural intelligence is considered a theoretical extension of contemporary approaches to understand intelligence because, traditionally, the study of intelligence focused mainly on its academic or cognitive factors. In this regard, recent multiple intelligence theories (Sternberg & Detterman, 1986) have recognized new, non-academic, forms of intelligence. In this sense, cultural intelligence (CQ) is an ability consistent with a contemporary understanding of intelligence, just as emotional intelligence (EQ), for example, complements cognitive intelligence (IQ), and all of them are important for being able to adapt to others, develop high-quality relationships, and being effective in an interdependent world. Nevertheless, cultural intelligence (CQ) defines a new theory that differs from other types of intelligence in the sense that it focuses specifically on settings and interactions characterized by cultural diversity, and gathers together three loci of individual intelligence that are directly relevant to human interactions: mental (metacognition and cognition), motivational, and behavioral (Earley & Ang, 2003). Thus, it is a more complete and integral concept with more specific applications.

Regarding multiple intelligence theory (Gardner, 1993; Mayer & Salovey, 1997; Sternberg, 1977; Thorndike, 1920), cognitive intelligence is accompanied by social intelligence, which refers to an individual's ability to understand others and behave

accordingly (Thorndike, 1920), and by emotional intelligence (EQ), which is the ability to connect emotions with thought to regulate them in the search for emotional and intellectual growth (Mayer & Salovey, 1997). A more recent concept, cultural intelligence (CQ), can be included on this list (Earley & Ang, 2003). In this line, and motivated by the numerous challenges posed by the globalization phenomenon (Earley & Ang, 2003), cultural intelligence (CQ) was first introduced as a construct in the early 2000s in an attempt to explain how individuals perform differently when facing complex multicultural business contexts (Ang, Van Dyne, & Tan, 2011; Thomas, 2006). In this sense, culturally intelligent individuals have the ability to interact effectively, at personal and professional levels, while showing improved performance (Ang et al., 2007), because of their openness and competences for managing cultural differences. Cultural intelligence is culture-bound. This means that a culturally intelligent person can perform across different cultural settings, while emotionally intelligent individuals in one context may not be so when facing cultural differences. Cultural intelligence is not culture or context-specific, but specific to a particular type of situation. In this sense, the situation is exposure to cultural diversity (Ang et al., 2011).

According to Sternberg and Detterman (1986), intelligence should be considered a multidimensional construct, which means there is no general factor that accounts for all kinds of intelligence (Sternberg, 1999). With this, the authors assert that each form of intelligence goes beyond cognitive abilities and integrates three types of individual-level intelligence, namely practical, creative and analytical intelligence (Sternberg & Detterman, 1986). Ang and Van Dyne (2008) operationalized CQ as a construct composed of four factors, by drawing on Sternberg and Detterman's (1986) conceptualization. These four factors are: (a) metacognitive CQ, which refers to the individual's awareness of his or her own culture; (b) cognitive CQ, which relates to the knowledge possessed about other cultures; (c) motivational

CQ, linked to the individual's interest in interacting with other cultures in an effective manner; and (d) behavioral CQ, which consists of an individual's ability to adapt and modify his or her own behavior in order to interact in culturally diverse contexts (Ang et al., 2011).

In summary, the concept of cultural intelligence plays an important role as a latent, non-observable construct in the development of intercultural competences and multiple intelligence theory. Cultural intelligence –CQ- has cognitive, motivational, and behavioral facets that derive from the three dimensions described earlier – knowledge, skills, and attributes – and adds a fourth, metacognitive, factor, that covers aspects related to learning and adaptability. This refers to the fact that cultural intelligence is not only related to the possession of the behavioral repertoire but also to the ability for learning these behaviors (Earley & Ang, 2003). However, the concept "appears to be concerned more with acquiring and practicing appropriate behaviors than with applying them in real-life situations. In this respect, cultural intelligence, like traditional conceptualizations of cultural competencies, emphasizes learning over the application of that learning" (Johnson et al., 2006, p. 537).

Even though there are studies indicating that CQ is related to important cross-cultural outcomes such as adjustment and task performance (e.g., Ang et al., 2007), and to aspects such as personality (Ang, Van Dyne, & Koh, 2006; Ward & Fischer, 2008), international experience (Moynihan, Peterson, & Earley, 2006), global managers (Janssens & Cappellen, 2008), expatriates (Elenkov & Manev, 2009), negotiation sequences and outcomes (Imai & Gelfand, 2010), short-term business travelers (Tay, Westman, & Chia, 2008), and leadership and innovation (Livermore, 2015, 2016); a gap has been identified in the literature regarding antecedents, outcomes and associations with other constructs (Huff, Song, & Gresch, 2014). More specifically, global virtual teams in multinational organizations is a context where cultural intelligence has not been studied through empirical studies up until now. The dispersion of members, the communications means, and the competencies required in global

virtual teams led to speculate and undergo research relating cultural intelligence of their individuals to their performance within GVTs.

Individual Performance in Global Virtual Teams

Global virtual team outcomes have been studied from numerous perspectives. The following indicators are identified in the literature: a. Attachment (Riketta & Van Dick, 2005; van Knippenberg, 2000); b. Satisfaction (Brief & Weiss, 2002); c. Task performance, which refers to performance on the job that the person was hired to do (van Knippenberg, 2000); d. Contextual performance, which is related to "behavior that supports the organizational, social, and psychological environment in which task performance takes place, like helping others, taking others' interests into consideration, and presenting a positive image of the organization to outsiders" (van Knippenberg, 2000, p. 361); e. Motivation (Meyer et al., 2004, p. 992); and f. Quality of social relations (Asendorpf & Wilpers, 1998).

For this specific study, contextual performance was the outcome analyzed. It is also known as organizational citizenship behavior as will be explained below. In general terms, performance is defined as the "potential for future successful implementation of actions in order to reach the objectives and targets" (Lebas, 1995, p. 23). Thus, performance is highly contextual both regarding users and purpose, and depends on the objectives the organization defines for all its members, and includes in the organizational strategy. In summary, performance can be defined if the context is clear (Lebas, 1995). Performance is complex and there is no uniform metric for it. In consequence, "performance measures applied in the literature are very diverse, context driven and little attention has been devoted to developing accepted measurement tools" (Aubke et al., 2014, p. 152; Lebas, 1995).

Seeking to cluster performance measures, authors have distinguished between performance behaviors and performance outcomes (Beal, Cohen, Burke, & McLendon, 2003). Performance behavior is more adequate for establishing a measurement system, as it takes

into account individual levels of satisfaction, commitment, trust, shared knowledge, performance evaluations and compliance with results of virtual team members, among others (Lloyd & Haertel, 2010). These aspects are more behavior related than outcome related. Even so, there are difficulties when defining performance and determining how to measure it. Key indicators generally fall into two groups: “the first is effectiveness (quality improvement or innovation gains) and the second is efficiency (productivity increase through improved business processes)” (Turner & Minonne, 2010, p. 164). Effectiveness is often confused with efficiency. In terms of operationalization, efficiency can be operationalized more easily than effectiveness, because the latter is expressed for example, in new knowledge creation, while the former is related to numbers quantifying costs and time (Turner & Minonne, 2010). It can be said that efficiency is a better fit for an outcome performance category or task performance, and effectiveness for the behavior performance category or contextual performance.

At times, organizations work on achieving their knowledge management goals, and may become more efficient while not always improving their effectiveness. This is because efficiency is usually related to speed and cost, whereas effectiveness is about quality and purpose (Turner & Minonne, 2010). With this in mind, it is clear that by using a human oriented approach, or by accepting the social aspects of contextual performance, the latter precedes task performance or is even preferable. This approach provides longer-term success.

Knowledge sharing is key to measuring performance in global virtual teams. For instance, an internal flow of knowledge exists when the knowledge created by an individual is shared with team members, and then transferred to the team and codified. Finally, the codified knowledge becomes part of the organization’s knowledge system (Darroch & McNaughton, 2002; Turner et al., 2012). Knowledge management assumes that human knowledge is created and expanded through social interaction. It is this interaction that converts an individual’s

explicit knowledge into collective, structural and procedural knowledge (Turner & Minonne, 2010). Besides this, shared knowledge in team settings arises through joint training and experience gained through working together. When shared knowledge is incomplete in global virtual teams, individuals relate less to each other, and when team members are unable to relate, knowledge integration is less likely to occur (Pinjani & Palvia, 2013).

Furthermore, performance can be measured based on virtual team members' levels of satisfaction, commitment, trust, shared knowledge, quality of relations, and results compliance, among others (Lloyd & Haertel, 2010). Additionally, when evaluating virtual teams and their members, competency use-related performance, effective idea generation, member coordination and final project development are also evaluated (Maynard et al., 2012). Certain skills are also considered necessary for qualifying the effectiveness of global virtual team members including trust, quality of communications, and cultural adaptation (Chang et al., 2011), and other aspects have been added to those that make an effective team, including the task itself, technology use, training and development, and work and team processes (Berry, 2011).

The integration of team members' knowledge, attitudes, skills and experience can help promote performance and improve satisfaction by offering rapid, flexible and innovative responses to problems and challenges (Rico, Alcover de la Hera, & Tabernero, 2010). "At a minimum, individual participation in teams requires self-knowledge, trust, commitment and flexibility" (Mickan & Rodger, 2000, p. 204). Individual effectiveness or performance refers to the outcomes expected to be obtained from the members of a group as a consequence of the desirable inputs related to each one's role (Harrison & Klein, 2007). The concept can be operationalized by bringing together several non-financial indicators that can jointly measure how effective an individual is within a group (Guillaume et al., 2012).

As stated before, from a human perspective, performance is preferably viewed as behavior. This is in line with Motowidlo's (2003) definition, who considered job performance as the total expected value achieved by an individual over a standard period of time, for the organization, over discrete behavioral episodes (Motowidlo, 2003). According to this definition, job performance has three characteristics: (a) It is related to behavior, (b) It relates to discrete behavioral episodes, and (c) It refers only to behaviors that are relevant to the organization's goals (Asiedu-Appiah & Addai, 2014).

Performance analysis mistakenly often focuses on outcomes because results metrics are easily identified and quantified (e.g., output, time spent, sales, turnover, profits). But performance involves what people do and is reflected by the actions individuals implement. It cannot be measured exclusively from the results of those actions, because these are influenced by individuals and are also affected by factors outside people's control (Motowidlo, 2003). The discrete behavioral episodes refer to the actions performed by individuals on a daily basis, that may or may not be related to job performance, but whose behavior impacts the organization's desired results or goals (Motowidlo, 2003). A behavior is considered to be favorable or unfavorable to the organization depending on its consequences or outcomes.

Based on the foregoing, analysis is required at an individual level, since behavior can only be observed in individuals, and in the relationships they establish with others. Given that it is impossible to specify all the knowledge possessed by an individual, "the social component of knowledge-related activities (tacit knowledge transfer, teaching and learning processes, etc.) must be taken into account" (Ale, Toledo, Chiotti, & Galli, 2014, p. 77). It is also important to state that "the processes of encoding, storing, and retrieving information occur at both the individual level and the team level, but the difference between the two is the social aspect that is required at the team level" (Turner et al., 2012, p. 971). It is therefore time to embrace the fact that the performance of global virtual teams is a social matter, and

organizations that are able to stimulate and improve the knowledge of their human capital are far better prepared to face new challenges, adapt to the rapid changes of today's world, and be more competitive (Carneiro, 2000; Nonaka, 1991).

The concept of contextual performance provides a more fitting way to evaluate individual performance, which is far more complex than task performance, and sheds light on what people's personalities can and will contribute to the team and the organization. Contextual performance is defined as "behaviors that do not support the technical core itself so much as they support the broader organizational, social, and psychological environment in which the technical core must function" (Borman & Motowidlo, 1993, p. 73). It consists of non-job-specific behaviors like, for example, cooperating with coworkers and showing dedication (Conway, 1999). In other words, it is the voluntary, positive job behavior of employees that go beyond specified job or task-related behaviors (Spector & Fox, 2002).

The distinction between task performance and contextual performance was introduced by Borman and Motowidlo (1993). Task performance refers to the job a person was hired to do; it is formally specified and mandated by the job description and is related to the organization's technical core or the activities that directly transform inputs into outputs (Jawahar & Ferris, 2011; van Knippenberg, 2000). However, often compliance with formal job requirements is not sufficient, and workers need to go beyond what is formally required (Parker, Williams, & Turner, 2006).

Contextual performance is more discretionary behavior, not formally required but certainly appreciated and valued. It contributes to creating a social context for all jobs, thus facilitating effectiveness. Behaviors such as volunteering, demonstrating effort, helping and cooperating with others, following rules and procedures, and supporting organizational objectives are within the scope of contextual performance (Borman & Motowidlo, 1993, 1997; Organ, 1988, 1997). It includes behaviors that contribute to organizational effectiveness

through their impact on the psychological, social, and organizational context of the work.

This behavior could also include sharing knowledge with others, preparing adequately for job assignments, proactively addressing work issues, influencing others to carry out organizationally valuable work, defusing hostility and conflict, and encouraging interpersonal trust, among others. Contextual performance is demonstrated by employees that follow the organization's rules and policies, go the extra mile, help and cooperate with others and share information with colleagues, in order to solve work related issues (Borman & Motowidlo, 1993, 1997). It should ultimately lead to cooperation, cohesiveness, and improved morale at the group level and will positively impact group member performance (Asiedu-Appiah & Addai, 2014).

In contextual performance, similar activities are analyzed across jobs, while task performance focuses on particular activities that vary across jobs. Here it is important to understand that each global virtual team created by an organization has a specific task and objective (Berry, 2011; Chang et al., 2011). This means the activities analyzed under task performance are role-prescribed, connected to job requirements, and therefore more likely to appear on a performance appraisal form. In contextual performance, actions are discretionary and external to the role.

It can be assumed that contextual performance relies less on skills, abilities, and resources than task performance does, and that contextual performance is linked to personality and motivation (Borman & Motowidlo, 1993, 1997; Conway, 1999; Hosie & Nankervis, 2016; van Knippenberg, 2000). Contextual performance is thus defined as "behavior that supports the organizational, social, and psychological environment in which task performance takes place, like helping others, taking others' interests into consideration, and presenting a positive image of the organization to outsiders" (Borman & Motowidlo, 1993; Organ, 1997; van Knippenberg, 2000). All aspects of contextual performance

emphasize behaviors that involve cooperation and helping others in the organization, and behaviors that ultimately contribute to organizational effectiveness (Hosie & Nankervis, 2016). Because contextual performance by definition refers to behaviors that individuals are not required to perform, an employee can more easily refrain from contextual than from task behaviors.

Contextual performance is virtually identical to Organ's (1988) concept of Organizational Citizenship Behavior (OCB), defined as "individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization" (Borman & Motowidlo, 1993, 1997; Conway, 1999; Jawahar & Ferris, 2011; Organ, 1988, p. 4; van Knippenberg, 2000). Later, in 1997, Organ recognized that contextual performance was the same as Organizational Citizenship Behavior, but stated that the difference was that contextual performance, as defined, does not require the behavior to be external to the role (discretionary) or unrewarded. Ultimately, "the defining quality is that it be "non-task," or more to the point, that it contributes to the maintenance and/or enhancement of the context of work" (Organ, 1997, p. 90). Therefore, both the terms and the intent of OCB and contextual performance are interchangeable (Hosie & Nankervis, 2016). The origins of OCB are pointed to the social exchange theory, which posits social change and stability is a process of negotiated exchanges between parties. Taken this assertion to the context of an organization, employees' relationships and team work are formed by the use of a subjective cost-benefit analysis and the comparison of alternatives (Blau, 1964).

The literature suggests that contextual performance improves the effectiveness of work groups and organizations as a whole (Podsakoff & MacKenzie, 1997). Moreover, contextual performance benefits the task performance of the work unit (Podsakoff et al., 1997). Overall, "the extra-role behaviors immersed in contextual performance, although hard

to quantify and calculate, contribute immensely to organizational efficiency and effectiveness" (Garg & Rastogi, 2006, p. 533). Therefore, contextual performance in global virtual teams includes each individual's perceptions about their relationship with other group members, and about the support received from their peers, the extent to which individuals perceive themselves as included in a work group (Guillaume et al., 2012), and the outcomes obtained regarding to the goals set at the moment the team was formed. Since this research implied that organizational and group effectiveness is the result of a set of skills, capabilities, knowledge and competencies possessed by a team; effectiveness was conceived at an individual level, as described previously. Contextual performance has been widely studied in different contexts, but global virtual teams remain as scenarios lacking empirical studies for these aspects, especially when it is related to cultural intelligence. Research has been developed in traditional work teams and culturally diverse samples, but not in virtual ones, where communication is mediated by information technologies at all times.

