Examining Cultural Intelligence in India's Pharmaceutical Industry: A Global Perspective

Aravind Puthenpurakkal Mahadevan

Master of Science in International Business

National College of Ireland

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ABSTRACT

This study examined the importance of cultural intelligence among employees working in cross-cultural collaboration. The cultural intelligence was assessed from 120 employees working in Indian Pharmaceutical Companies. A survey design was used, and the data collected was analyzed using IBM SPSS software. A purposive sampling that comprises employees from Regulatory Affairs, Quality Department, Human Resources, Sales and Marketing, and Finance and Logistics was considered. Descriptive statistics of the participant and CQS question response, reliability testing (Cronbach's alpha values), Exploratory Factor Analysis, Parallel Analysis, and Non-Parametric test (Mann-Whitney U test and Kruskal-Wallis Test were employed.

The survey reported a mean total cultural intelligence score of 5.11. A score above 4 is considered somewhat high cultural intelligence. Cronbach's alpha value from the CQS survey was 0.947. Exploratory Factor Analysis was examined to examine whether the variables measured appropriately what they intended to measure. The suitability of data for Exploratory Factor Analysis was confirmed by Kaiser-Meyer-Olkin value of .911 and Bartlett's Test of Sphericity reaching statistical significance. The Cultural Intelligence Scale (CQS) was subjected to principal components analysis (PCA) using SPSS version 28. To confirm the number of factors for retention, a parallel analysis was conducted by running Syntax code in IBM SPSS software. Parallel analysis and scree plot revealed a factor solution. Confirmatory Factor Analysis and Discriminant validity were not performed due to the lack of access to this software and financial limitations.

Normality testing (5% trimmed mean, skewness and kurtosis values, Kolmogorov-Smirnov Values, Shapiro-Wilk Values, and Histogram) and Homogeneity testing indicated a trend toward non-parametric tests. Non-parametric testing using the Mann-Whitney U test and Kruskal-Wallis Test proved that no significant difference in total cultural intelligence scores across variables (gender, age, educational qualification, work experience, working departments, country of origin, and presence of diverse cultural management). The study recommended further expansion to the work engagement and performance satisfaction index to fully understand the behavioral and mental picture of the cultural intelligence study.

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Research Methods & Dissertation

Examining Cultural Intelligence in India's Pharmaceutical Industry: A Global Perspective

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AI Acknowledgment
This section acknowledges the AI tools that were utilized in the process of completing this assignment.

Tool Name	Brief Description	Link to tool
Grammarly	Grammar and punctuation checks	https://www.grammarly.com
ChatGPT	For suggestion and ideas	https://chat.openai.com

Description of AI Usage
This section provides a more detailed description of how the AI tools were used in the assignment. It includes information about the prompts given to the AI tool, the responses received, and how these responses were utilized or modified in the assignment. **One table should be used for each tool used.**

Grammarly		
Grammarly was used to check the grammar, punctuation, and readability of the text.		
Prompt	Rationale	Quality check
Not Applicable	Not Applicable	Not Applicable

ChatGPT		
ChatGPT was used for project suggestions and ideas.		
Prompt	Rationale	Quality check
Please suggest a better title "The investigation on the impact of cross-cultural collaboration on a global level from working professionals in small, medium, and large pharmaceutical companies in India"	Initial brainstorming to find a new revised thesis title	Not Applicable
Suggest a research question according to the research objectives below.	To explore if alternative research areas	Not Applicable

keywords that connect the Cultural Intelligence Scale (CQS) to the literature review for my thesis on "Examining Cultural Intelligence In India's Pharmaceutical Industry: A Global Perspective"	Unable to find sufficient research material, so requested for keywords	Not Applicable
Suggest a research hypothesis based on the above-suggested research questions.	Initial brainstorming but the hypothesis was finalized after watching YouTube videos on the golden thread of research theses	Not Applicable
Is it necessary to do a Confirmatory Factor Analysis (CFA)? As I don't have the required software, is there any way we can justify not performing Confirmatory Factor Analysis (CFA)?	CFA is not available in SPSS.	Not Applicable
For the cultural intelligence scale (CQS) survey, what statistical analysis should I do?	Available literature suggests various statistical analyses making it hard to finalize the test required.	Not Applicable
How do we justify using the survey as a research instrument over other quantitative research instruments for my thesis?	To strengthen the gap of using surveys. Simultaneous explored journals for clues	Not Applicable
Provide suggestions for research objective for the aim "The main aim of carrying out this research is to access the cultural intelligence of the employees working in pharmaceutical companies in India"	Initial brainstorming	Not Applicable
Prepare a 7-point Likert scale for total cultural intelligence score (Scores of 4 or higher are desirable).	SPSS guides string variables to be converted to numerical variables to compute, hence the Likert Scale was needed. Journals didn't specify any such Likert scales making it complicated to compute	Not Applicable