Cultural Diversity in Global Virtual Teams

Team composition refers to the mix of team member characteristics including demographic attributes, personality, and knowledge, skills, and abilities (Kirkman & Shapiro, 2005), and diversity in organizations refers to differences between individuals in the workplace regarding any attribute that may evoke the perception that the other person is different from oneself. A better definition is the distribution of differences among the members of a unit with respect to a common attribute (Guillaume et al., 2014, 2012; Guillaume, Dawson, Woods, Sacramento, & West, 2013; Harrison & Klein, 2007; Roberge & van Dick, 2010; Williams & O'Reilly, 1998). This is a cross-level construct where the individual attribute of an employee, and the distribution of that attribute within the work group constitute an interactive function (Guillaume et al., 2014; Riordan, 2000).

Research on diversity is based on several theories that cover the way it is conceived (compositional vs. relational), its effect on organizations (social categorization vs. information/decision-making) and the types of dissimilarities that can be identified (surface-level vs. deep level). Soldan (2010) made a distinction that several authors make when talking about the concept of diversity. There are those that classify its attributes into four categories (biographical, personality, ability, leadership). Others distinguish between readily detectable (gender, ethnicity) and less observable (attitudes, personality, beliefs) attributes. And other authors like Harrison, Price and Bell (1998) differentiated between surface-level (demographic and physical characteristics) and deep-level (attitudes, beliefs, values) diversity.

The bulk of the literature is made up of research using the compositional approach (Harrison & Klein, 2007; Williams & O'Reilly, 1998), and includes both theoretical/conceptual and empirical studies. Research using the relational approach has received far less attention and no meta-analyses are available (Guillaume et al., 2012). Under the compositional approach, diversity refers to the distribution of differences among the members of a work group or organization while the relational approach discusses the dissimilarity between a focal individual and other group members or peers (Guillaume et al., 2012, 2014, 2013; Harrison & Klein, 2007; Riordan, 2000).

Diversity in work groups, from the perspective of the relational approach, is defined as the differences between a focal group member and his or her peers regarding certain attributes that can be demographic (age, ethnicity/race, gender, and tenure) or idiosyncratic (personality, attitudes, values, and beliefs) (Riordan, 2000). As it is expanded on below when defining cultural diversity, dissimilarity in this specific study refers to idiosyncratic differences using nationality as a proxy for culture-related values, norms, beliefs and thoughts related to the country a person belongs to. In contrast to the compositional approach, the relational approach goes further by stating that dissimilarity between group members may vary

substantially within a diverse work group, and concentrates on individual-level rather than group-level outcomes (Guillaume et al., 2012, 2014; Riordan, 2000). So, by adopting this theoretical approach, diversity is defined at the individual-within-the-group level, "where a person's relative standing within a group is of interest, and how this relative standing affects a person's work-related outcomes at the individual level (e.g., attachment, satisfaction, quality of social relations, turnover, task, and contextual performance)" (Guillaume et al., 2012, p. 82). Given this focus, the relational perspective also suggests that diversity is detrimental to, rather than facilitating, the group member's work-related outcomes (Guillaume et al., 2012).

Regarding the effect that diversity has on organizational outcomes and processes, there are two approaches that claim either negative (social categorization) or positive effects (information/decision-making). These are the two most common theoretical approaches found in diversity management literature (Christian, Porter, & Moffitt, 2006; Williams & O'Reilly, 1998). Scholars draw on the social categorization perspective to state that that people are attracted to working with others they find similar in terms of values, attitudes and norms. So this approach focuses on the negative effects of diversity on work outcomes due to the fact that it hinders social processes (Riordan, 2000; Stahl et al., 2010; Williams & O'Reilly, 1998).

From this point of view, diversity in workgroups could increase conflict, lower identification and commitment, provoke absenteeism, weaken employee attachment, lead to discrimination, and can, in consequence, be detrimental to satisfaction and performance (Christian et al., 2006; Guillaume et al., 2013). The social categorization approach, specifically the network paradigm, makes mention of the theory of homophily, which "refers to the tendency for people to interact more with their own kind (in terms of individual characteristics)—whether by preference or induced by opportunity constraints" (Borgatti & Foster, 2003, p. 999; McPherson & Smith-Lovin, 1987). This theory has also served to study

its effects on group and individual performance outcomes (Krackhardt & Stern, 1988; Reagans & Zuckerman, 2001), including transmission of knowledge, conflict, and coordination (Borgatti & Foster, 2003).

On the other hand, researchers draw on the information/decision-making perspective to explain positive effects on work outcomes (Williams & O'Reilly, 1998). This perspective suggests that diversity is likely to enhance performance in diverse work groups or organizations as it brings different contributions to teams. According to the authors that use this approach, diversity allows the organization to draw from a larger pool of talent and increases its capacity to innovate and make better decisions (Guillaume et al., 2013). Also, diversity can provide people with a wider range of knowledge, information, skills and abilities, which in return may lead to greater creativity, learning and improved decision-making (Christian et al., 2006; Stahl et al., 2010). But this happens only when the individuals in the group have the appropriate knowledge, skills and competencies to take advantage of resources available to them (Guillaume et al., 2014; Williams & O'Reilly, 1998).

Notwithstanding the existence of theoretical work on these two approaches, the meta-analytic evidence is equivocal, indicating that they are of little use for explaining the effects of diversity on work outcomes (Guillaume et al., 2013). Thus, this study used the information/decision-making approach, since positive effects on individual performance are only possible if team members are culturally intelligent. Finally, there are certain taxonomies used to classify the types of diversity found in an organization. They depend on how visible the attributes are, so surface and deep dissimilarities exist (Harrison et al., 2002; Riordan, 2000). Surface-level diversity refers to demographic attributes that are observable in simple ways, such as age, gender, race/ethnicity, and tenure (Guillaume et al., 2012), while deep-level diversity is related to differences in team members' psychological characteristics, including personalities, values, and attitudes (Harrison et al., 1998; Stahl et al., 2010). The

attributes studied under the deep-level diversity include deeper, non-observable aspects such as values, attitudes, and personality (Guillaume et al., 2012). Nationality in cultural diversity serves as a proxy for these aspects, since people's culture provides them with values, norms, thoughts and attitudes, that distinguish them from their peers. Deep-level diversity is, therefore, related to cultural and personal characteristics, including idiosyncratic attitudes, values, and preferences (Pinjani & Palvia, 2013).

The majority of research on team composition or diversity has focused almost exclusively on demographic attributes that are visible or surface-level such as age, gender, race or ethnicity, and job-related attributes such as organizational tenure and function (Kirkman & Shapiro, 2005). Therefore, there is a need for diversity research focusing on the cultural attributes of team members (Earley & Mosakowski, 2000). In this matter, it is important to state that knowledge is shaped, evaluated, discarded or embraced by humans who do so based, among other things, on their social and cultural assumptions (Zakaria et al., 2004), so taking cultural aspects into account is fundamental when trying to understand how knowledge flows within the organization.

Culture has been defined as "the collective programming of the mind which distinguishes the members of one group or category of people from another" (Hofstede & Hofstede, 2005, p. 9). It is a concept that has been defined by many authors, and commonalities can be found amongst their definitions. These commonalities suggest that culture consists of values, norms, practices, and, moreover, it represents the way the members of that culture capture, understand and share their physical and social environment (Cohen, 2009; Gelfand, Erez, & Aycan, 2007; Triandis, 1994). Culture also has an impact on how members think and act in their socialization processes (Hofstede & Hofstede, 2005; Schwartz, 2009; Triandis, 1994). In other words, cultural differences refer to the extent members of a culture share values, norms, or thought systems. If people differ in ways not stemming from

these aspects, their differences might create diversity, but do not reflect cultural differences (Ferdman & Sagiv, 2012). Cultural values are defined as the "consciously and subconsciously held set of beliefs and norms – often exhibited in the morals, laws, customs, and practices of a society – that define what is right and wrong and specify general preferences" (Adler, 2002; Kirkman & Shapiro, 2005, p. 42).

Several authors have studied differences in values across countries through large-scale studies (Hofstede, 1984; House, Javidan, & Dorfman, 2001; Kluckhohn & Strodtbeck, 1961; Schwartz, 1992; P. B. Smith, Dugan, & Trompenaars, 1996; Trompenaars, 1993) indicating that values are attached to the countries people where are born or have lived. Thus, national culture has been studied as one notable source of diversity (Ferdman & Sagiv, 2012). Cultural diversity, therefore, is the extent to which members of a team are heterogeneous with respect to cultural values acquired in their country of affiliation or national culture (Ferdman & Sagiv, 2012; Kirkman & Shapiro, 2005; Shachaf, 2008; Van der Zee et al., 2004). Here, cultural diversity is defined as the heterogeneity of the national cultures of team members, who share values, norms, thought systems, and behaviors. An individual's national culture is considered to be that of his or her country of residence or upbringing (Shachaf, 2008).

There are cultural patterns that make up cultural diversity, such as ways of thinking, feeling, and acting. These are usually acquired in early childhood, when a person is most susceptible to learning and assimilation. Therefore, these patterns are deeply embedded and unlikely to change substantially (Hofstede & Hofstede, 2005). It has also been said that national culture has an impact on executive mindsets (Nielsen & Nielsen, 2013). In this sense, the members of a culture share worldviews, sociocultural heritages, norms, and values, and differences in cultural backgrounds have an effect on belief structures, priorities, assumptions, attitudes towards power, role opinions, perceptions of information, and cognitive processes (Pieterse, van Knippenberg, & van Dierendonck, 2013).

Thus, nationality as a proxy for cultural diversity can be seen as a positive predictor for teams as it can provide a wide range of knowledge and experience (Nielsen & Nielsen, 2013), or it can be seen as negative when it creates conflict, lower cohesiveness and slower decision making, because culture determines communication patterns, interaction styles, and thought systems (Earley & Mosakowski, 2000; Nielsen & Nielsen, 2013). Even though one can infer from the literature that cultural diversity is a predictor of performance, this claim is not sufficiently supported by the scarcity of empirical studies in existence (Shachaf, 2008). The research therefore requires studies that take into account the effects of cultural diversity, in situations where teams benefit from it or where it is detrimental (Pieterse et al., 2013).

Regarding the impact of cultural diversity, cultural differences are generally perceived to represent a challenge to the effectiveness of communications and knowledge sharing in general and to the exchange of complex ideas and notions in particular (Gibson & Gibbs, 2006; Maznevski & Chudoba, 2000; Stahl et al., 2010). However, these differences may sometimes have a favorable effect on knowledge since intercultural encounters make contextual and tacit knowledge richer and more explicit (Earley & Mosakowski, 2000; Klitmoller & Lauring, 2013). Consequently, diversity management is needed. There is a general consensus among researchers as to what this refers to, but little agreement regarding the effect it has on the workplace (Christian et al., 2006). Managing diversity includes effectively incorporating and taking advantage of differences, and dealing with their effects on organizational systems, such as personnel selection, hiring, promotion, development, evaluation, talent management, positioning, and training, among others (Ferdman & Sagiv, 2012).

As for the relationship between cultural diversity and individual performance in global virtual teams, this study drew on the information/decision-making approach, which suggests that cultural diversity might have positive effects on performance, especially if it exists in

high levels, but only if there are culturally intelligent individuals performing in a global virtual team. In this regard, information and communication technologies in global virtual teams impact the way individuals and teams communicate, work and establish relationships. Thus, team members need to develop special communication and learning skills so as to work together effectively across cultural, organizational and geographical boundaries (Zakaria et al., 2004). These communications and learning skills are very much influenced by cultural intelligence.

It was important to choose the most suitable of the different theories and approaches to support the theoretical model proposed for this study. Since individual contextual performance has been presented as the dependent construct, this research was based on the relational theory, which conceives diversity as individual-within-the-group dissimilarity. Also, as stated before, cultural diversity uses nationality as a proxy to identify differences in shared values, norms, beliefs and systems of thought, so its cultural diversity can be categorized as deep-level according to the proposed taxonomy. Finally, the information/decision-making perspective theoretically supports the hypothesis that the more culturally diverse a team is, the easier is to achieve high levels of individual performance as long as there is cultural intelligence enhancing it.

Summary

The variables identified for this study were: Cultural diversity, Cultural Intelligence, and Contextual performance in Global Virtual Teams. These variables constituted the structure of the literature review to make it more manageable, but it is in the lacking empirical studies relating all the variables, where the present research was focused on. The literature review was a profound and detailed review of the main theories, discussions and criticism related to these variables, which consequently led to formulate the relationship between them. Theory says that cultural intelligence entails more competencies and dexterity in diverse

scenarios, so it was expected a positive relationship between these two variables in global virtual teams. And even though cultural diversity is inherent to GVTs, there are some more diverse that others, which could modify the mentioned relationship.

Conclusion

The literature served as doorway into the different approaches taken by authors regarding the concepts chosen for this study. This doorway ultimately led to certain theories and approaches that configured the basis for a further operationalization of the variables and for the fieldwork where information was gathered for proving the hypotheses. Ample, clear literature exists on the concepts of cultural diversity, cultural intelligence, and individual contextual performance or organizational citizenship behavior, meaning, that there are clearly identified theories that support them.

On the other hand, global virtual teams fall under a less profound theoretical framework, and their conceptualization depends on the purpose of each study. It is worth pointing out that global virtual teams, as well as all other constructs are of interest to the fields of organizational behavior and management. Regarding the relationship among constructs, literature has not shown studies of cultural intelligence within global virtual teams, or research where cultural intelligence is related more specifically to individual performance in global virtual teams. So these were evident gaps in literature embraced by the present study.

Chapter 3: Method

As outlined in Chapters I and II, this study analyzes the relationship between Cultural Intelligence (CQ) and individual performance in Global Virtual Teams (GVTs). The research objective and theoretical foundation already provided in previous Chapters were the starting point for designing this study's methodology. The hypothetical model proposed required an appropriate research design that would allow answering the research question and testing the proposed hypotheses.

The sample was taken from a multinational services company with over 2,000 employees located in 32 countries. Almost all its employees work in virtual teams, which are created either for daily work or for specific projects. Global virtual teams are in fact a part of this company's DNA. The following paragraphs describe the research design and the reasons it is appropriate, and subsequent sections will provide detailed information regarding sampling, data collection and information analysis.

Research Design

This research followed a quantitative approach, with variables measured using a survey with standardized instruments and indicators. The study was sequential and probationary (Hernandez-Sampieri, Fernandez-Collado, & Baptista-Lucio, 2010) and followed a rigorous process with steps that went from the statement of the problem, to the formulation of research questions and hypotheses, a literature review, data collection, an analysis and extraction of results and conclusions, to answer the research question (Hernandez-Sampieri et al., 2010). A plan was designed to test the hypotheses by measuring the variables within a given context (Hernandez-Sampieri et al., 2010). Relationship between variables was identified to understand the impact of the variation of the independent on dependent variable.

More specifically, this study followed a cross-sectional, non-experimental, correlational, quantitative research methodology. The sample was not randomized, the employees belonging to global virtual teams in a particular organization were selected by convenience as responders. The instruments were composed of scales intended to measure cultural intelligence and contextual performance together with an indicator to measure cultural diversity within each global virtual team.

Appropriateness of Design

The research study was correlational in scope because it aimed at offering predictions of how certain variables behaved according to the variation of an independent variable, and at explaining the relationship between those variables and quantifying those relations (Hernandez-Sampieri et al., 2010). The purpose of correlational studies is to find the level of relationship or association between two or more constructs in a particular context, and they are based on hypotheses that can be tested. In correlational research there is partial explanatory value, and this predictive power relies on the fact that two variables are related if one of them varies when the other does (Hernandez-Sampieri et al., 2010).

The design was non-experimental, as no experiments or control situations were run where independent variables were manipulated (Yin, 2014). Non-experimental research is carried out without deliberately manipulating variables, meaning that independent variables are not intentionally varied to see their effects upon other variables. Phenomena were observed just as they appeared in their natural context for subsequent analysis. No situations were generated, and existing situations were observed instead, so independent variables simply occurred, as did their effects on others, and could not be manipulated, controlled or influenced (Hernandez-Sampieri et al., 2010; Yin, 2014).