How to identify whether we should go for parametric or non-parametric testing in SPSS?	Cross-checking if my decision of non-parametric is correct	Not Applicable
What to conclude if I get Levene's test p-value greater than 0.05 and Shapiro-Wilk's p-value less than 0.05? Can I proceed with non-parametric testing?	To find answers to contradicting and complicated questions.	Not Applicable
Does discriminant validity need to be performed after confirmatory factor analysis?	Looking at how to justify the limitation of SPSS.	Not Applicable
Please provide a sub-heading to be used in the literature review of the Cultural Intelligence Scale involving variables such as Age, Education, Work Experience, Department, country of origin, and gender	Cross-checking if I have missed out any important point	Not Applicable
Suggest 10 research objectives for a thesis that focus on a survey using the Cultural Intelligence Scale (CQS).	Initial Brainstorming	Not Applicable

Evidence of AI Usage
Not Applicable. AI was used only for suggestions.

Additional Evidence:
Not Applicable. AI was used only for suggestions.

Additional Evidence:
Not Applicable. AI was used only for suggestions.

ACKNOWLEDGEMENTS

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LIST OF ABBREVIATIONS

3C - Cross Cultural Competence

AVE - Average Variance Extracted

BCIQ - Business Cultural Intelligence Quotient

CCC - Cross-Cultural Competence

CFA - Confirmatory Factor Analyses

CFI - Comparative Fit Index

COVID-19 - Coronavirus disease 2019

CQ - Cultural Intelligence

CQS - Cultural Intelligence Scale

GVT - Global Virtual Teams

HR - Human Resources

HRM - Human Resources Management

IBM SPPS - IBM Statistical Package for the Social Sciences

IT - Information Technology

KMO - Kaiser-Meyer-Olkin Measure of Sampling Adequacy

KPI - Key Performance Indicator

MNC - Multi-National Companies

NNFI - Non-Normed Fit Index

PCA - Principal Components Analysis

QA - Quality Assurance

QC - Quality Control

RMSEA - Root Mean Square Error of Approximation

RO - Research Objectives

Sig. - Significance

SRMR - Standardized Root Mean Square Residual

TCIS - Total Cultural Intelligence Score

TLI - Tucker-Lewis Index

UK - United Kingdom

CHAPTER 1: INTRODUCTION

1.1   BACKGROUND OF THE STUDY

The success of a company depends upon how well it can optimize the expected return and risk. Outsourcing and offshoring business models were frequently used by the organization to optimize its resources and improve the quality of business processes by shifting its business operations, activities, or processes to lower-cost countries (Stojanov, 2017). In the past decade, we observed cases where multinational companies shifted their activities to a different geographic region. The parent company will have the administrative and decision-making power, and offshoring bases are expected to align with the expectations and requirements of the parent company. The changes in the team are expected to include cross-cultural team dynamics. This type of cultural shift requires a proper cultural diversity management system which includes complex themes such as intercultural communication, prevention of discrimination, emotional intelligence, etc. However, with a diverse workforce, it has become essential that employees possess cross-cultural awareness and sensitivity at the ground level. This is known as cultural intelligence. It is the ability to understand, respect, and engage with individuals from different cultural backgrounds. Employees may adapt to the host work culture but still, meaningful differences will exist as everyone's core cultural values are deeply held and bound to their home culture. Employees must exhibit sufficient cultural intelligence while working in diverse cultural teams/ cross cultural collaborations to achieve corporate goals. Through this study we would like to examine the cultural intelligence in pharmaceutical companies. There are fewer publications on international cross-cultural collaborations from pharmaceutical companies except the results of "Best Places to Work" surveys.

Many theoretical models were proposed related to cross-cultural management. One of the early investigations was the works of Nishii and Ozbilgin (2007) & Sippola and Smale (2007). Nishii and Ozbilgin (2007) reflected in their paper the challenges and opportunities faced in global diversity management. Another example of earlier integration of global diversity management was done by Sippola and Smale (2007) through its literature explaining how TRANSCO, a European company was able to achieve global consistency at the level of diversity philosophy amongst its foreign subsidiaries with the inclusion of more multi-domestic approach for the implementation of diversity policies and practices. However, the most famous theoretical work includes the work of Geert Hofstede's Cultural Dimensions Theory, Edward T. Hall's High-context vs. low-context Communications, Howard Giles's Communication Accommodation Theory, Intercultural Competence Model, Cultural Intelligence Score Model, etc. Cultural intelligence has been largely overlooked. It is a person's "capability for successful adaptation to new cultural settings, that is, for unfamiliar settings attributable to cultural context" (Earley and Ang, 2003, p. 9).

India was chosen as the country of study as companies outsource their project to India due to low cost and abundance of human resources. As per Statista (2023), India is one of the leading players in the global pharmaceutical and vaccine industries. In terms of pharma production value and production volumes, India is ranked fourteenth and third respectively. The demand for India's medicine is due to the pharmaceutical industry's resilience during the COVID-19 pandemic, affordable prices, and superior quality. Also, India is known for its diverse culture and religions.