Responders were approached at the same time and all the information was gathered at the same precise moment, making the research cross-sectional (Babbie, 2007). Cross-

sectional designs collect data at one unique moment in time. They aim to describe variables and analyze their incidence or interrelation at a given moment, like taking a snapshot of something that is happening. In cross-sectional studies, causes and effects have already happened or are happening as the study develops, so the researcher observes and reports on them (Hernandez-Sampieri et al., 2010).

Regarding methodological fit, management field research is defined as "systematic studies that rely on the collection of original data in real organizations" (Edmondson & McManus, 2007, p. 1155). The appropriateness of the methodological decisions made when conducting fieldwork in organizations depends on the current state of the theory and literature (Edmondson & McManus, 2007). Theories can therefore be categorized into mature, nascent or intermediate, meaning that the overall body of theories on a certain subject and the level of agreement of the authors within the literature will give insight into how well developed those theories are. Mature theories have "well-developed constructs and models that have been studied over time with increasing precision by a variety of scholars, resulting in a body of work consisting of points of broad agreement that represent cumulative knowledge gained" (Edmondson & McManus, 2007, p. 1158). On the contrary, nascent theories offer embryonic propositions that tentatively answer novel questions and suggest new connections between phenomena. Intermediate theories, the third category, are still developing, positing provisional explanations for phenomena, using existing constructs and proposing relationships with newly introduced ones (Edmondson & McManus, 2007).

When a theory is considered mature, the research questions of a study "tend to focus on elaborating, clarifying, or challenging specific aspects of existing theories" (Edmondson & McManus, 2007, p. 1159). Thus, by applying quantitative methods for example, a researcher might "test a theory in a new setting, identify or clarify the boundaries of a theory, examine a mediating mechanism, or provide new support for or against previous work" (Edmondson &

McManus, 2007, p. 1159). Such is this study, where the theory on cultural intelligence and contextual performance (organizational citizenship behavior) is broad, consensual, and has been around for several years now. Also, with regard to performance, even Edmondson & McManus (2007), in their literature review of existing theories, mentioned team effectiveness as an example of a mature theory, and stated that many empirical studies exist providing statistical support for consistent correlational models.

The hypotheses established for the study were built upon prior work, drawing from the literature the need to test new relationships between previously well-defined constructs to produce a theory of variance (the increase of a variable associated with the increase of another variable) (Edmondson & McManus, 2007). Thus, a quantitative research design is based on correlation analysis, which relies heavily on "statistical analyses and inferences to support new theoretical propositions" (Edmondson & McManus, 2007, p. 1159). This methodology was appropriate, therefore, because the constructs within the body of the literature are well understood, and also because reliable and valid metrics exist for the constructs, and quantitative data was required to test the hypotheses (Edmondson & McManus, 2007).

Data collection took place within an organization that provided information about the studied phenomenon and allowed examining contemporary events wherein relevant behaviors could not be manipulated. This was consistent with the non-experimental nature of the design. Also, in line with its correlational scope, the question proposed dealt with the operational links that needed to be traced (Leonard-Barton, 1990; Yin, 2014). Within the positivist tradition, four criteria are commonly used to assess the rigor of field research. Therefore, this research also had to comply with the criteria defined for judging quality. These criteria were construct validity, internal validity, external validity, and reliability (Campbell, 1975; Yin, 2014).

Several authors consider surveys a type of design (Creswell, 2009; Hernandez-Sampieri et al., 2010; Mertens, 2005; Yin, 2014). According to the foregoing classification, surveys occupy the role of non-experimental, cross-sectional, and correlational research. Surveys are also understood as data gathering methods or techniques (Neuman, 2011), and surveys are used in studies that use individuals as units of analysis, acting as informants or respondents. Babbie (2007) stated that surveys are useful in social research because they help collect data for describing populations that are too large to observe directly, and also for measuring attitudes and orientations. In this sense, the questionnaire, as part of the survey methodology, is an instrument that elicits helpful information for analysis, particularly "quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample" (Creswell, 2009, p. 145).

This study used existing, standardized and validated instruments that have already operationalized latent variables or constructs. These is explained in detail in the instrumentation section. The study applied self-reported questionnaires to global virtual teams' members, and respondents filled them out virtually according to the rationale of global virtual team communications, and responding to the fact that global virtual team members are located in several different places.

Research questions

This study formulated the following research questions: (a) Is there a relationship between Cultural Intelligence (CQ) and Individual Performance (IP) in Global Virtual Teams (GVTs)? and (b) Does cultural diversity moderate the relationship between cultural intelligence and individual performance? The questions were based on the current organizational dynamic of multinational enterprises that set up global virtual teams to develop projects or to conduct formal work, and on the need to undertake empirical studies on the relationship between cultural intelligence and performance in global virtual teams.

Hypotheses

The hypotheses proposed for the present study were:

H_1= Cultural Intelligence is positively related to individual performance in Global Virtual Teams.

H_2= Cultural diversity moderates the relationship between cultural intelligence and individual performance in Global Virtual Teams.

Hypotheses are divided into a and b, since the regression paths showing correlation are between CQ and OCBI, and CQ and OCBO. Hypothesis 1 refers to the positive relation between the constructs, and hypothesis 2 denotes the moderation effect of cultural diversity on the relation. Hypotheses can be seen in Figure 3.

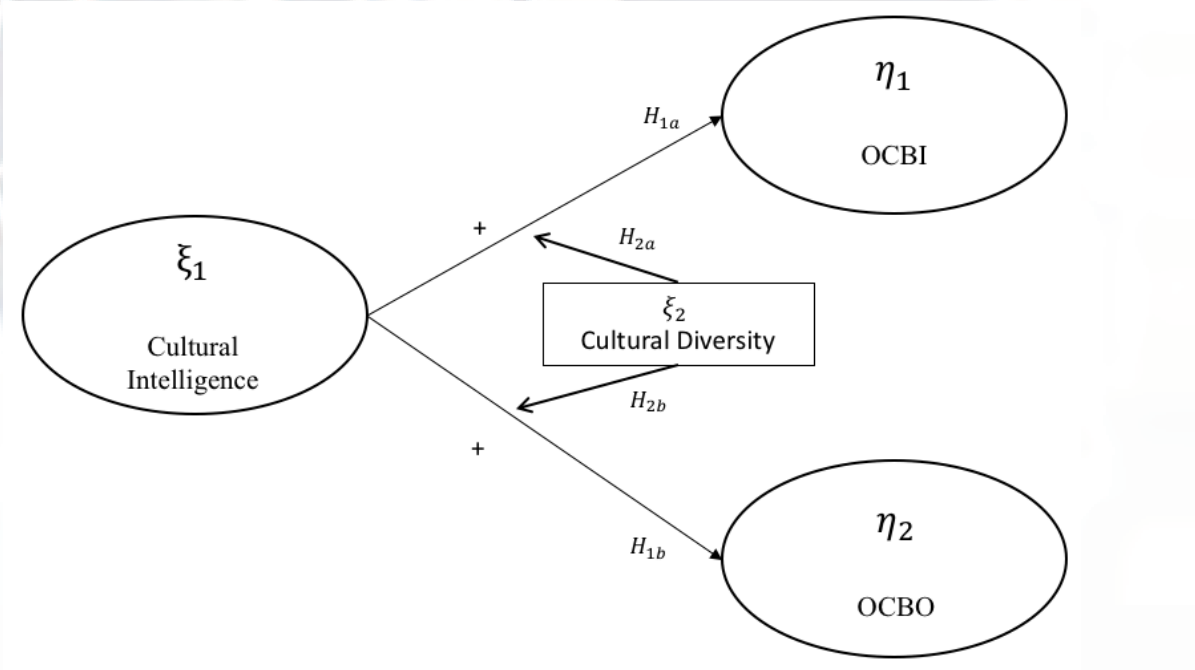

Figure 3. Theoretical model stating the hypotheses to be tested

Population

The population was comprised of global virtual team members working within the organization selected as the setting for the study. This specific organization has a culture of working globally and virtually on a daily basis through team creation. GVTs are also constantly set up to work on particular projects, making global virtual teams very common in

the organization. This means almost all the company's employees work via and are members of global virtual teams. Global virtual teams constitute a global trend, and are a welcome practice within the company, making it a very significant setting.

This multinational company had a population of up to 2,000 employees, and the sample size needed considered two aspects: (a) the minimum number of respondents required to fit the data analysis method selected for the study (Structural Equation Modelling –SEM-) was at least 200, which is explained in detail in the section on the sampling frame, and, (b) the normal response rate for online surveys. These two requirements led the researcher to find certain actions and strategies to obtain no less than 200 responses when sending the questionnaire out to respondents. Kline (2011) stated that it helps to think about of recommended sample sizes in more absolute terms, stating that a "typical sample size in studies where SEM is used is about 200 cases. This number corresponds to the approximate median sample size in surveys of published articles in which SEM results are reported" (Kline, 2011, p. 12).

As the data collection method used was an online survey, quantitative data were expected to be obtained, and respondent participation was voluntary, it was important to be aware of the usual response rates for online surveys. Several papers dealing with this subject were revised and they all coincided on an online survey response rate of between 23% and 33% (Deutskens, de Ruyter, Wetzels, & Oosterveld, 2004; Nulty, 2008; Watt, Simpson, McKillop, & Nunn, 2002). With this in mind, a minimum of 200 observations was guaranteed from a sample of at least 700 people, according to recommendations for conducting SEMs (Hair, Black, Babin, & Anderson, 2010; Kline, 2011; Pui-Wa & Qiong, 2007).

Participants were reached through a company corporate director, who was also the contact person granting access to the company (setting/field), and by identifying employees who were members of global virtual teams. The fact that the organization's workers are

accustomed to working virtually was an advantage for obtaining high response rates, because of respondent knowledge (Evans & Mathur, 2005). Internal survey distribution (from within the organization), also helped to generate high response rates (Nulty, 2008).

Informed Consent

The following process was used to enlist voluntary participants in the research study. First, access to the setting was requested, and potentially fruitful results the research can provide for the company were explained. The request also highlighted that information was to be gathered for academic purposes, and that anonymity and confidentiality would be preserved at all times. Second, the contact person in the company identified employees who were members of global virtual teams, which were practically all of them (the company has around 2,000 employees). Third, the study's purpose and nature was described at the start of the survey as a preamble to the informed consent, which individuals had to agree to before filling out the survey.

Fourth, a text requesting informed consent from each participant was displayed as a condition before they could begin answering questions, meaning that, if they did not provide consent, participants could not proceed with the survey. Informed consent's text is shown in Appendix A. It appeared online and, by checking a box, participants agreed to become respondents and provide their information, which is considered equal to a signature granting permission.

Sampling frame

The sampling frame required identifying the study population and then the individuals within the population providing the information (Creswell, 2009). This implied access issues, but the researcher also needed to be meticulous and systematic when choosing an appropriate sample for the study (Neuman, 2011). Sampling is the process of selecting observations (Babbie, 1990, 2007). It can be classified as random or non-random, depending on the

characteristics of the respondents providing the data (Babbie, 2007; Creswell, 2009; Neuman, 2011). Random sampling is based on probability theory, but social research is often carried out in situations that do not allow for the kinds of probability used in large-scale social surveys, so random sampling can be either impossible or inappropriate in many research situations (Babbie, 2007; Creswell, 2009; Neuman, 2011). This study focused on employees that belong to global virtual teams, and as there was no list of all the people that worked globally and virtually in teams, nor was it possible to create such a list, non-probabilistic sampling was appropriate in this situation (Babbie, 2007).

A methodological decision made for this study was to use non-random, convenience sampling , wherein a sample is selected "on the basis of knowledge of a population, its elements, and the purpose of the study" (Babbie, 2007, p. 184). In other words, when selecting participants for convenience sampling they must be "easy to reach, convenient, or readily available" (Neuman, 2011, p. 248). The research also followed a single stage sampling procedure, where the researcher had access to names within the population and could sample people (or other elements) directly (Creswell, 2009). The sample was not clustered or stratified into groups, as no categories were identified for participants: they were all global virtual team members. Again, people were chosen based on the "knowledge of the population, its elements, and the purpose of study" (Babbie, 2007, p. 184), or due to convenience and availability (Babbie, 1990, 2007).

Sampling took place in an organization that complied with certain practical and necessary conditions to carry out the research. First, it provided the researcher with a greater degree of control over actual behavioral events; second, it delivered events which were contemporary (Yin, 2014); third, phenomena and context were intertwined (Eisenhardt, 1989; Johnston, Leach, & Liu, 1999; Løkke & Sørensen, 2014; Yin, 2014); fourth, the setting was appropriate for contributing and creating management-relevant knowledge (Amabile et al.,

2001; Leonard-Barton, 1990) because of the rich context it provided; and fifth, the setting allowed understanding the phenomenon at several levels of analysis (individuals or groups), or if these could only be understood as part of a larger context (Løkke & Sørensen, 2014).

This study included a considerable number of theories to be evaluated regarding cultural intelligence, contextual performance and the relations among these constructs, and it also required a setting that met a series of requirements set forth below (Gibbert, Ruigrok, & Wicki, 2008). So the selection of the setting responded to the rationales of being critical, unusual, common and revelatory (Yin, 2014). Critical refers to the extent to which the setting is critical to the theory and theoretical propositions, so in this case, the organization that has a learning culture where working in virtual teams is common, and where workers are in different locations. The second rationale refers to the setting being unusual, as in it represents an unusual situation that deviates from everyday occurrences (Yin, 2014). The aforementioned circumstances, a multinational organization with globally dispersed workers who belong to global virtual teams, met this condition. Although global virtual teams have been increasing rapidly, in practice it was not easy to find an organization with these characteristics. Third, a common setting refers to the objective of capturing the events during an everyday situation, because of the lessons that could be learned about the social processes with theoretical interest (Yin, 2014). Again, the organization chosen had assimilated global virtual teams as a way of working, and the individuals were used to working in virtual teams on a daily basis.

Finally, the fourth rationale speaks to the revelatory nature of the setting. This happens when the “researcher has an opportunity to observe and analyze a phenomenon previously inaccessible to social science inquiry” (Yin, 2014, p. 52). To respond to this rationale, the nature of the research question and hypotheses required access to a field, meaning that the organization must have granted the researcher access to the members of global virtual teams.

Individuals were the units of analysis and the data collected were related to individual cultural intelligence and contextual performance. This data provided information on the success of global virtual teams in an organization under certain circumstances defined in the research question and hypotheses.

Regarding the sample size, it is important to mention that Structural Equation Modelling (SEM) was used to analyze data and run the hypothesized model. This statistical model seeks to explain the relationships among multiple constructs involved in the analysis (Hair et al., 2010), and in some ways is "more sensitive to sample size than other multivariate approaches" (Hair et al., 2010, p. 642). According to SEM theory, the role of sample size is to produce more information and greater stability and depends upon the complexity of the model to be analyzed. The typical recommended sample size in SEM is a minimum of 200 observations, to provide a sound basis of estimation (Hair et al., 2010; Kline, 2011; Pui-Wa & Qiong, 2007). This "corresponds to the approximate median sample size in surveys of published articles in which SEM results are reported" (Kline, 2011, p. 12). In fact, Barrett (2007) asserts that "SEM analyses based upon samples of less than 200 should simply be rejected outright for publication" (Barrett, 2007, p. 819), so a sample of less than 200 is considered small, and analyzing small samples in SEM (Kline, 2011) is insufficient and problematic. Consequently, based on this requirement imposed by the SEM multivariate approach, and considering that non-response rates could reach up to 33%, the population was over-sampled by 700, to obtain the 200 observations minimum necessary for a sound estimation and statistical power.

Confidentiality

Participant identity remained confidential as did the data sets obtained in the field, and codes were assigned to all individuals to preserve their names and identities. Confidentiality was ensured in the survey, which contained demographic information, a CQ test, and

contextual performance scale (OCB scale). This survey was filled out by all global team members, including leaders and project managers. These employees reported only on the one GVT in which they were most involved in terms of time spent, because one person could be a member of more than one GVT. More time spent in GVTs provided them with more knowledge for rating statements on their own behaviors and attitudes. Members were identified with a code, and variables were crossed in terms of codes and not participant names. Finally, results are presented in the aggregate to protect participant identity.

Geographic Location

The study was not limited to a particular location, as global virtual team members were globally dispersed. This justified an online survey with internal access for participants from the company chosen as the setting.

Instrumentation

The instruments or scales chosen for the study responded to both sides of a construct proposed by Peter (1981), who stated that said construct must be systemic because its interpretation depends on the theory in which it is embedded, and observational because it is capable of being operationalized. In this study, constructs were defined and operationalized as they were in previous research studies that performed well. One important thing to highlight is that cultural intelligence, contextual performance and cultural diversity in global virtual teams were individual level constructs.