The objective of this research is an attempt to access cultural intelligence among employees in Indian pharmaceutical companies. This will be an extension of the previous studies (Devjak, Bezcioğlu-Göktolga, Sabidussi, and Smeets, 2023) to explore cultural diversity issues. This research will be helpful to managers and team leaders in pharmaceutical companies in understanding the challenges of cross-cultural interaction and how it could affect the employee engagement experience. This research would provide evidence for establishing the ground level of cross-cultural interactions. It will also serve as a reference for future scholars who want to cross-examine this topic on a broader spectrum. These types of interactions fall under global diversity management.

1.2   STATEMENT OF PROBLEM AND STUDY RESEARCH WORTH

With globalization, cross-cultural management and cultural intelligence have become an interesting topic among both academics and practicing managers. For the past few decades, we observed fragmentation of barriers to entry, and global flows of finance, knowledge, and people. It has also led to accelerated interconnectivity between nations and people which has also led to increased cross-cultural interactions. Concerning the global movement of people and its effective management of people from different cultural groups stems the need for cross-cultural management and cultural intelligence.

With the existence of culturally diverse workforces and global connectivity, it is no longer necessary for employees to be in a single workplace. Technology has brought people together. However, with a diverse workforce, it has become essential that employees possess cross-cultural awareness and sensitivity at the ground level. Employees may adapt to the host work culture but still, meaningful differences will exist as everyone's core cultural values are deeply held and bound to their home culture. To have a secure and foster diversity within the workforce, management must understand these culturally bound values and behavior for the success of the organization.

A company may have varied cultural diversity management policies at each of the specific sites depending on the local host culture difference. We often come across organizations such as "Best Places to Work" that help companies evaluate the culture of their workplace through confidential surveys and help companies identify strengths, and weaknesses and provide advice and guidance. However, such a policy may not be able to understand the management practices to deal with cross-country, cross-site, or cross-cultural work activities. They fail to understand the deep-rooted challenges faced by employees dealing with foreign clients during outsourcing or offshoring activities. In outsourcing or offshoring activities, the parent company assigns the project to the off-sourcing team and is expected to complete it in the expected timeline. The cross-cultural communication between parents and the off-sourcing/outsourcing team is very limited and the level of bonding between parents and the off-sourcing/outsourcing team will be very minimal.

With the company's focus on KPI and team performance, often off-sourcing/outsourcing team fails to deliver the expected results. This may be due to due to ineffective cross-cultural communication. Bucker, Furrer and Lin (2015)

consolidated the list of 40 empirical CQS studies conducted from 2006 till 2015. This included many prominent authors such as Ang, Templer, Van Dyne, Tarique and Takeuchi, etc. with the survey results from many countries. This is also one of the main literatures under study. However, cross cultural intelligence study was not conducted in India and no data is available from Asian countries. There are also fewer publications on international cross-cultural collaborations from pharmaceutical companies except the results of "Best Places to Work" surveys. Thus, there is a need to evaluate the need for such cross-cultural management practices through cultural intelligence in country like India which is a hub for pharmaceutical companies with offshoring and outsourcing activities due to its cheap human resources.

RESEARCH QUESTIONS

The research questions posed for this research study are:

1. What is the total cultural intelligence score (TCIS) among employees in Indian pharmaceutical companies?

2. How does cultural intelligence vary among employees from different demographics backgrounds (e.g. age, gender, education), roles, and work experience in Indian pharmaceutical companies?

3. Do Indian pharmaceutical companies have a diverse cultural management team (e.g. Diversity, Equity, and Inclusion (DEI)/ Diversity and Inclusion (D&I) Team?

4. What is the total cultural intelligence score (TCIS) among employees who don't interact with clients from diverse cultural backgrounds?

1.3   RESEARCH HYPOTHESIS

The hypotheses proposed for this research study are the following:

H_{01}: There are significant differences in the cultural intelligence scores among employees from different demographic backgrounds (e.g. age, gender, education) in the Indian pharmaceutical industry.
H_{A1}: There aren't significant differences in the cultural intelligence scores among employees from different demographic backgrounds (e.g. age, gender, education) in the Indian pharmaceutical industry.

H_{02}: There are significant differences in the cultural intelligence scores among employees in different roles and with more work experience in the Indian pharmaceutical industry.
H_{A2}: There aren't significant differences in the cultural intelligence scores among employees in different roles and with more work experience in the Indian pharmaceutical industry.

H_{03}: There are significant differences in the cultural intelligence scores among employees having diverse cultural management and those who don't.
H_{A3}: There aren't significant differences in the cultural intelligence scores among employees having diverse cultural management and those who don't.

H_{04}: There are significant differences in the cultural intelligence of employees who interact with clients from diverse cultural backgrounds and those who don't.