The independent variable, cultural intelligence (CQ) was measured using the Cultural Intelligence Scale (CQS) developed by (Ang et al., 2007), that contained 20 items collected into four factors that make up CQ: (a) metacognitive CQ, with 4 items; (b) cognitive CQ, 6 items; (c) motivational CQ, 5 items; and (d) behavioral CQ, also 5 items. To date, most theoretical and empirical research has focused on these four factors and used the aforementioned cultural intelligence scale. CQS has undergone an extensive validation

process, and the research has proven it can be generalized across multiple samples, which was significant for this study.

The CQS has been validated with samples of students (Ang et al., 2007; Engle & Crowne, 2014; Magnusson, Schuster, & Taras, 2014; Robledo-Ardila, Aguilar-Barrientos, & Román-Calderón, 2016; Van Dyne, Ang, & Koh, 2008); executives (Ang et al., 2007; Huff et al., 2014; Imai & Gelfand, 2010; Kim & Van Dyne, 2011; Presbitero, 2016; Van Dyne et al., 2008); and global virtual teams (Magnusson et al., 2014). The scale has also been validated for global culturally diverse samples (Ang et al., 2007; Huff et al., 2014; Magnusson et al., 2014), and in different countries, such us the U.S (Ang et al., 2007; Engle & Crowne, 2014; Imai & Gelfand, 2010; Kim & Van Dyne, 2011; Ramsey, Barakat, & Aad, 2014; Van Dyne et al., 2008), Colombia (Robledo-Ardila et al., 2016), Singapore (Ang et al., 2007; Van Dyne et al., 2008), the Philippines (Presbitero, 2016), and Ireland (Shannon & Begley, 2008). The scale has proven to have value and predictive validity in self-reported and observer-reported cases (Kim & Van Dyne, 2011; Van Dyne et al., 2008).

The scale was used in its original language, with all items intact, and with no modifications of any kind. The multinational company selected as the setting used English as its official working language, so all employees are proficient in it. Virtual team members were globally distributed and, as the scale has been validated in GVTs, different countries, and even with culturally diverse samples, proved to be a valid instrument for application within this organization.

The CQS has sound psychometric properties. Extensive validation of the cultural intelligence scale has reported high reliability levels with Cronbach's alpha above 0.7 in all four CQ factors and in all empirical research cited, as can be seen in Table 2. Since the scale has already been validated, the current practice is to validate the scale using the Confirmatory Factor Analysis (CFA) approach. For this specific research project, permission was granted

by the author (see authorization in Appendix C), stating that it was to be used by academic researchers for research purposes only and that the scale should have the copyright attached below the instrument when used. Also, it was the author who proposed using the CFA, as the scale has performed well in all scenarios that were significant for the study.

Table 2. *Reliability Levels Reported by Empirical Papers Validating CQS*

Author	Reliability level reported
Ang et al., 2007	.71-.89
Engle and Crowne, 2014	.77-.833
Imai and Gelfand, 2010	.81-.92
Magnusson et al., 2014	>.70
Presbitero, 2016	.71-.84
Ramsey et al., 2014	.83-.89
Huff et al., 2014	.71-88
Kim and Van Dyne, 2012	.94
Robledo-Ardila et al., 2016	.84-.92

The dependent variable, individual performance, was measured using the OCB scale. As stated in Chapter II, contextual performance is virtually identical to Organ's (1988) concept of Organizational Citizenship Behavior (OCB). This theoretical construct has also been extensively studied since its creation, and numerous scales have been developed to measure it in organizational contexts. For this study, the instrument developed by Williams and Anderson (1991) was chosen, in which organizational citizenship behavior is divided into two categories: OCBO behaviors "that benefit the organization in general" (Williams & Anderson, 1991, p. 601); and OCBI behaviors that "immediately benefit specific individuals and indirectly through this means contribute to the organization" (Williams & Anderson, 1991, p. 602). The scale has been used in research and has been publicly published in all kinds of academic papers since the early nineties. More specifically, this study used both the OCBI and OCBO scales, because the relations of global virtual teams are towards the team members and the organization equally.

To ensure the instrument was well-adapted to the logic of global virtual teams and the organization's ethos, it was discussed with two managers who reviewed the scale. From this

interview, it was decided to use the scale intact, without modifying any item. For example, the researcher was concerned about certain items alluding to work attendance or absence when contextual performance is evaluated in global virtual teams. The respondents stated that changes in time zones and different holidays around the world were aspects that made talking about absence necessary, even when work was performed virtually.

Through a review of all the scales developed and used in OCB research by recognized authors in the matter (Organ, Podsakoff, & MacKenzie, 2006), only two were identified as reliable enough to report sound data on the constructs measured, one of these being the 14-item instrument developed by Williams and Anderson (1991). Extensive empirical research has been performed using this scale with high levels of reliability reported. Estimates of internal consistency reliability for the OCBI scale (7-items) average 0.85, ranging from a low of 0.79 to a high of 0.94. As for the OCBO scale (7-items), reliability levels average 0.81, ranging from a low of 0.7 to a high of 0.93. Cronbach's alphas from different papers can be found in Table 3.

Table 3. *Reliability Levels Reported by Empirical Papers Validating the OCB Scale*

Author	**Reliability level reported**	
	OCBI	**OCBO**
Williams and Anderson, 1991	.88	.75
Randall, Cropanzano, Bormann, and Birjulin, 1999	.80	.70
Turnley, Bolino, Lester, and Bloodgood, 2003	.83	.88
Lai, Lam, and Lam, 2013	.93	.93
Sesen & Basim, 2012	.79	.78
Somech, 2016	.86	.83
Wang and Sung, 2016	.94	.92
Nasra and Heilbrunn, 2016	.85	
Ma, Qu, and Wilson, 2016	.89	.81
Kumar, Jauhari, and Singh, 2016	.75	.70

The OCB scale has been validated using CFA in different samples, mostly employees, executives, managers and supervisors, as this construct measures extra-role performance (Kumar et al., 2016; Lai et al., 2013; Ma et al., 2016; Randall et al., 1999; Turnley et al., 2003; Williams & Anderson, 1991). Another common sample is the education sector with

teachers and their principals or supervisors (Nasra & Heilbrunn, 2016; Sesen & Basim, 2012; Somech, 2016). The OCB scale has also been validated in different countries like the U.S. (Randall et al., 1999; Turnley et al., 2003; Williams & Anderson, 1991), Taiwan (Wang & Sung, 2016), Israel (Nasra & Heilbrunn, 2016; Somech, 2016), Turkey (Sesen & Basim, 2012), India (Kumar et al., 2016), and China (Lai et al., 2013). And, most importantly, the instrument has recently been validated in work teams (Lai et al., 2013) and cross-cultural samples (Ma et al., 2016).

Even though the OCB scale is widely used and has been published openly for academic research, both the author and co-author that developed the instrument were asked for permission via email with no answer. Another reason for choosing this instrument, is that it is shorter than others with the same sound psychometric properties and was used in its original language: English. This meant it was not necessary to use back translation processes for its application.

The CQ and OCB scales were used for data collection, wherein all global team members self-reported on all items individually. All instruments chosen for this study were continuous scales, which used 7-point Likert scales (Creswell, 2009). As mentioned previously, interviews were conducted with two managers from the organization defined as the setting, to review how appropriate the instruments were for the organization's context and more specifically, for the global virtual team's dynamic within the company. From these interviews, it was decided that all standardized instruments were to be applied as created, with no modifications or combinations with other instruments. This conserved their original validity and reliability, so validity and reliability did not need to be reestablished during data analysis (Creswell, 2009). The time required to respond to the scales was another factor adding to the instruments' appropriateness. Altogether, responding took 10 minutes at most, an advantage for busy people in a multinational company.

As for the moderating variable, team cultural diversity uses nationality or country of upbringing as a proxy. This is a reference attribute used to establish dissimilarity within groups, according to the theory presented in the literature review. This variable was measured using an index proposed by Van der Zee, Atsma, & Brodbeck (2004), who based their research on a formula developed by Tsui, Egan, & O'Reilly (1992). These authors and some others have used this index to measure the difference between an individual and all other individuals in the work unit based on a specific demographic attribute; nationality, in this case (Magnusson et al., 2014; Tsui et al., 1992; Van der Zee et al., 2004), using the following formula:

$$CD = \sqrt{1/n \sum_{i}^{j} (S_i - S_j)^2}$$

This metric represents the square root of the summed square differences between individual S_i values for a nationality (number assigned to the nationality reported by each GVT member), and the value of the same variable (nationality) for every other individual S_j in the sample for the global virtual team individuals report on. This is divided by the total number of respondents in the GVT (n). This formula allows taking into account both the number of nationalities present in the GVT, and how evenly team members are distributed amongst those nationalities (Magnusson et al., 2014). The index is calculated for each individual by assigning a 0 if there is no difference in nationality with his peers, and a value of 1, when there is a difference in nationality with each other member within the work unit. For example, if there is a team of seven people, three from England, two from Germany, one from India and one from Colombia, then the calculation is as follows: The Indian receives a score of 3 for being different from the three English, plus 2 for being different from the two German, plus 1 for being different from the Colombia. The total (6) is then divided by 7 (n) and a square root is taken of the result. This gives a relational score of 0.92. The index merely

measures differences in nationality amongst members, and does not attempt to measure psychic distance (Van der Zee et al., 2004).

Despite the widespread and extensive validation of the scales chosen for this study, Structural Equation Modelling (SEM), which was used for testing the hypothesized model, required validation of the measurement model (Hair et al., 2010). This meant the rules of correspondence between measured and latent variables needed to be specified. To do this, it was appropriate and recommended to carry out a Confirmatory Factor Analysis (CFA) that would assess the measurement error present in the model, or its reliability (Hair et al., 2010).

Confirmatory Factor Analysis (CFA) was applied to test the extent to which a theoretical set of factors (theoretical model) matched reality (actual data), making it a tool for confirming or rejecting a preconceived theory (Hair et al., 2010). Here, the researcher used measurement theory to specify the number of factors a priori, as well as the variables that loaded on those factors. Assumptions when using this technique included: (a) Non-existence of significant cross-loading, which evidences a lack of construct validity, and (b) good practice indicates at least three items per factor in order to provide minimum coverage of the construct's theoretical domain (Little, Lindenberger, & Nesselroade, 1999). In this regard, solutions could be found with positive degrees of freedom and their corresponding chi-square goodness of fit values (Byrne, 2012; Gonzalez & Griffin, 2001; Hair et al., 2010; Kline, 2011).

Furthermore, (c) factor loadings should be at least 0.4 and ideally 0.7 or higher; (d) convergent validity states that items (indicators of a specific construct) should converge or share a high proportion of variance in common. Average Variance Extracted (AVE) (mean variance extracted for item loading on a construct) should be 0.5 or higher to suggest adequate convergence. Moreover, (e) construct validity of 0.7 or higher suggests good reliability, which indicates there is internal consistency or that measurements all consistently represent

the same latent construct; (f) discriminant validity indicates the extent to which a construct is truly distinct from other constructs. (cross-loadings are indicators of a lack of discriminant validity) and (g) data should have a normal distribution (Hair et al., 2010).

Data Collection

As outlined in the appropriateness of design session, the method chosen to gather data was the survey. The standardized instruments, together with the demographic information to be collected in the field made up the survey. In this study, the survey was applied over the internet. Research has shown that online surveys have many strengths that far outweigh their potential weaknesses. One very important strength, especially for this study, was their global reach. The internet has worldwide coverage, allowing people to answer this questionnaire from any location (Evans & Mathur, 2005). Another strength of online surveys is their flexibility. They can be adapted to numerous formats and tailored to respondents' demographics, language, and researcher needs, among others (Evans & Mathur, 2005).

One of the most powerful benefits of online surveys is the time and cost savings they can provide (Deutskens et al., 2004; Evans & Mathur, 2005; Sax, Gilmartin, & Bryant, 2003). They are also convenient for respondents, as they can be completed at their leisure, and they can take as much time as needed to answer the questions (Evans & Mathur, 2005; Sax et al., 2003). Additionally, researchers may prefer online surveys because they simplify data entry and analysis by instantaneously accessing the data base where the data is stored (Evans & Mathur, 2005). Online surveys provided many advantages, including high response rates, reception of complete questionnaires, no respondents excluded, and reception of the exact responses needed for the study. In this sense, through online surveys, the researcher could control answer order, by requiring respondents to answer questions in the order intended for the study (Evans & Mathur, 2005), and the questionnaire could be set up in such a way that

guaranteed completion, eliminating non-responses to items and the need to throw out answers entered improperly (Evans & Mathur, 2005; Nulty, 2008).

The survey had three parts: All global virtual team members, leaders and project managers answered: (a) Demographic information to get the data required for measuring cultural diversity, (b). A cultural intelligence test using the CQS, and (c) Contextual performance using the OCB scale. For the collection of data, a permission was granted in the company to approach its employees. The company is a services multinational enterprise preset in more than 30 countries with more than half of its employees working virtually. A global virtual team was explained to the Chief People Officer (CPO) and country managers of the company, and with an agreement on the concept, they identified the target participants of the study as team members or leaders of GVTs. They preferred to call them cross-border teams to approach the employees and invite them to participate, and then the self-administered survey was sent by email to the employees.

The unit of analysis was the employee, and the population parameter was the employees of the multinational set as the setting, who worked across borders in teams using virtual communication means. Participants received the link to the survey included in an email invitation sent by the CPO of the company and several country managers who agreed to help with the study. Employees participated voluntarily by accepting the informed consent displayed at the beginning of the survey and shown in appendix A, between March 2017 and November 2017, and they were allowed company time to fill in the survey, which took an average of 9 minutes.

The introduction to the online survey specified that the study was designed to understand how individual performance in culturally diverse global virtual teams is enhanced with cultural intelligence. The email was initially sent to employees by the CPO and then the link to the survey was distributed among them. The CPO declared he reach up to 850

employees. The first email and subsequent follow-ups were sent in mid-march 2017, mid-may 2017, early August 2017 and late October 2017, respectively. A total of 384 individuals participated, yielding an initial 44.18% response rate, which is much higher than online survey response rates usually obtained and reported between 23% and 33% (Deutskens et al., 2004; Nulty, 2008; Watt et al., 2002). Surveys were not used if they were left blank or partially completed, so of the surveys collected, 215 were complete, and therefore usable, leaving the study with a final sample of 215 and response rate of 25.3%.

Demographics

The respondents were heterogeneous in terms of age and gender and cover a wide range of positions, locations within the company and nationalities. The sample consisted of 64.2% men (n = 138) and 35.8% women (n = 77). The age of the participants ranged from 21 years to 63, with a mean of 32.33 and standard deviation (*SD*) = 11.13, when 13 employees preferred not to reveal their age. The CPO and country managers suggested to include the option “I prefer not to say” in the questions related to age and ethnicity, which they considered to gather sensible information.

Regarding the role, 5.6% of the employees performing within a global virtual team reported to be project managers, 31.2% team leaders, and the rest (63.3%) were team members. It is important to remark that many employees work in more than one global virtual team, so it is possible that they are team members in some GVTs, and team leaders in others. In order to control this issue, the question inquiring for the team the participant belonged to, explicitly asked to report the main cross-border team he or she worked for.

The tenure in the company goes from less than a year to 17 years. 35% of the respondents have worked for a year when they answered the survey, followed by a 26% who have been working two years, 21% have been in the company for 5 years, 15% reported four years of experience, 14% six years, and 14% three years. When asked for ethnicity, a default

list of the ones commonly listed was displayed to them. 44.7% said they were white, 28.8% Indian, 17.2% Hispanic or latino, 3.7% Asia origins, 2.4% selected the option “other” to indicate it was mixed, and a .5% preferred not to say.

In relation to the work location, a total of 16 countries were reported as work locations of the participants. 27.9% are located in India, 20% in the United States, 13.5% in Colombia, 11.6% in the United Kingdom, 9.8% in Brazil, and the rest 17.2% is distributed in Thailand, China, Canada, Germany, France, Czech Republic, Ireland, Hungary, Norway, Poland and South Africa. As for origin, employees come from different nationalities, 25 in total. High percentages are reported for India (29.3%), United States (17.7%), United Kingdom of Great Britain and Northern Ireland (14%), Colombia (13.5%), and Brazil (9.3%). The pending 16.2% participants reported as their countries of origin Australia, Botswana, Canada, Czech Republic, Denmark, France, Germany, Hungary, Ireland, Italy, Morocco, Nepal, New Zealand, Norway, Poland, South Africa, Spain, Switzerland, Syrian Arab Republic, and Turkey.