H_{A4}: There aren't significant differences in the cultural intelligence of employees who do interact with clients from diverse cultural backgrounds and those who don't.

1.4   RESEARCH AIM AND OBJECTIVES

AIM

The main aim of carrying out this research is to access the cultural intelligence of the employees working in pharmaceutical companies in India. This aim is further broken down into research objectives as follows:

OBJECTIVE

RO1: To measure the total cultural intelligence score among employees in various pharmaceutical companies in India.

RO2: To analyze the difference in cultural intelligence among employees from different demographic backgrounds (e.g. age, gender, education) in the Indian pharmaceutical industry.

RO3: To compare the cultural intelligence of employees across different roles and work experience levels within pharmaceutical companies.

RO4: To understand if pharmaceutical companies have diverse cultural management teams.

RO5: To evaluate the cultural intelligence of employees who don't interact with clients from diverse cultural backgrounds.

The aims and objectives of this study will be meet by the below research methodology. A detailed research methodology is also provided in Chapter 3: Research Methodology.

1.5   RESEARCH METHODOLOGY

This research study has adopted a quantitative research design. Quantitative refers to data collection procedures (such as questionnaires) or analysis techniques (such as graphs or statistics) that generate or use numerical data (Saunders, Lewis, and Thornhill, 2023). For this study, a deductive approach is required to collect individual views and experiences to test the hypothesis using statistics. The research strategy is to use a survey (questionnaire) to gather information on cultural intelligence in workplaces. The responses of employees working in pharmaceutical companies in India will be collected. This will provide an insight into the cultural intelligence within the organization and how this impacts the social relations in the workplace.

1.6   ORGANISATION OF RESEARCH REPORT

The dissertation is made up of 6 chapters arranged in a sequential manner which leads to addressing the research question and objectives.

Chapter 1 includes the context of the project, research problem, research questions, hypothesis, aims and objectives of the research, scope of the study, rationale for conducting this research, and research structure of the dissertation.

Chapter 2 is the literature review. A critically evaluated and synthesized current and existing literature related to cultural intelligence. This section will focus on the significance of cultural intelligence in the workplace.

Chapter 3 gives research methodology where it covers possible research methods, previous research works, justification of choosing the research method, the sample under study, selected research instruments, piloting of the data collection tool, data collection method, data analysis method, handling of the sample data, ethical consideration, and limitation of the study.

Chapter 4 is the analysis of the data from the primary research, key findings, correlation between test results, and using the data to test the research hypotheses.

Chapter 5 focuses on the discussion of the findings, the result of the hypotheses testing, how much extent of alignment with the collected literature material, practical implications, and limitations of the study.

Chapter 6 includes the conclusion of this dissertation, recommendations, implications of findings, and a personal learning statement.

The references and appendices can be found at the end of the dissertation.

CHAPTER TWO: LITERATURE REVIEW

2.1 INTRODUCTION

In an organization, the Human Resource Department is responsible for identifying a suitable candidate for the job role. With the global presence of people from various cultures and origins being well accepted, it made it easier to select potential employees. In an organization following diverse cultural management, we may find employees from different nationalities working in the best interest of the organization. Business prospers when employees effectively executive cross-cultural communication.

Cross-cultural communication refers to communication between people who differ in working styles, nationality, ethnicity, race, gender, sexual orientation, and so on. It is up to the organization to demonstrate communication policies and employ tactics that will be accepted by their connection and help them overcome cross-cultural obstacles. Some of these include discrimination, prejudice, ethnocentrism, blame game, stereotypes, harassment, and backlash (Wadhwa and Aggarwal, 2023).

The employee performance is influenced by various factors. One such factor is Cultural intelligence (CQ). It is a person's "capability for successful adaptation to new cultural settings, that is, for unfamiliar settings attributable to cultural context" (Earley and Ang, 2003, p. 9). Cultural intelligence allows them to adapt and behave accordingly and avoid misunderstanding and interaction problems. The absence of cultural competence will lead to communication gaps, knowledge hiding, and conflicts (Bogilović, Černe and Škerlavaj, 2017). Any cross-cultural differences and intercultural communication can affect decision-making processes and thus managers should develop cross-cultural intelligence (Bajaj, Khandelwal and Budhwar, 2021).

2.2 CULTURAL INTELLIGENCE (CQ)

Earley and Ang were the initial conceptualization of CQ. According to Earley and Ang (2007), CQ is an aggregate multidimensional construct consisting of four dimensions: cognitive CQ, metacognitive CQ, motivational CQ, and behavioral CQ.

Cognitive CQ refers to an individual's level of cultural knowledge which comprises awareness of economic, legal, sociolinguistic, and interpersonal systems of different cultures and fundamental knowledge of cultural values (Ang *et al.,* 2008). A high level of cognitive CQ helps us understand different cultures and makes us appreciate the systems involved in social interaction within a culture. It also helps improve interactions with people from different societies (Hansen *et al.,* 2011).

Metacognitive CQ refers to the individual's consciousness of cultural differences and having general knowledge of different cultures (Lee, Jiang, and Nielsen, 2018). Metacognitive CQ helps an individual to adapt to the new culture including their values, norms, and beliefs without being bound to their previous cultural knowledge (Malek and Budhwar, 2013). Ang *et. al* 2007 define Cognitive CQ as "knowledge of norms, practices, and conventions in different cultures that have been acquired from educational and personal experiences".

Motivational CQ refers to an individual's motivated cognition of acquiring and understanding cultural knowledge (Ang *et al.*, 2008). Motivational CQ is a predictor of an individual's cultural effectiveness (Ott and Michailova, 2018) prepared to learn and engage in cross-cultural interactions when confronted with conflicts in different cultural situations (Caputo, Ayoko, Amoo, and Menke, 2019).

Behavioral CQ refers to an individual's ability to use appropriate verbal and non-verbal actions when interacting with people from different cultures (Ott and Michailova, 2018). These may include gestures, body language, physical distances, etc. Ang *et al.*, 2007 identifies both metacognitive and behavioral CQ as predictors of task performance for foreign professionals.

2.3 CULTURAL INTELLIGENCE SCALE (CQS)

The Cultural Intelligence Scale (CQS) is a well-regarded tool to access cultural intelligence. It consists of a 20-item Cultural Intelligence Scale (CQS) developed by Ang *et al.,* 2008 and has been translated into numerous languages. CQS consists of 4 questions on metacognitive factors, 5 questions on cognitive factors, 5 questions on motivational factors, and 5 questions on behavioral factors.

Total Cultural Intelligence Score (TCIS) =
(Average of Metacognitive Factor Score + Average of Cognitive Factor Score + Average of Motivational Factor Score + Average of Behavioral Factor Score)/ 4.

An employee's ability depends on his/her cognitive, behavioral, social, and motivational abilities. CQ stimulates individuals to feel greater intrinsic motivation (Ang *et al.*, 2007), enjoyment (Ng, Dyne, Ang and Ryan, 2012), and confidence (Ott and Michailova, 2018), all of which are relevant to innovative work behaviors. When employees with high CQ interact with others, they can use culturally diverse resources that assist them in their work, motivate them, and energize them at work making CQ a personal resource that improves work engagement (Ramalu and Subramaniam, 2019). Inversely, Tay, Westman and Chia (2008) identified a negative relationship between CQ and burnout. While Schaufeli, Martinez, Pinto, Salanova, and Bakker (2002) proposed work engagement is the opposite of burnout.

Ramsey, Leonel, Gomes, and Monteiro*,* 2011 stated that CQs have a role to play in decreasing stress, anxiety, and uncertainty triggered by exposure to multiple cultures. This is because exposure to new cultures has increased anxiety issues. The positive impact of CQ on international business success has been proven by the work of (Charoensukmongkol, 2021, Fu and Charoensukmongkol, 2021, Ott and Michailova, 2018). CQ has received more emphasis in recent cross-cultural research (Alon, Boulanger, Elston, Galanaki, Ibarreta, Meyers, and Vélez-Calle, 2018)

A high CQ indicates a person's ability to make new interpretations and behavior in a new culture to which he/ she is not accustomed. High CQ also helps in better understanding and avoiding misunderstanding (Presbitero, 2016). Studies have shown that people with High CQ had better intercultural effectiveness, including cultural judgment, cultural adaptation, and task performance (Ang *et al.*, 2007; Lee *et al.*, 2018). A similar opinion was shared by Korzilius, Bücker and Beerlage, 2017 who

mentioned that a high CQ led to the adaptation and modeling of an individual's behavior depending on the cultural background of other people.

The significance of cultural intelligence can only be studied by people who have relocated to unfamiliar cultural environments for work or have cross-cultural projects. The impact of CQ is most relevant in MNC where the amount of cultural diversity is more compared to local or national firms. However, little research has been conducted on the relationship between employee CQ and the need for cross-cultural management.

2.4 VALIDITY OF CQS

The quality of cross-cultural competence (3C) has been the subject of debate over the past decade. CQS is one of those primary measurement instruments for measuring cross-cultural competence. The popularity of the CQ construct among many 3C Scholars is evident by the recent review and metadata analyses of this construct and its measurement. Some of these include the work of Liao and Thomas, 2020; Lorenz *et al*., 2017; Ott and Michailova, 2018; Rockstuhl and Van Dyne, 2018; Schlaegel, Richter, and Taras, 2017; Sharma and Hussain, 2017.

Since 2000, there has been an increase in cultural intelligence-related publications. Yari, Lankut, Alon, and Richer (2020) state that the cumulative frequency of culture-intelligence-related publications has increased exponentially. CQ measure construct is still the most popular and heavily used 3C instrument (Chen and Gabrenya, 2021).