Data screening

Prior to the validation of both the measurement and structural models, an evaluation of the original database was carried out in order assess if the data complied with SEM assumptions. This assessment was based on the capacity of the data to comply with the underlying assumptions of the technique used. Next, the analysis of missing data and extreme values is presented since SEM is sensitive to this matter. In this way, concerns related to the assumptions of normality, linearity, multicollinearity, and homoscedasticity are exposed, since these assumptions underlie multivariate statistical tests and their compliance avoid biases and distortions of results (Hair et al., 2010; Kline, 2011; Meyers, Gamst, & Guarino, 2006).

For data screening and further analysis, the latent and observed variables were coded both in SPSS v.21 and Mplus v.8.1, the software used in the study. In Table 4 the names of the variables are listed: the ones comprising cultural intelligence (CQ) and contextual performance (OCB). All names assigned correspond to the consecutive items' order and the dimension they belong to. The complete list of the items can be seen in Appendix B, the CQS contained 20 items which were parceled into one construct made up by four dimensions: Metacognitive CQ, cognitive CQ, motivational CQ and behavioral CQ. The OCB scale is comprised by two subscales, the OCBI scale, and the OCBO, each one of them with seven items. In Chapter 4, the items retained after CFA was performed are shown, and the detailed procedure of the parameters constrained is explained.

Table 4. *Names of Variables in the Study*

Construct/Item	Name
MetacognitiveCQ	MetCQ1
	MetCQ2
	MetCQ3
	MetCQ4
Cognitive CQ	CogCQ1
	CogCQ2
	CogCQ3
	CogCQ4
	CogCQ5
	CogCQ6
Motivational CQ	MotCQ1
	MotCQ2
	MotCQ3
	MotCQ4
	MotCQ5
Behavioral CQ	BehCQ1
	BehCQ2
	BehCQ3
	BehCQ4
	BehCQ5
OCBI	OCBI1
	OCBI2
	OCBI3
	OCBI4
	OCBI5
	OCBI6
	OCBI7
OCBO	OCBO1
	OCBO2
	OCBO3
	OCBO4
	OCBO5
	OCBO6
	OCBO7

Regarding missing data, an exploration aimed at knowing the amount of missing data was carried out. Of the nearly 850 employees initially contacted, 384 agreed to participate in the study (initial response rate: 45.18%). However, in this group 169 incomplete or non-conforming responses were found in the requested information, meaning that the survey was not completely finished by the participants since all fields had the mandatory answer command specified in Qualtics, the software used for the distribution and data withdrawal of the online survey. Considering what was proposed by Vriens and Melton (2002), these observations were treated using the method of available cases, through the listwise deletion technique and, therefore, the cases with missing scores in any variable were excluded from all the analyzes. In this way, a total of 215 valid answers were obtained, for a final response rate of 25.3%, consistent with the one usually obtained in online surveys, ranging between 23% and 33% (Deutskens et al., 2004; Nulty, 2008; Watt et al., 2002).

Taking into account the distortion that atypical or extreme cases cause on one or multiple variables and their relationships, as well as their effect on the results of the analyzes, it is necessary to establish a procedure that allows identifying the presence of outliers on the data base. For this purpose, the responses obtained were converted into standardized values, and from there, a threshold was established for the designation of an atypical case following what was proposed by Hair et al. (2010). From the above, and based on a sample higher than 80, those observations whose standardized values (z) reached scores not contained in the rank within -4 and 4 were defined as outliers.

Table 5 presents the information regarding the minimum and maximum values calculated for each of the items considered in the survey. It is observed that all maximum values for all variables were within the range suggested in the literature (Hair et al., 2010). By contrast, some items had a minimum value higher than -4, as it is shown in Table 5. After identifying and profiling these outliers, an exhaustive revision of each one of the observations

was made, to finally decide to retain them all except for the observation number 199, which participant presented a high value in more than five answers to the questions in the survey. Outliers are only deleted if the assessment leads to believe that the case is not part of the population (Hair et al., 2010; Kline, 2011), and since the pending 214 observations are valid and representative elements of the population and contribute to the generalizability of the analysis, all of them were retained.

Table 5. *Analysis of Extreme Values. Z Scores*

	Minimum	Maximum
MetCQ1	-4.06	1.30
MetCQ2	-4.03	1.34
MetCQ3	-3.81	1.33
MetCQ4	-3.09	1.32
CogCQ1	-2.09	2.01
CogCQ2	-2.13	1.74
CogCQ3	-2.76	1.76
CogCQ4	-2.07	1.84
CogCQ5	-1.97	2.11
CogCQ6	-2.02	2.15
MotCQ1	-6.40	0.64
MotCQ2	-4.22	0.98
MotCQ3	-4.74	1.07
MotCQ4	-3.89	1.12
MotCQ5	-4.40	1.09
BehCQ1	-2.73	1.36
BehCQ2	-2.68	1.37
BehCQ3	-3.46	1.28
BehCQ4	-2.92	1.47
BehCQ5	-2.22	1.60
OCBI1	-4.62	1.29
OCBI2	-4.94	1.19
OCBI3	-3.84	1.40
OCBI4	-4.68	1.18
OCBI5	-5.34	1.13
OCBI6	-3.85	1.12
OCBI7	-4.24	1.03
OCBO1	-4.00	0.89
OCBO2	-5.48	0.71
OCBO3	-3.36	0.92
OCBO4	-4.39	0.81
OCBO5	-3.47	0.99
OCBO6	-4.81	0.78
OCBO7	-3.87	1.08
DIVindex	-3.21	1.18

Note: N= 215

To evaluate linearity, the use of bivariate scatterplots was used. This assumption is based on the existence of a linear relationship between two variables, where one or both can be combinations of several variables (Tabachnick & Fidell, 2013). For its analysis, the calculation of the average item dimension, resulting from the simple average of the items that

make up each specific dimension, was carried out. According to Meyers et al. (2006) the variables that are normally distributed and are linearly related to each other produce oval or elliptical dispersion diagrams. Figure 3 illustrates, by means of a matrix dispersion structure, the existing relation for each pair of variables (average item dimension). The results show a moderately linear relationship, especially between cultural intelligence (MetCQ, CogCQ, MotCQ and BehCQ) and contextual performance (OCBI and OCBO).

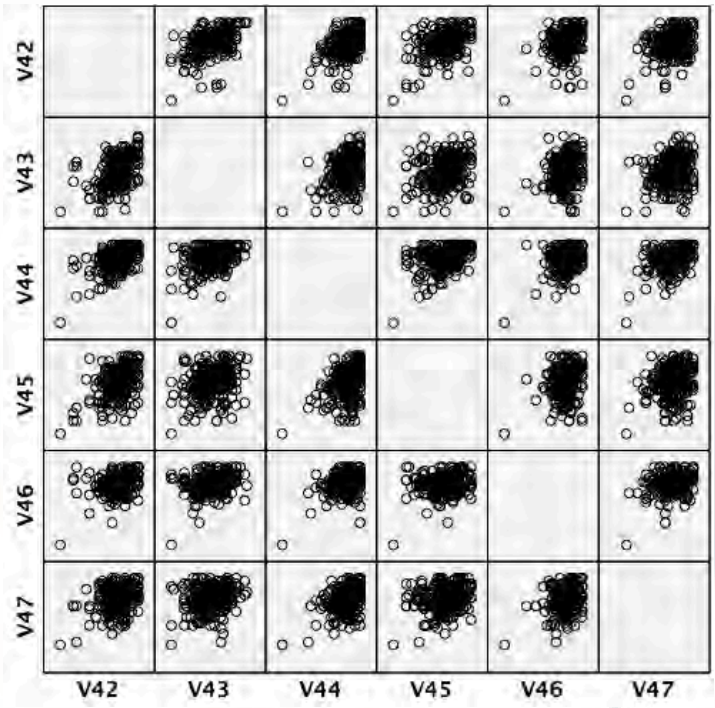

Figure 4. Scatterplot. Matrix dispersion structure

Another SEM assumption is the absence of multicollinearity. Multicollinearity is a high degree of correlation or linear dependency among several independent variables. It could be interpreted as when a number of independent variables may measure the same concepts or phenomena (Hair et al., 2010; Kline, 2011). In order to test the absence of multicollinearity, the software IBM SPSS 21 was used to perform a linear regression for each of the observed variables as independent on the rest as dependent. For all cases, the coefficients of Tolerance and the Variance Inflation Factor (VIF) were revised based on the thresholds suggested in the literature (Hair et al., 2010; Kline, 2011). Taking into account that VIF coefficients < 10 and

Tolerance values > .10 (1/VIF) indicate multivariate collinearity (Hair et al., 2010; Kline, 2011), the results obtained in the linear regressions were examined to finally show that all tolerance values were greater than .10 and all VIF values were less than 10. This denotes that the observed variables do not present collinearity, therefore complying with the assumption of non-multicollinearity required for SEM analyses.

Normal distribution is other assumption in SEM analyses. The coefficients of asymmetry and kurtosis were calculated in IBM SPSS versión 21 to evaluate the extent to which the observed variables fit the assumption of normality that presupposes the estimation method (Hair et al., 2010; Kline, 2011). Table 6 presents the coefficient for each of the observed variables, according to the recommended distributions with asymmetry and kurtosis coefficients in the range (-2, 2) (Bandalos & Finney, 2010; Muthén & Kaplan, 1985a, 1985b). Only three observed variables had asymmetry coefficient out of the range, and 18 had kurtosis coefficients greater than 2.0. Appendix D shows the histograms for all observed variables.

Table 6. *Asymmetry and Kurtosis Coefficients*

	Skewness	**Kurtosis**
MetCQ1	-1.25	2.30
MetCQ2	-1.41	3.33
MetCQ3	-1.21	2.19
MetCQ4	-1.04	1.08
CogCQ1	-.34	-1.08
CogCQ2	-.42	-.65
CogCQ3	-.74	.12
CogCQ4	-.36	-.82
CogCQ5	-.21	-.80
CogCQ6	-.18	-.79
MotCQ1	-2.94	12.50
MotCQ2	-1.65	3.52
MotCQ3	-1.41	3.23
MotCQ4	-.97	.98
MotCQ5	-1.46	3.47
BehCQ1	-.85	.25
BehCQ2	-.78	-.28
BehCQ3	-1.07	.96
BehCQ4	-.52	-.26
BehCQ5	-.32	-.66
OCBI1	-1.53	4.02
OCBI2	-1.44	3.99
OCBI3	-1.03	1.64
OCBI4	-1.27	3.01
OCBI5	-1.27	3.33
OCBI6	-1.40	2.45
OCBI7	-1.60	3.32
OCBO1	-1.54	2.57
OCBO2	-2.56	8.64

	Skewness	Kurtosis
OCBO3	-1.19	.67
OCBO4	-1.73	3.38
OCBO5	-.91	.07
OCBO6	-2.38	7.58
OCBO7	-1.63	3.36

Note: N = 215

Homoscedasticity, on the other hand, refers to the assumption that dependent variables exhibit the same levels of variance along the predictor range of independent variables (Meyers et al., 2006). The violation of this assumption results in heteroskedasticity, which typically occurs when a variable is not distributed normally or when the transformation procedure has generated an unexpected distribution for an analyzed variable (Tabachnick & Fidell, 2013). Thus, the problems associated with the violation of homoscedasticity can be attributed to problems of normality (Hair et al., 2010). Taking into account this situation, and based on the results obtained regarding normality (see Table 5), it was then possible to justify the existence of homoscedasticity in the variables contemplated in the instrument.

In order to validate the previous statement, an item-level variance calculation was performed. Table 7 shows the variances and standard deviations (SD) for each of the items corresponding to the analyzed factors, both cultural intelligence and contextual performance. The results showed a relatively uniform behavior for each set of items, which gave an exploratory level account of a similarity of variances (and therefore of standard deviations) for the different factors. The above confirmed the presence of univariate homoscedasticity.

Table 7. *Variances and Standard Deviations*

	Variance	SD
MetCQ1	1.25	1.12
MetCQ2	1.25	1.12
MetCQ3	1.37	1.17
MetCQ4	1.85	1.36
CogCQ1	2.14	1.46
CogCQ2	2.41	1.55
CogCQ3	1.76	1.33
CogCQ4	2.36	1.54
CogCQ5	2.17	1.47
CogCQ6	2.07	1.44
MotCQ1	.73	.85
MotCQ2	1.33	1.15
MotCQ3	1.07	1.03
MotCQ4	1.44	1.20
MotCQ5	1.19	1.09

BehCQ1	2.15	1.46
BehCQ2	2.19	1.48
BehCQ3	1.60	1.26
BehCQ4	1.87	1.37
BehCQ5	2.48	1.57
OCBI1	1.03	1.02
OCBI2	.96	.98
OCBI3	1.31	1.15
OCBI4	1.05	1.02
OCBI5	.86	.93
OCBI6	1.46	1.21
OCBI7	1.30	1.14
OCBO1	1.51	1.23
OCBO2	.94	.97
OCBO3	1.96	1.40
OCBO4	1.33	1.15
OCBO5	1.81	1.35
OCBO6	1.15	1.07
OCBO7	1.47	1.21

Data Analysis

SEM is a confirmatory method strongly guided by theory and to a lesser degree, by empirical results (Hair et al., 2010). It is used when research seeks to analyze complex models, with more than one construct or latent variable, and with complex relationships between them (Hair et al., 2010; Pui-Wa & Qiong, 2007). “Structural relations are hypotheses about directional influences or causal relations of multiple variables” (Pui-Wa & Qiong, 2007, p. 34). The model tested by this study was complex, as it contemplated four constructs, and hypothesized correlational and dependence relationships (Hair et al., 2010; MacCallum & Austin, 2000).

More specifically, a moderated relationship was proposed. The moderator is often an external, contextual variable that affects the direction and/or strength of the relation between an independent variable and a dependent one (Baron & Kenny, 1986). Within a correlational analysis framework, “a moderator is a third variable that affects the zero-order correlation between two other variables” (Baron & Kenny, 1986, p. 1174). SEM allows performing analysis and making estimations regarding multiple and interrelated dependence relationships, but focuses on variates of both the measurement and structural models (Hair et al., 2010). In the measurement model, “each set of indicators for a construct acts collectively (as a variate)

to define the construct"; and in the structural model, constructs are related to one another in correlational and dependence relationships" (Hair et al., 2010, p. 623; MacCallum & Austin, 2000).

In order to test the hypotheses, the researcher needed to be able to count on measurements with strong psychometric properties for the results to be meaningful (Kline, 2011). Then, when measurements were identified, the measurement model was validated first, and then structural multi-group invariance SEM was run to analyze the hypothesized relationships between the constructs and the moderation effect (Hair et al., 2010; Ryu & Cheong, 2017) . Multi-group invariance SEM, allows to establish between-group difference comparisons in the relationships between constructs when the outcomes are latent variables (Cole, Maxwell, Arvey, & Salas, 1993), and also to analyze how group membership moderates direct effects (Kline, 2011). Specifically, the multigroup invariance SEM approach was used to accomplish both objectives, and therefore, to test the two hypothesis in this study. Ultimately, in SEM, "the goal is to determine whether a hypothesized theoretical model is consistent with the data collected to reflect the theory" (Pui-Wa & Qiong, 2007, p. 34). The baseline model used for multi-group invariance SEM, after running CFA is shown in Figure 5, using SEM notations. Both hypothesis were tested using the same model for two groups: one with high cultural diversity and another with low cultural diversity. Cultural diversity was then used as a moderating categorical variable in the model.