2.5 VARIABLES INFLUENCING CULTURAL INTELLIGENCE (CQ)

2.6.1 Age

If we evaluate this millennial, we will find that it is composed of a young workforce who are very flexible in their approach toward corporate work style. With the help of the internet, they have been exposed to various new cultures through social media. They can anticipate the changes that are brought about by a foreign assignment and will be better able to adapt themselves (Ng *et al*., 2010).

In one of the studies among Indian managers, evaluating their Cultural Intelligence, they showed highly efficient in handling diversity in the organization. The change readiness score also depicts that they are prepared to handle both emotionally and intellectually the dynamics of the international market (Sharma and Singh, 2017)

2.6.2 Gender

Interesting information was found on variable genders. Sethi, Chaturvedi, Sethi, and Jain (2024) found that female expatriates were found to use social and emotional support more than their male counterparts. According to a study by Wawrosz and Jurasek, 2021, there is no relationship between cultural intelligence and intercultural self-efficacy on gender.

2.6.3 Education

One of the leading newspapers "The Economic Times" reported in one of the articles that cultural intelligence is an extremely important soft skill that helps us gain a competitive advantage in the highly globalized employment landscape (Tandon, 2024).

Sethi, Chaturvedi, Sethi, and Jain (2024) reported that a good educational background and multilinguistic ability enhanced an individual's efficiency in work and better relationships with colleagues resulted in a stress-free work environment.

The importance of education is further supported by the work on BCIQ (Business Cultural Intelligence Quotient) validated by Alon, *et al.,* 2018. They used BCIQ to test the CQ among five countries namely Austria, Columbia, Greece, Spain, and the United States. The most important factors for cultural intelligence were identified as the number of countries an employee has lived in, the number of languages he/she spoke, and their level of education (Alon, *et al.*, 2018; Caputo, *et al.*, 2019).

Education also plays a role in the ethnocentric behavior of an employee, with higher academic qualifications, the ability to adjust, his/her team behavior, productivity, and commitment towards the organization is found to increase (Cecil, Thomas, and Marc, 2013).

The work of Goh (2012) made tremendous improvements in our education curriculum by incorporating CQ in basic school education by many classroom activities, and reward structures. He believes that early educational intervention and training can result in the development of CQ, a proximal skill to facilitate the pacific coexistence of diverse sociocultural groups in society at large.

2.6.4 Department

Kapur and Janakiram (2016) identified a differential approach of IT and non-IT sectors towards cross-cultural HRM and diversity management aspects. In comparison with non-IT sectors, the IT sector employees lay more importance on adaptability to a new cultural setting (Cultural Intelligence), Training to managers handling diverse teams (Training and development and An Individual's talent more important than demographic group (Equal treatment for all). Whereas the non-IT sector employees focus more on Diversity recognition, Cultural influence on behavior, and Pre-research on culture before overseas negotiation. This indicated that there is a difference in how the companies handle or look at diversity and inclusion activity and overall, in the cultural intelligence development.

Challener, 2020 feels that cultural intelligence is an indispensable asset in roles such as managerial positions, sales, HR, and customer services and in industries such as hospitality and tourism, international business and trade, etc.

2.6.5 Work Experience

In leadership positions, pharma companies are looking for people outside pharma, who have expertise in digital, big data, artificial intelligence, and machine learning and candidates from diverse backgrounds ranging from international work experience to different cultures, ethnicities, and sexual orientations. Cultural intelligence enhances

the ability of pharma companies' companies to market their products to diverse groups of people (Challener, 2020).

2.6.6 Country of Origin

Rahmawati, 2023 noted that there are gaps in CQ training for expatriates in Asia in terms of empirical and theoretical perspectives. Most extensively studies subject is of the relationship between CQ and expatriate performance. The relationship between CQ and other variables were less explored. These include adaptation, cross-cultural adjustment, cross-cultural training, cross-cultural study tours, and experiential learning styles. Hence, many feel there is a need for further research, including cultural variables in Asia. This may help us understanding of CQ training and its impact on expatriates working in Asia.

2.6 PRACTICAL IMPLICATIONS

2.7.1 Implication for Organizations and Leadership

On accessing the cultural intelligence of 200 top-tier executives from UK and International organizations it was found that 76% of the business leaders lack cultural intelligence. This will affect the team's inclusion and belongness (TheHRDirector, 2023).

As they are responsible for building a competent team, CQ has become an essential skill. Some of the major implications are

- Enhances productivity and innovation
- Creates effective communication and collaboration
- Promotes customer relations
- Builds customer relations (TheHRDirector, 2023)
- Effective communication
- Conflict resolution
- Team collaboration
- Global business competence
- Enhanced leadership
- Employee engagement and retention
- Market adaptation and innovation (Ganesh, 2024)

Its importance has increased as more people travel more often, and we have seen how culture changes across regions. It is impossible to live one daily life without interacting with people of other nationalities. If we look back at our academic days, we will find that many of the subjects were with little or no contact outside school. The curriculum does not teach us how to interact with visitors to the country and with immigrants etc. But if you look at the various jobs, most of them depend on cultural skills and their performance.