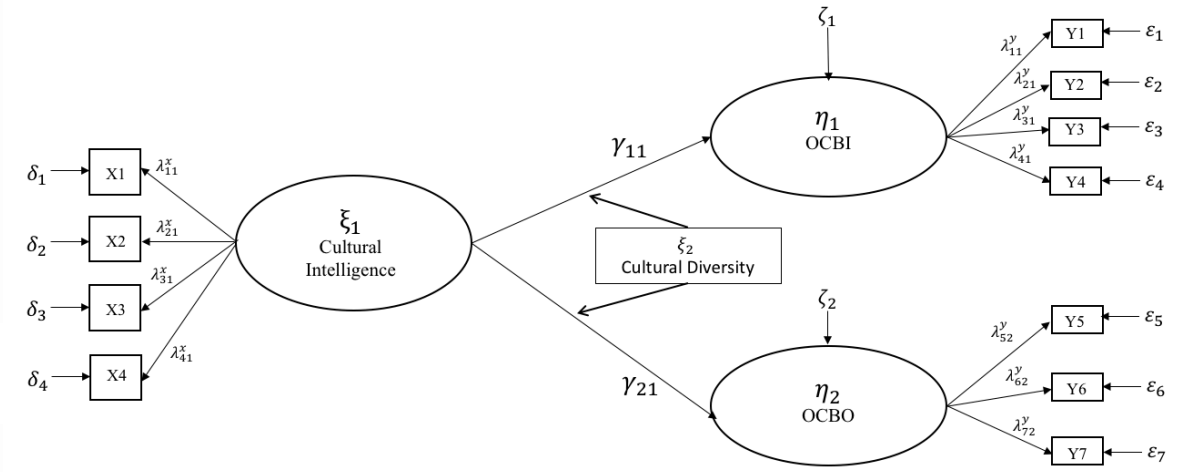

Figure 5. Baseline Model Multi-group Invariance SEM

In summary, the hypothesized relationships between the construct and its indicators were validated (MacCallum & Austin, 2000) using Confirmatory Factor Analysis (CFA). Then, after measurement validation and scale refinement, multi-group invariance SEM was run to analyze the relations of the constructs to each another when moderated by another variable (groups) based on theoretical postulates (Anderson & Gerbing, 1988; Kline, 2011; Ryu & Cheong, 2017). The moderator is a categorical variable (cultural diversity index) which is not part of the model and that provided the two groups for structural paths comparison.

Validity and Reliability

The first thing to do when conducting SEM is to validate the measurement model used by examining item loadings and their accompanying significance levels (Anderson & Gerbing, 1988; Shook, Ketchen, Hult, & Kacmar, 2004). Once this has been estimated, reliability and validity were assessed. For this purpose, a CFA was run using the approach of competitive SEM, which process is shown in detail in Chapter 4. Table 8 displays all standardized factor loadings greater than .4, which is the cutoff criteria for acceptable factor loadings (Hair et al.. 2010).

Table 8. *Factor Loadings Measurement Model Retained*

CQ	
MetCQ	.81
CogCQ	.57
MotCQ	.69
BehCQ	.57
OCBI	
OCBI1	.82
OCBI2	.87
OCBI3	.70
OCBI4	.63
OCBO	
OCBO1	.56
OCBO2	.74
OCBO6	.46

The purpose of running a Confirmatory Factor Analysis was threefold. First, it aimed at obtaining estimates of the parameters of the model, such as factor loadings, variances and covariances and residual errors. Second, it allowed to determine reliability of the scales used by obtaining coefficients like CR and AVE. And a third purpose was to assess the fit of the model or whether or not the model provided a good fit to the data (Hox & Bechger, 1998). The coefficients for measuring construct validity were the Average Variance Extracted (AVE) and the Construct Reliability (CR). The first one is the square of standardized factor loading, which "represents how much variation in an item is explained by the latent factor" (Hair et al., 2010, p. 686), and a good rule of thumb that suggests adequate convergence is an AVE of 0.5 or higher. The CR coefficient is "the squared sum of factor loadings for each construct and the sum of the error variance terms for a construct" (Hair et al., 2010, p. 687). For this coefficient, the rule of thumb suggesting adequate reliability is 0.7 or higher.

Convergent validity refers to the degree to which measures of constructs that theoretically should be related, are in fact related, and discriminant validity tests whether measurements that are not supposed to be related are actually unrelated (Hair et al., 2010). The correlation matrix among latent variables is shown in Table 9, presenting adequate indices lower than .8, indicating discriminant validity (Hair et al., 2010). In addition to this indices, both convergent and discriminant, CR and AVE were calculated in order to test construct validity. Table 10 shows the AVE and CR values obtained from the following

formulas, using the factor loadings of the rotated component matrix in SPSS, where λ are the factor loadings and ε is (1-λ^2). The thresholds for these values are AVE > .5 and CR > .7 (Hair et al.. 2010), and the ones obtained are all greater than the admitted ones, indicating convergent and discriminant validity.

$$AVE = \Sigma\lambda^2/n \qquad CR = (\Sigma\lambda)^2/(\Sigma\lambda)^2 + \Sigma\varepsilon$$

Table 9. *Correlations Matrix among Latent Variables*

	CQ	OCBI	OCBO
CQ	*1*		
OCBI	.44	*1*	
OCBO	.60	.47	*1*

Note: n=214. p<.01level

Table 10. *AVE and CR Values for Retained Model*

	AVE	CR
CQ	.53	.82
OCBI	.64	.88
OCBO	.50	.75

Validity was therefore analyzed from three perspectives: construct, convergent and discriminant. Construct validity concerns the soundness of the inferences based on their scores or "whether scores measure the hypothetical construct the researcher believes they do" (Kline, 2011, p. 71), and this type of validity led the researcher to conclude that the scale's application was capable of achieving certain research objectives. As mentioned before, confidence in SEM findings depends on "a solid foundation of measures with known and rigorous properties" (Shook et al., 2004, p. 400). Validity assessment also relies on several tests that help test the overall goodness of fit in structural equation modelling. Goodness of fit "indicates how well the specified model reproduces the observed covariance matrix among the indicator items" (Hair et al., 2010, p. 646), in other words, it compares the theory (estimated covariance matrix) with reality (observed covariance matrix) by evaluating their similarities and estimating that whatever has been hypothesized fits with empirical

observations (Hair et al., 2010). Goodness of fit results are shown Chapter 4, both for the CFA, and the multi-group invariance SEM run for structural links.

Summary

Methodological decisions for this study were made with a view to answering the research question and testing the formulated hypotheses in the best way possible. The study was designed to follow a non-experimental, cross-sectional, quantitative methodology with a correlational scope. The sample was non-random, and participants were selected by convenience because of the peculiarities required and demanded by the setting.

Data was collected using a survey made up of demographic information and standardized and validated instruments to measure cultural intelligence and contextual performance. Confirmatory Factor Analysis (CFA) was used to validate the measurement model, and Multi-group invariance Structural Equation Modelling (SEM) was run to analyze data and test whether the observed model fits the hypothesized one. All reliability and validity indexes were reviewed to provide the model and analysis with greater quality and rigor.

Chapter 4: Results

As outlined in the previous chapters, this study aimed to analyze the relationship between Cultural Intelligence (CQ) and individual performance in Global Virtual Teams (GVTs), and how cultural diversity moderates this relationship. In this specific chapter, the data collection, preparation and analysis process is described. This chapter explains the procedures employed to test the measurement model and the structural one. The first one was selected from a series of competitive models using Confirmatory Factor Analyses (CFAs) by using the whole sample. Then, the structural model was tested using the moderation approach of multi-group invariance SEM, also by comparing competitive models to finally select the one that best represents the sample data.

Alternative or competitive models (Byrne, 2012) is a recommended approach because it helps to reject similar models and indicate the best one. The alternative models could be the theoretical one originally proposed, with more or less variables, but always plausible from a theoretical standpoint (Byrne, 2012). Finally, the results thrown after the analysis are shown.

Findings

The statistical package Mplus version 8.1 (Muthén & Muthén, 2010) was used for data analysis. A series of Confirmatory Factorial Analysis (CFA) were conducted to verify the psychometric properties of the instruments, following the modeling technique of structural equations. The analyses were run using the Maximum Likelihood (ML) estimator, the most widely used estimation method in SEM, which assumes multivariate normal distributions (Kline, 2011). To evaluate the adequacy of the CFA, the following indices were used for the data: Chi-square statistic/degrees of freedom ratio (x^2/d_f), Root Mean Error of Approximation (RMSEA), Comparative Fit Index (CFI), and Standardized Root Mean Square Residual (SRMR).

Fit statistics are used to determine how well the theoretical model adjusts to the data (Byrne, 2012; Hair et al., 2010; Kline, 2011). Although x^2, by convention, is always reported, decisions regarding adequacy of model fit are based on alternate indices of fit. This is because the x^2 is very sensible to the sample size, and also assumes a normal distribution. In this instance, the underlying distribution is not x^2 distributed. "thereby distorting the statistical significance of the model test" (Byrne, 2012, p. 69). A fit index quantifies the degree of model fit along a continuum (Byrne, 2012), therefore, more practical indices of fit are used, along with the x^2. These indices are either comparative (CFI) or absolute (RMSEA and SRMR) (Hu & Bentler, 1999). The comparative measure the proportionate improvement in fit of a hypothesized model compared to a more restricted one, and the absolute assess the extent to which an a priori model reproduces the sample data (Byrne, 2012).

Values for the CFI range from zero to 1.0, with values close to 1.0 being indicative of a well-fitting model (Byrne, 2012). As for the absolute indices, they are not compared to a reference model to identify improvement and they depend only on determining how well the hypothesized model fits the sample data. Therefore, when goodness-of-fit improves, comparative indices increase but absolute indices decrease, thereby attaining lower-bound values of zero when the model fits perfectly (Browne, MacCallum, Kim, Andersen, & Glaser, 2002; Byrne, 2012, p. 73). Hence, the cutoff values used as references to verify the general adjustment of the structural models are those suggested by Schreiber, Nora, Stage, Barlow, and King (2006) indicating RMSEA < .07; CFI > .91; and SRMR < .05. A value less than .08 in SRMR is generally considered a good fit (Hu & Bentler, 1999).

Using the approach of competitive SEM analysis, both constructs were analyzed with CFA, and were compared to other theoretically plausible models in order to retain the most adequate one. The CFA run in the measurement model corroborates the expected factorial structure for the constructs Cultural Intelligence (Ang et al., 2007) and contextual

performance using the CQ scale and the Organizational Citizenship Behavior (OCB) scale. Scale setting was performed using the fixed factor method, which enabled the software to fix variances to 1.0 and to freely calculate factor loadings of all items (Gonzalez & Griffin, 2001).

Before running the CFA, an analysis of the sample size versus the number of parameters was made, and then theoretically the decision of parceling the items in factors was made. A parcel is a total score across a set of homogeneous items each with a Likert-type scale, and the rationale behind this decision, is that a) items within each parcel are known to measure a single construct, or are unidimensional (Bandalos, 2002; Kline, 2011), and b) smaller parameter to sample size ratios usually result in greater stability of parameter estimates (Little et al., 1999); c) parceled solutions typically result in better model fit than solutions at the item level (Bandalos, 2002), and d) parceling is a way of obtaining item distributions that are more continuous and normally distributed (Bandalos, 2002; Kline, 2011).

The first model (parent model), competing with the second one, was run with three factors. All items of the CQ scale were aggregated into a domain representative parcel called CQ. Also, 3 items of the OCBI scale were discarded, and four items of the OCBO were eliminated, ending up with 4 items in OCBI and 3 item in OCBO. This decision was based on 1) factor loadings that were not statistically significant nor acceptable for the sample size (<.4) (Hair et al., 2010), and 2) the high number of parameters. The second model (child model) is a model with two factors, in which all 34 items were parceled into two constructs: 20 items into CQ, and 14 items into OCB. The RMSEA is sensible to number of items., so if there are a lot, it would look artificially good (Fan & Fivo, 2007). Nested models are two or more models that are identical except that one of the models constrains parameters (null or

child model) and the other one remains the same (alternative or parent model) (Byrne, 2012; Hair et al., 2010; Kline, 2011).

In model comparison, the chi-square difference statistic (Δx^2) is used to test the statistical significance of the decrement in overall fit as free parameters are eliminated (trimming) (Kline, 2011). If the result is statistically significant, then the parent model is kept. On the contrary, if the result is not significant, the child model is kept, which is usually more parsimonious than the parent one (Hair et al., 2010; Kline, 2011) The fit indexes for both models are shown in Table 8 along with the chi-square difference.

Table 11. *Chi- Square Difference CFA Competitive Models*

	x^2/d_f	CFI	RMSEA	SRMR
Model 0 (parent)	1.19p>0.01	.99	.03	.04
Model 1 (child)	1.37p<0.01	.99	.04	.03
Δx^2	x^2 = 10933.415; df = 33 P-Value < 0.00001. Significant at p < 0.01			

In order to calculate the chi-square difference test, the chi-square test of model fit values of both models were needed, along with the degrees of freedom. Then, the p-value for a chi-square statistic is looked up using an online calculator, typing the difference in chi-square and degrees of freedom as input data. The parent model is retained as a result of the chi-square difference test, and also, because theoretically, both dimensions of OCB need to be analyzed differently. Additionally, this model obtained very good fit and all non-standardized factor loadings and residual variances were all statistically at the $p < .01$ level. The solution with the CQ items parceled into one construct and OCBI with four items and OCBO with three factors obtained acceptable general adequacy (x^2/d_f = 1.19, p > .01; RMSEA = .03; CFI = .99; SRMR = .04).

The diagram of the measurement model is shown in figure 4. The unstandardized factor loadings, along with the covariances and residuals are displayed. The estimator used was ML; the unstandardized coefficients were significant at the p < .01 level. Model

identification reported 36 free parameters estimated in the CFA, which were 11factor loadings, 11 intercepts, 3 covariances, and 11 residual variances. Factor variances were fixed at 1 using the reference variable or fixed factor for latent variable scaling (Gonzalez & Griffin, 2001) . Rotation used is by default oblique GEOMIN in Mplus 8.1 (Byrne, 2012; Muthén & Muthén, 2010), since there was a relation among factors that are part of the measurement model (Byrne, 2012; Hair et al., 2010).

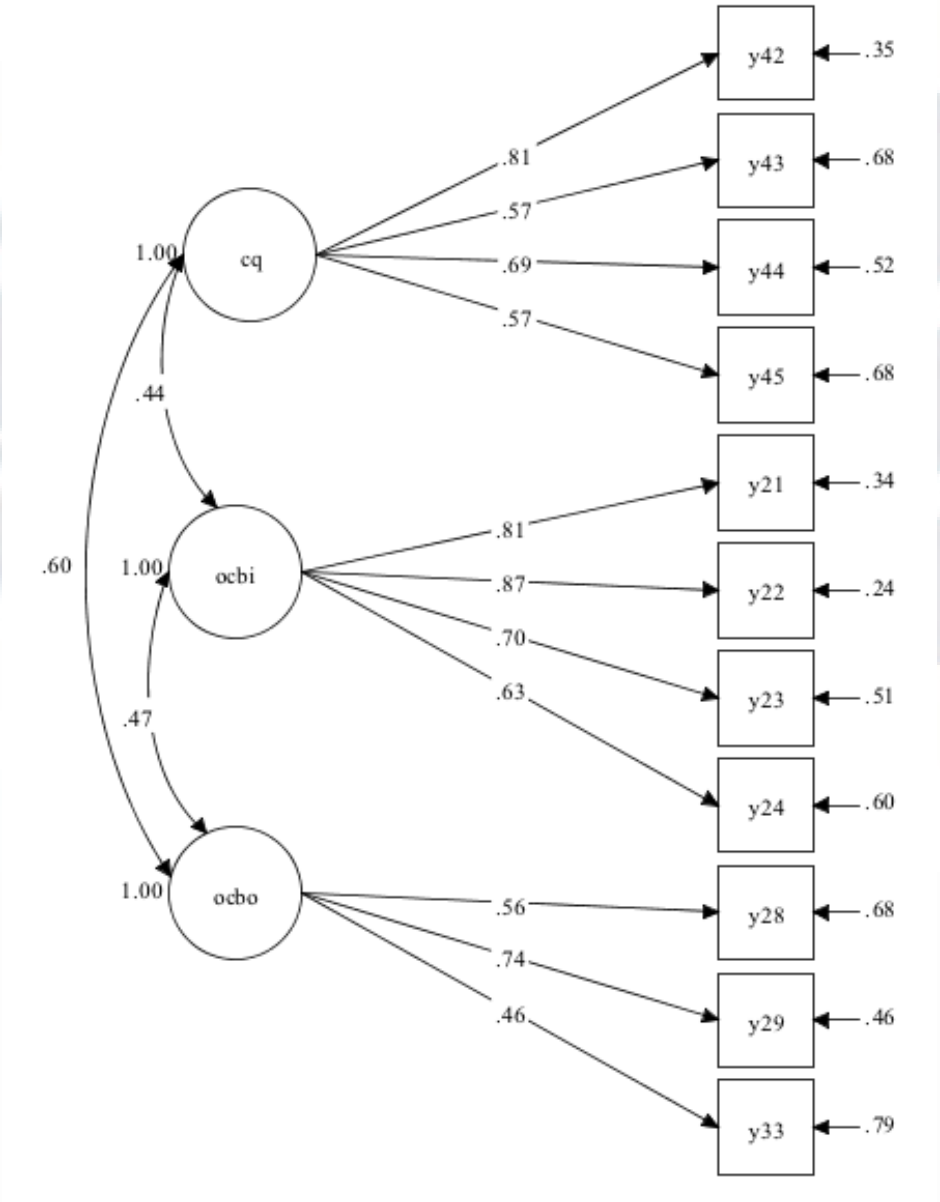

Figure 6. Measument model.
Note: N = 214

The raw data collected from the participants was then grouped into global virtual teams, using codes. Initially, four global virtual teams were identified, ranging from 28 members, to 107. This grouping was made based on the functions, roles and divisions within the company reported by the employees. The objective was to calculate the diversity index for each employee according to the team they belonged to, since individual cultural diversity index is computed by considering the differences among all the cultural backgrounds in a work unit, in this case, a global virtual team (Magnusson et al., 2014; Tsui et al., 1992; Van der Zee et al., 2004). The nationality reported in the survey is used as a proxy for cultural background and all indices ranged between .7559 and .9953. The hypotheses posed in this study are related to the moderation of cultural diversity on the relation between cultural intelligence an contextual performance. In order to test them, a multigroup SEM analysis model is proposed. For instance, it was necessary to incorporate a categorical moderator, which was used to separate the observations into groups at each level of the moderator, so the moderator does not appear in the model as a variable (Hair et al., 2010; Ryu & Cheong, 2017).

In this sense, the descriptive data of the cultural diversity index was obtained from SPSS, and the median value was extracted (0.8944) to categorize the individuals into two groups: the ones above the median with high cultural diversity, and those below it, with low cultural diversity. As stated before, multigroup models are moderations, meaning that the group moderates the relation between variables (Hair et al., 2010). Therefore, a multigroup structural analysis using multi-group analysis was performed, and following the logic of competitive or nested model comparison performed in the CFA. In a first stage, a configural model or equal form invariance was run, in which there were no constrains. It is tested by specifying the same structural model across the groups to confirm the same basic factor structure exists within each sample. Here, both the number of factors and the factor-indicator

correspondence are the same, but all parameters are freely estimated (Hair et al., 2010; Kline, 2011). This model also becomes the baseline model for comparison.

In the context of model trimming, a second stage of structural invariance was performed, in which all factor loadings were equated in both groups, therefore, reducing the parameters (Hair et al., 2010; Kline, 2011). Weak or metric invariance model establishes the equivalence of the basic meaning of the constructs because the loading denote the relationship between items and constructs. Then, the chi-square difference test was computed taking into account that if the result is statistically significant in model trimming, then the parent model is kept. Table 12 shows the results.

Table 12. *Chi-Square Difference Test. Configural vs. Weak*

	x^2/d_f	CFI	RMSEA	SRMR
Model 0 (parent)	1.21p<0.01	.98	.04	.06
Model 1 (child)	1.22 >0.01	.97	.05	.08
Δx^2	x^2 = 10.928; df = 8 The P-Value is 0.205812. The result is not significant at p < 0.05			

The result of the test was not statistically significant, which leads to reject the parent model and to keep the child one: multi-group SEM weak/metric. “Metric invariance is relevant in establishing relationships among constructs, which is more likely needed in testing structural relationship differences such as tests of moderation” (Hair et al., 2010, p. 746). Any type of structural model comparison first requires at least partial metric invariance to ensure the constructs are comparable.

Having this achieved, a second comparison was made with a third model, even more constrained, in which all intercepts or means were equated for both groups (also model trimming). Results are shown in Table 13. The test was statistically significant, leading to accept the parent model: multi-group SEM weak/metric. Unless the focus is on the changes of the means of the constructs between groups, this retained model is congruent with the hypothesis testing of the study. The purpose of the analysis is moderation, which assesses the

differences in structural relationships between groups formed on a third variable (cultural diversity) (Hair et al., 2010)

Table 13. *Chi-Square Difference Test. Weak vs. Strong*

	x^2/d_f	CFI	RMSEA	SRMR
Model 0 (parent)	1.22 p>.01	.97	.05	.08
Model 1 (child)	1.43 p<0.01	.94	.06	.09
Δx^2	x^2 = 30.341; df = 8 The P-Value is 0.000184. The result is significant at p < 0.05			

The diagram of the structural models for both groups are shown in Figures 3 and 4. The standardized factor loadings, along with the regression paths and residuals are displayed. The estimator used was ML; the unstandardized coefficients were significant at the p < .01 level. The fit indices obtained showed a good adequacy (x^2/d_f = 1.22, p > .01; RMSEA = .05; CFI = .97; SRMR = .08). The regression paths between the independent and dependent constructs show differences in both groups, leading to accept the hypothesis of moderation posted for the study. Hence both the hypotheses proposed in the study, tested by multigroup structural invariance, which were H_1= Cultural Intelligence is positively related to individual performance in Global Virtual Teams, and H_2= Cultural diversity moderates the relationship between cultural intelligence and individual performance in Global Virtual Teams were accepted. Table 14 shows the regression paths in both groups for comparison.

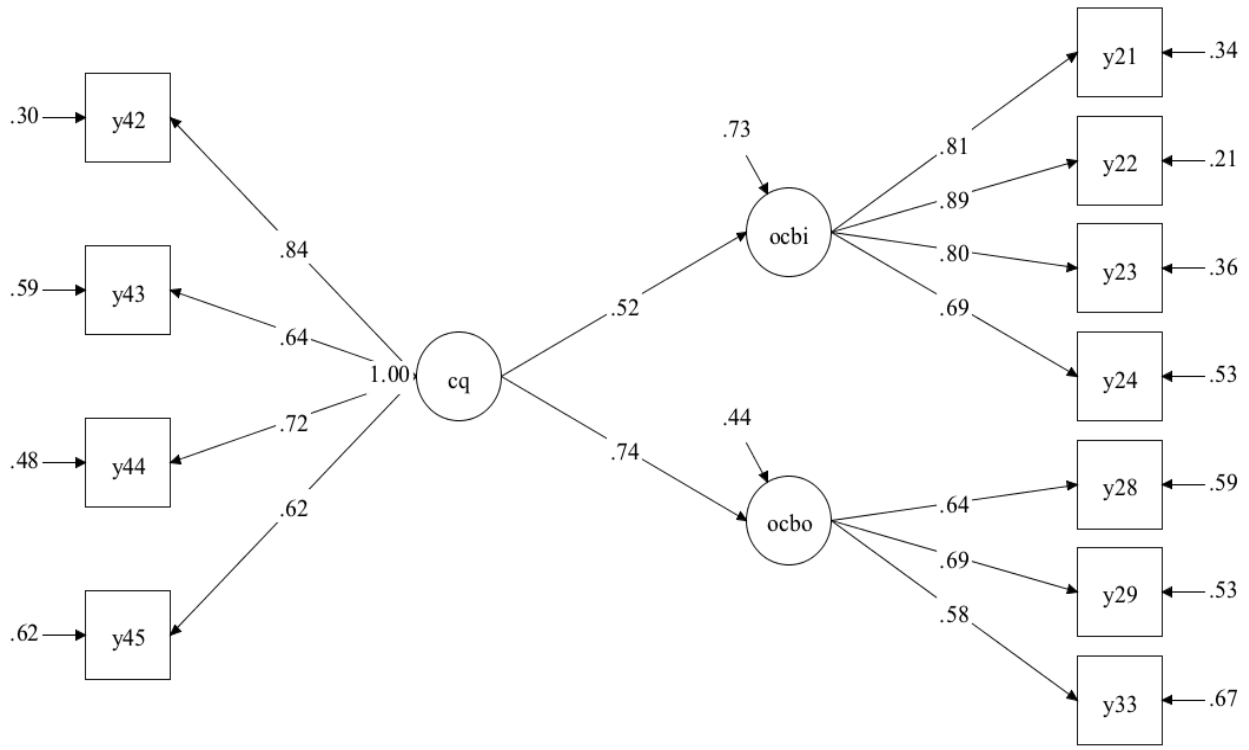

Figure 7. Structural model. Group with high cultural diversity
Note: N= 101

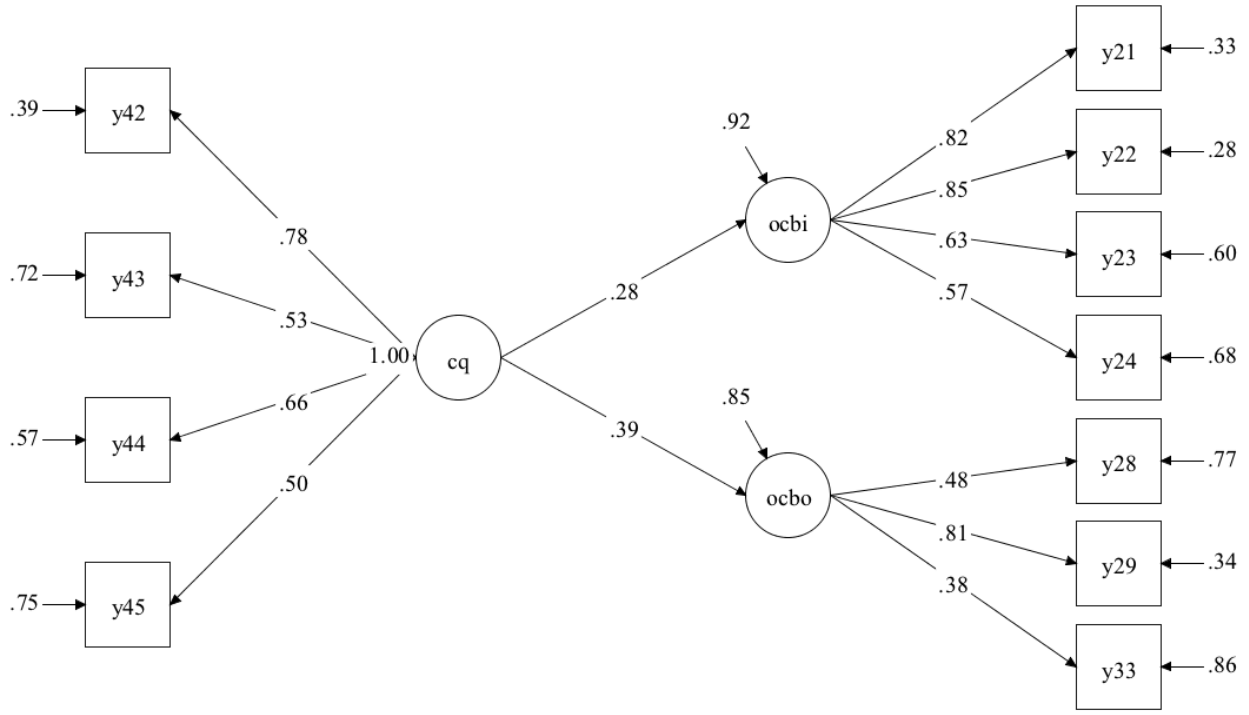

Figure 8. Structural model. Group with low cultural diversity
Note: N= 113

Table 14. *Regression Paths. High Cultural Diversity vs. Low Cultural Diversity*

	High Cultural Diversity		Low Cultural Diversity	
	Unstandardized	**Standardized**	**Unstandardized**	**Standardized**
OCBI on CQ	.61	.52	.33	.28
OCBO on CQ	1.12	.74	.52	.39

Once the results related to the hypotheses have been presented, it is possible to analyze the degree of similarity or divergence between these findings and those proposed by other authors. It should be pointed out that this is one of the first empirical studies to approach the relationship existing between cultural intelligence and contextual performance in the context of global virtual teams, and the effect of cultural diversity on that relationship. Specifically, the majority of the work on organizational citizenship behavior and cultural intelligence has focused on traditional organizations and face to face teams, where all employees are collocated and can interact on a regular basis. With the changing workplace, employees can now work remotely or across different locations and still be expected to work together.

First, regarding the acceptance of H_1= Cultural intelligence is positively related to individual performance in global virtual teams, based on the empirical evidence obtained, some clarifications are in place, related to the definitions of the variables involved. Organizational Citizenship Behavior (OCB) is the extra-role, voluntary behavior performed by organization members for the benefit of the organization (Coyle-Shapiro, Kessler, & Purcell, 2004; Hui, Lam, & Law, 2000; Kamdar, McAllister, & Turban, 2006; Organ, 1997; Podsakoff, MacKenzie, Paine, & Bachrach, 2000; Williams & Anderson, 1991). On the other side, Cultural Intelligence (CQ) is a multidimensional concept comprising four dimensions: metacognitive, cognitive, motivational, and behavioral (Ang & Van Dyne, 2008; Ang et al., 2011), defined as the ability to function effectively in another culture or in a culturally diverse setting (Erez et al., 2013). A positive and significant relationship between these two constructs was expected, tested and obtained, since at an individual level both of them are

influenced by personality factors (Ang et al., 2007; Chiaburu, Oh, Berry, Li, & Gardner, 2011).

OCB is, by nature, a discretionary behavior mainly determined by an individual will, and CQ has a strong dependence of intercultural openness (Ang & Van Dyne, 2008). Previous studies have shown that humans with high level of intellectual openness, are more motivated to learn and impart their knowledge, and are more concerned on the social environment they are immersed in, making them more proactive and dynamic (Fuller & Marler, 2009). This goes with the definition of OCB, which is not explicitly requested in an organization's regulations, but at the same time, contributes to its good functioning (Organ, 1997; Williams & Anderson, 1991). In this sense, a high level of CQ entails a high degree of openness and adaptability to different cultural environments, and implicitly, the possibility to perform at high rate.

OCB is that extension of effort and creativity, beyond the formal content of a hiring contract (Frenkel & Sanders, 2007), and CQ is an individual capacity to perform in culturally diverse scenarios. It can be stated that employees with a high degree of intellectual and intercultural openness have a better understanding of the assignment context, which therefore leads to high levels of OCB. In other words, the personal capacity development concerning the accommodation into a new cultural environment leads to the contribution of the employees to the achievement of a positive environment at the work place. Results in the acceptance of the hypothesis induce to assert that having high levels of CQ stimulates the development of strong interpersonal relationships, by helping colleagues (Organ, 1997; Organ et al., 2006), and generating organizational compliance (Borman & Motowidlo, 1993; C. A. Smith, Organ, & Near, 1983; Williams & Anderson, 1991).

In the context of global virtual teams (GVTs), the relationship found was no different from those studied in traditional organizations. The difference relies on the characteristics of

the participants of the study, who were all members of GVTs in a multinational. This clarification is made because typically, measurements are taken at the individual level and address specific behaviors of an individual, that targeted either the organization or other organizational members, but they do not specifically refer to behaviors of team members. Even though GVTs has shifted dynamics in organizations and has posed different challenges, it is shown that, even by working remotely with colleagues from different cultural backgrounds, global virtual team members can contribute to the success of the team as well as the organization. There are some differences disregarded in the study, such as the fact that the lack of face to face interactions make it not necessary to perform non-verbal communication behaviors that are included in the survey. This is solved by the use of synchronized technology, like teleconference.

In this research, contextual performance or OCB was divided into two categories based on its target (Organ & Ryan, 1995; Williams & Anderson, 1991), and measured accordingly. Organizational citizenship behaviors directed toward the individual (OCBI) are those that “immediately benefit specific individuals and through this means contribute to the organization” (Williams & Anderson, 1991, p. 602), and organizational citizenship behaviors directed toward the organization (OCBO) benefit the organization in general. Prior research has labeled OCBO dimension as generalized compliance (Williams & Anderson, 1991). In both dimensions, helping behavior was captured, which refers to actions meant to be beneficial to others. This helping behavior has been evolved to the sense of contributing to organizational harmony, disregarding if it's face to face or virtual. Organizational compliance on the other hand, is essentially adhering to and following a set of norms that the organization has set in place (Borman & Motowidlo, 1993; Smith et al., 1983; Williams & Anderson, 1991).

The regression path of CQ on OCB can also be attributed to the company's positive atmosphere. Social exchange theory, which underlines OCB, states that the positive outcomes might be obtained by the organizaton treating good the employees, by providing them with an open and diverse environment, and by offering them the possibilities for career development, benefits; therefore, enhancing engagement (Blau, 1964). This is precisely the characteristics of the setting where the information was gathered from. Consequently, the positive and significant relationship with CQ can be explained by stating that the more culturally knowledgeable and open an employee is, he is more willing to help others and to follow rules and go along the organizational norms. All this is consistent with previous research, where in the context of multicultural teams, CQ has shown to facilitate team integration (Flaherty, 2008), leader CQ has been found to positively influence team members' perceptions of leader and team performance (Groves & Feyerherm, 2011), and CQ has predicted sequences of integrative in intercultural negotiating dyads (Imai and Gelfand, 2010). In fact, past theory has predicted that in a culturally diverse context, CQ will have beneficial effects on team performance (Adair, Hideg, & Spence, 2013).