A lack of cultural intelligence is a disadvantage. Cultural interaction is quite common and cultural intelligence is often seen in people in big positions. But in the current situation, we read or listen to media reports to learn how many allegedly educated persons in positions of power encourage xenophobia and negative affect toward

foreigners. Rather than reducing the barrier of communication exchange, such a practice will not be beneficial. Most of the misconceptions can be avoided if we understand people from diverse cultures and not be afraid of their differences. Thus, result, understanding, assessing, and teaching cultural intelligence may be more important now than ever before. (Sternberg, Co, Siriner, Dashtaki, and Wong, 2023)

2.7.2 Strategies for Enhancing CQ in Diverse Work Environment

Companies should incorporate diversity in the company policies to ensure a safe working culture without any cultural and diversity issues. Necessary diversity management intervention strategies and employee training will be required.

Senior Management employees should act as an example, taking the lead and demonstrating diversity management skills. To handle cultural diversity issues, sufficient training should be provided to managers.

Another initiative may be to refurbish education policies to include CQ training and promote Cultural Intelligence Training at a pursuable age in children (Kapur and Janakiram, 2016).

2.7 CURRENT WORKING STYLE (GLOBAL VIRTUAL TEAMS)

In today's scenario, organizations refer to having a Global Virtual Team (GVT) rather than a collocated team. In Global Virtual Teams, teams will be composed of members with different competencies across different space, time, and cultural boundaries. They differ from collocated teams as they rely more on technological forms of communication (Virtual). In collocated teams, team members are often from the same locale, having the same meaning system based on their cultural heritage. But in GVT, they usually consist of culturally diverse members having different making systems and languages. The organization finds GVT more reliable as they can facilitate teams with higher functional expertise, enabling 24//7 productivity, reduced cost of traveling and relocation, and shared knowledge across geographies and business units located in different locations (Dulebohn and Hoch, 2017). The organization understood the importance of the cross-cultural management model during the COVID-19 pandemic and embraced both global virtual teams and cross-cultural management competencies.

2.8.1 Challenges and Research Opportunities

- One of the drawbacks will be the reduced face-to-face interactions.
- Challenges such as different nationalities, different time zones, and increased physical distance between team members.
- Davis and Bryant, 2003; Hoch and Kozlowski, 2014 pointed out that managing a virtual team can be more difficult than a collocated team. Some of the challenges were communication, team zone collaboration, technology, diversity, trust and isolation and detachment.
- GVT is vulnerable as they need to overcome the multiple cultural and work perspectives which may affect the team's smooth functioning. Along with these other interpersonal problems such as miscommunication, anxiety, and stress do

occur. Overcoming these types of challenges is essential for the effective functioning of GVT.

- Adamovic, 2018 pointed out that HR managers lack the requisite experience and skill with GVTs, and thus require academic intervention to provide direction and recommendations for the development and implementation of best practices for managing GVTs.
- Hacker, Johnson, Saunders and Thayer, 2019 emphasized that the challenges faced by GVTs are not yet addressed sufficiently through existing available research on GVTs. Overcoming challenges can greatly improve trust (Hacker *et al.*, 2019) and knowledge sharing (Jimenez, Boehe, Taras and Caprar (2017)), coordination (Lukić and Vračar, 2018), and improving work member engagement (Shaik and Makhecha, 2019).
- The available recent work on culture in GVTs includes conflict and communication (Scott and Wildman, 2015), the multidimensionality of culture in GVTs (Kramer *et al.*, 2017), knowledge sharing (Alsharo *et al.*, 2017), effects of multicultural members on team processes (Han and Beyerlein, 2016) and effect of identity in multicultural teams (Vahtera, Buckley, Aliyev, Clegg, and Cross, 2017). However, enough literature does not exist on the relationship between cultural intelligence and GVTs

2.8 FUTURE RESEARCH DIRECTIONS

There are significant gaps in CQ in cross-cultural interaction in offshore or outsourcing activities. Previous studies of CQ have focused on international students, expatriates, cross-cultural teams, sojourners, and immigrants - representative samples involving cross-cultural living and working contexts (Adair, Hideg, and Spence, 2013; Ang and Van Dyne, 2015).