As for the acceptance of the second hypothesis, H_2= Cultural diversity moderates the relationship between cultural intelligence and individual performance in Global Virtual Teams, the empirtical evidence obtained shows that the higher the cultural diversity is, the stronger is the relationship between cutural intelligence and contextual performance. This is akin with what several studies have pointed regarding the advantages of cultural heterogeneity, as diversity promotes the generation of more and higher quality ideas, perspectives to identify problems, and alternatives to solve problems (Lovelace, Shapiro, & Weingart, 2001; Watson, Kumar, & Michaelsen, 1993). Also, the different viewpoints that cultural diversity brings provide the potential of offering team members diverse sources of

information when performing their tasks (Adler, 2002). Therefore, heterogeneous GVTs outperform homogeneous ones.

Working in GVTs inherently means working in multicultural teams, whose members are culturally diverse and geographically dispersed. The add-on is that they communicate using electronic media (Gibson & Gibbs, 2006; Martins et al., 2004). Cultural diversity brings dissimilar perspectives and expectations towards work norms and procedures, expectations and decision making, which are translated into specific challenges to overcome (Cascio & Shurygalio, 2003; Janssens & Brett, 2006). At the same time, like in any other team, GVTs' members perform independent tasks with a common objective, being mutually accountable for results, and possessing similar or complementary technical knowledge and expertise (Aubert & Kelsey, 2003).

Research in GVTs has focused heavily on communication and its impact on team members, particularly revealing that information and communication technologies limit nonverbal cues and social/contextual information. Studies have shown that communication media may impede desirable team processes and outcomes (Furst, Reeves, Rosen, & Blackburn, 2004; Vignovic & Thompson, 2010), and that GVTs face the challenge of overcoming time dispersions (Cascio & Shurygalio, 2003; Malhotra, Majchrzak, & Rosen, 2007). These studies would lead to hypothesize on negative effects of many variables on performance, but this study's empirical evidence shows otherwise. It is true that cultural diversity might create obstacles to the cohesion and functioning of teams (Brett, Behfar, & Kern, 2006; Earley & Mosakowski, 2000; Hinds & Mortensen, 2005; Polzer, Crisp, Jarvenpaa, & Kim, 2006), but cultural intelligence is a competence that when developed, it helps to overcome these challenges (Montoya-Weiss, Massey, & Song, 2001), and eventually enhance contextual performance.

CQ is multifaceted construct that includes behavioral flexibility, cultural knowledge, motivation to adapt in cross-cultural settings, and cultural metacognition (Earley & Ang, 2003). It is a form of cultural competence that enables a person to function effectively in culturally diverse settings (Ang & Van Dyne, 2008). In multicultural teams, this ability facilitates understanding, adaptation, communication, and coordination (Johnson et al., 2006). So these findings respond to the necessity of testing empirically (Adler, 2002) what has been proposed theoretically by other authors , and that is that CQ positively influences multicultural teams' outcomes and performance (Ang & Inkpen, 2008; Ang & Van Dyne, 2008; Ang et al., 2007; Earley & Ang, 2003).

CQ is considered a malleable competence that may change based on cultural exposure and other multicultural experiences (Earley & Peterson, 2004). A number of studies have revealed that CQ increases as a result of exposure to a cross-cultural context in different scenarios and with different participants. Such studies include international education service-learning programs (Pless, Maak, & Stahl, 2011), Swiss army officers serving abroad for long periods (Rockstuhl, Seiler, Ang, Van Dyne, & Annen, 2011), international leadership potential (Kim & Van Dyne, 2011), multicultural face to face team processes (Moynihan et al., 2006), and team member's integration (Flaherty, 2008). This findings are consistent with the information/decision-making perspective, which states that diversity brings positive effects to organizational processes (Chattopadhyay et al., 2004; Riordan, 2000; Stahl et al., 2010; Williams & O'Reilly, 1998).

The positive moderation of cultural diversity on the relationship between CQ and OCB in GVTs is presumably obtained because there is a need to bridge cultural boundaries in multicultural settings (Rockstuhl et al., 2011). So, with this purpose, team members need to think divergently, to search across the scope of the organization and its environment for

unique information and then share it with the group. Hence, CQ provides the ability to take advantage of the capacity embedded in heterogeneous global teams.

Summary

After running a multigroup invariance structural equation modelling analysis, both null hypotheses were rejected. There was a positive and significant correlation between cultural intelligence and contextual performance, which led to accept hypothesis 1. Categorical moderation revealed that a high cultural diversity, increases the relationship between the independent and dependent constructs, therefore hypothesis 2 was also accepted. Fit indices showed good adequacy of the model. AVE and CR values indicated convergent and discriminant validity, and the fit indices obtained showed a good adequacy (x^2/d_f = 1.22, p > .01; RMSEA = .05; CFI = .97; SRMR = .08).

Chapter 5: Conclusions and Recommendations

The purpose of this research was to find the relationship existing between cultural intelligence and contextual performance, when moderated by cultural diversity in global virtual teams. A sample of 214 employees of a multinational services company was used. For methodological purposes, a multigroup structural equations model was built (x^2/d_f = 1.22, p < .01; RMSEA = .05; CFI = .97; SRMR = .08), analysed along a cross-sectional time horizon. The following are the conclusions, implications and recommendations arising from the study.

Conclusions

To evaluate the relationship between CQ and OCB in GVTs, two hypotheses were tested (α=0.01). Based on a literature review and the factor structure obtained, cultural intelligence was analysed as one construct comprised by four dimensions (metacognitive, cognitive, motivational and behavioral), and contextual performance was analysed through two constructs derived from the OCB concept: OCBI and OCBO. Cultural diversity was a manifest variable that was converted into a categorical moderator to then run a multigroup invariance SEM. This model was used to compare one group with high cultural diversity, with the other with a low one. Both hypotheses were accepted, resulting into a positive and significant correlation between cultural intelligence and contextual performance, and a positive moderation of cultural diversity of that correlation. The following are conclusions drawn from the analysis and discussion.

Most of the work on OCB focuses on traditional organizations and teams, but with the changing workplace into virtual collaboration, and nowadays employees can work remotely or across different locations and still be expected to work together. On top of this, working from different locations implicitly involves having to work with people from other cultures, which make it necessary to identify the level of cultural intelligence employees have in order to make them suitable to interact with others. Those employees who are not collocated may

not feel the need to benefit the organization, but may feel connected to the team and therefore participate in virtual team citizenship behaviors .

Cultural intelligence is increased by having more intercultural exposure, so this is an explanation why a high cultural diversity in a global virtual team results into more contextual performance. Additionally, contextual performance, by definition, requires having individual initiative, which is the consistent, constructive participation in the daily activities and planning of team processes and activities. Cultural intelligence has a component that is motivational, which leads to conclude that, when accompanied by the other three dimensions, and when it variates, it makes contextual performance to positively variate with it. Especially when there is a high presence of cultural diversity, that is interpreted as intercultural exposure.

Global virtual teams represent a change in organizations and teams that have created new challenges and opportunities. One of these challenges is identifying ways that virtual team members can contribute to the success of their work unit as well as the organization. Enhancing cultural intelligence could be a way of doing it so, by means of training. On the other side, an organization can encourage OCB through inciting social exchange, meaning that, by the company providing an atmosphere of diversity and mutual benefits from the work with others, people can feel more motivated and satisfied, and, therefore, more willing to perform extra-role behaviors. In this sense, team's cohesiveness could engender social exchange, when this happens, team members are more likely to cooperate and trust, which will help them feel valued and cared for, and therefore, more likely to have an exchange with either the organization or their team mates.

The environment where GVTs perform is determinant for their success. Besides providing a good atmosphere to encourage social exchange, a company must set and pass along critical work practices, and standards must be indicated explicitly to avoid any misunderstandings, since employees are not collocated and they communicate through

computer-mediated technology. Therefore, It may be necessary to standardize communication in order to transfer information properly and to set clear and amicably, the cultural differences employees might encounter when working in teams. On the whole, organizational compliance is about following group norms as well as following requirements within an organization, and virtual teams would have alike norms and requirements that are spelled out explicitly and happen implicitly.

Implications

In terms of theoretical implications, the results of this research enrich the literature and the academic discussion corresponding to an analysis of the relationship between cultural intelligence and contextual performance, when moderated by cultural diversity. The literature reveals the existence of multiple articles on the subject of cultural intelligence and contextual performance. However, the evidence shows that empirical studies are scarce, and no unified framework exists for selecting, measuring and deploying these two constructs, along with cultural diversity, specifically in the context of global virtual teams.

This research constitutes a disciplinary contribution to international human resource management, keeping in mind that the formation of virtual teams in multinational enterprises, and management of the cultural diversity therein, are realities that present organizations with challenges and opportunities. Also, to the field of intercultural management as it studies the way in which people build competencies to help them deal with the challenges of intercultural aspects in virtual environments; in this case, global virtual teams, and cope with the intercultural challenges that will help GVT members work together successfully.

Regarding managerial implications, the findings of this study provide useful reference elements for professionals to raise awareness on their performance, based on their competences and the environment of the workplace. For managers, this would help them to improve their selection criteria: to select people with competencies inherent to their

personality on the one hand, and training and capacity building criteria on the other, for developing competencies that can in fact arise from experience and interactions with other people.

OCB is becoming more important in the workplace and more of an expected behavior. It is indeed something that many managers expect from their employees, and for this, it is considered instrumental by many in achieving a promotion (Hui et al., 2000). By effectively monitoring team outcomes, managers can request more updated information, consider alternative solutions, and encourage the creation of innovative proposals. They can also anticipate problems better, analyze and evaluate environmental scenarios, and provide adequate alternative responses in light of global objectives. A way of doing it so, is to develop knowledge and competencies-based cultures that would enhance extra-role behaviors. All this impacts the effectiveness of global virtual teams and overall organizational performance.

Recommendations

Based on the results obtained by this study, future research could consider the impact of other forms of diversity on the relationship between cultural intelligence and contextual performance, and see if the same moderation effect is obtained. Also, other variables can enter the equation by revealing their effects or as control variables, such as position in the company, roles, experience, or preferences when communicating virtually. Another suggestion would be to include psychic distance. Cultural diversity index is a calculation based on the country of upbringing of the individuals in a work unit, but it does not contemplate psychic distance. Perhaps the deep differences of cultures may draw different conclusions in the study.

Virtual teams are significantly different from traditional teams, hence the behavior of its members cannot be compared under the same criteria. Virtual global teams' members communicate through computer-mediated technology, which tend to mitigate the impact of

both verbal and nonverbal communication when interacting with other cultures. This means that subtleties that seem obvious in face-to-face meetings are not clear in virtual meetings or through written communication, and therefore, this reduces the usage of intercultural competencies such as Behavioral CQ. In this sense, perhaps focusing further research in GVTs on certain dimensions of CQ that are not very related to virtual environments, like the behavioral CQ, could reveal more accurate information.

Finally, some methodological recommendations are in place. To diminish common method bias, it is recommended to include third person evaluations, which is something that goes more with task performance. This is also a limitation of this study because this requires special permissions from the organization where the fieldwork is done, and because usually people come and go, making difficult to match self-reported measures with third-person evaluations. Additionally, a longitudinal study would be more revealing to understand the effects of human resource training when obtaining intercultural competencies, which would end up improving overall performance in global environments.

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Appendix A: Informed Consent

The following survey is part of an academic research project on the success of global virtual teams inside the company. It seeks to understand how individual performance in culturally diverse global virtual teams is enhanced with cultural intelligence. Data will be collected from global team members and team leaders or project managers. The data collected will remain anonymous, and information confidentiality will be guaranteed at all times.

Text to appear at the beginning of survey (Informed consent):

As a participant in the study conducted by the researcher, I hereby declare that I have been informed regarding its nature and purpose. I understand that the data I provide will be used for academic purposes and may be published in the form of aggregated results, thus preserving the confidentiality of individual participants. Also, I understand that anonymity will be maintained at all times during data collection and analysis, through the use of codes assigned to respondents.

Appendix B: Scales and Items

CQS

	Questionnaire items
Metacognitive CQ	
MetCQ1	I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds
MetCQ2	I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me
MetCQ3	I am conscious of the cultural knowledge I apply to cross-cultural interactions
MetCQ4	I check the accuracy of my cultural knowledge as I interact with people from different cultures
Cognitive CQ	
CogCQ1	I know the legal and economic systems of other cultures
CogCQ2	I know the rules (e.g., vocabulary, grammar) of other languages
CogCQ3	I know the cultural values and religious beliefs of other cultures
CogCQ4	I know the marriage systems of other cultures
CogCQ5	I know the arts and crafts of other cultures
CogCQ6	I know the rules for expressing nonverbal behaviors in other cultures
Motivational CQ	
MotCQ1	I enjoy interacting with people from different cultures
MotCQ2	I am confident that I can socialize with locals in a culture that is unfamiliar to me
MotCQ3	I am sure I can deal with the stresses of adjusting to a culture that is new to me
MotCQ4	I enjoy living in cultures that are unfamiliar to me
MotCQ5	I am confident that I can get accustomed to the shopping conditions in a different culture
Behavioral CQ	
BehCQ1	I change my verbal behavior (e.g., accent, tone) when a cross-cultural interaction requires it
BehCQ2	I use pause and silence differently to suit different cross-cultural situations
BehCQ3	I vary the rate of my speaking when a cross-cultural situation requires it
BehCQ4	I change my nonverbal behavior when a cross-cultural situation requires it
BehCQ5	I alter my facial expressions when a cross-cultural interaction requires it

OCBI Scale

	Questionnaire
Behaviors that immediately benefit specific individuals and indirectly through this means contribute to the organization	
OCBI1	I help others who have been absent
OCBI2	I help others who have heavy work loads
OCBI3	I assist supervisor with his/her work (when not asked).
OCBI4	I go out of way to help new employees
OCBI5	I take time to listen to co-workers' problems and worries
OCBI6	I take a personal interest in other employees
OCBI7	I pass along information to co-workers

OCBO Scale

	Questionnaire
Behaviors that benefit the organization in general	
OCBO1	My attendance at work is above the norm
OCBO2	I give advance notice when unable to come to work
OCBO3	I take undeserved work breaks
OCBO4	I spend great deal of time with personal phone conversations
OCBO5	I complain about insignificant things at work
OCBO6	I conserve and protect organizational property
OCBO7	I adhere to informal rules devised to maintain order

Appendix C: Permission to Use CQS

Permission granted to use CQS

Tuesday, June 21, 2016 at 9:55:37 PM Colombia Standard Time

Subject: RE: Authorization: Use of CQ Scale for research purposes
Date: Tuesday, June 21, 2016 at 11:34:30 AM Colombia Standard Time
From: Van Dyne, Linn
To: Sara Cristina Aguilar Barrientos
CC: Keyla Waslawski
Attachments: image001.png, CQS from MOR 2007.pdf

Hello Sara,

Thank you for your interest in using CQ in your academic research.

You have my permission to use the 20 item CQS in your research aimed at publication in scholarly journals.

There are two easy ways you can do this.

1) We offer on-line assessments that provide personal feedback reports to participants. This provides them with an incentive to participate in your research because the reports allow people to compare their scores for four factors of CQ and the subdimensions of the four factors with the world-wide norms. The feedback reports also include questions to guide interpretation of results and creation of personal development plans. The highly discounted cost for academic researchers is $12-$18 per participant depending on the type of program. We also can provide you with an xls file with individual participant responses to the 20 items in the CQS that you can use in your research. Keyla (copied on this email can give you more information on these programs if you are interested).

2) You can create your own survey using the items in the attached file. If you do this, be sure to include the following copyright information on all electronic and paper copies of the survey:

Please remember this is a copyrighted scale and I am making it available to you ONLY for scholarly research aimed at publication in academic journals. Should you decide you want to use the scale for consulting or program evaluation in the future, please contact me to make the necessary arrangements.

In addition, please remember that you should use 1-7 Likert scale responses in research and research papers/presentations because the world-wide norms and the 1-100 scores are proprietary.

We wish you the best with your research. Please share your results with us so that we can learn from you

Sincerely,

Linn

Appendix D: Histograms