2.9 CONCLUSION

Cultural intelligence is a very vital skill in today's diverse workplaces. It is the ability to understand, respect, and engage with individuals from different cultural backgrounds. One of the earlier contributors in cultural intelligence (CQ) was the work of Earley and Ang (2007). CQ is an aggregate multidimensional construct consisting of four dimensions: cognitive CQ, metacognitive CQ, motivational CQ, and behavioral CQ. The development, validation, and significance of cultural intelligence is reported in many journal articles. Most of these are contextual study on workplace engagement, expatriate experience and not on the demographics factors that may influence CQ levels. The existing literature didn't explore cultural intelligence in service sector such as pharmaceutical companies or in country like India where the working style is mostly Global Virtual Teams. Practical implications of CQS can be applied in real world settings such as corporate training programs, intervention strategies and management policies.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter describes the methodology used to gather data for the research study including research philosophy, research approach, ethical consideration, and limitation of the study design. In this study, primary research data will be collected. Data collected through primary data (through survey research) were accessed quantitatively to generate results for the research objectives, questions, and hypotheses. Ontological and epistemological research philosophies were suited for this study. Positivism was the research paradigm. A deductive approach was followed to test the hypothesis. The methodological choice was the non-probability sampling technique. Purposive sampling was used because it allowed the researcher to understand the impact of cross-cultural collaboration on the employees working in pharmaceutical companies in India. The participants would be from sales, marketing, regulatory affairs, human resources, finance, logistics and quality department in a pharmaceutical organization where there exists a cross-cultural collaboration. The data analysis was done with the help of Microsoft Excel and IBM SPSS Software to test the hypotheses. This chapter also explains and discusses the ethical considerations that were used to protect the participant's data and the limitations of the research study.

3.2 RESEARCH AIM, RESEARCH OBJECTIVES, QUESTIONS AND HYPOTHESIS

3.2.1 Research Aim and Objectives

AIM

The main aim of carrying out this research is to access the cultural intelligence of the employees working in pharmaceutical companies in India. This aim is further broken down into research objectives as follows:

OBJECTIVE

RO1: To measure the total cultural intelligence score among employees in various pharmaceutical companies in India.

RO2: To analyze the difference in cultural intelligence among employees from different demographic backgrounds (e.g. age, gender, education) in the Indian pharmaceutical industry.

RO3: To compare the cultural intelligence of employees across different roles and work experience levels within pharmaceutical companies.

RO4: To understand if pharmaceutical companies have diverse cultural management teams.

RO5: To evaluate the cultural intelligence of employees who don't interact with clients from diverse cultural backgrounds.

3.2.2 Research Questions

The research questions posed for this research study are:

1. What is the total cultural intelligence score (TCIS) among employees in Indian pharmaceutical companies?

2. How does cultural intelligence vary among employees from different demographics backgrounds (e.g. age, gender, education), roles, and work experience in Indian pharmaceutical companies?

3. Do Indian pharmaceutical companies have a diverse cultural management team (e.g. Diversity, Equity, and Inclusion (DEI)/ Diversity and Inclusion (D&I) Team?

4. What is the total cultural intelligence score (TCIS) among employees who don't interact with clients from diverse cultural backgrounds?

3.2.3 Research Hypothesis

The hypotheses proposed for this research study are the following:

H_{01}: There are significant differences in the cultural intelligence scores among employees from different demographic backgrounds (e.g. age, gender, education) in the Indian pharmaceutical industry.
H_{A1}: There aren't significant differences in the cultural intelligence scores among employees from different demographic backgrounds (e.g. age, gender, education) in the Indian pharmaceutical industry.

H_{02}: There are significant differences in the cultural intelligence scores among employees in different roles and with more work experience in the Indian pharmaceutical industry.
H_{A2}: There aren't significant differences in the cultural intelligence scores among employees in different roles and with more work experience in the Indian pharmaceutical industry.

$H_{03:}$ There are significant differences in the cultural intelligence scores among employees having diverse cultural management and those who don't.
$H_{A3:}$ There aren't significant differences in the cultural intelligence scores among employees having diverse cultural management and those who don't.

H_{04}: There are significant differences in the cultural intelligence of employees who interact with clients from diverse cultural backgrounds and those who don't.
H_{A4}: There aren't significant differences in the cultural intelligence of employees who do interact with clients from diverse cultural backgrounds and those who don't.

These research objectives, questions, and hypotheses will act as a navigation tool for the researcher in exploring cultural intelligence in the sample population.

3.3 RESEARCH PHILOSOPHY AND APPROACH

Research philosophy refers to a system of beliefs and assumptions about the development of knowledge (Saunders, Lewis and Thornhill, 2023). This study should be an explanatory type of research to assess the cultural intelligence, identify the relationship between the variables, and make recommendations based on the data results. There were many research philosophies (Positivism, Critical realism, Interpretivism, Postmodernism, and Pragmatism) available to researchers to undertake their research study most efficiently.

The Research Onion by Saunders *et al.* (2023) was commonly used by researchers to identify the issues associated with the choice of techniques for data collection and data analysis. To effectively execute the research, one needed to understand the different layers of the onion. From the outer layer towards the inner layer of the research onions, the research onion was as follows, research philosophy, approaches to theory development, the research strategy, the choices of the methodology, the time horizons, and data collection and data analysis.
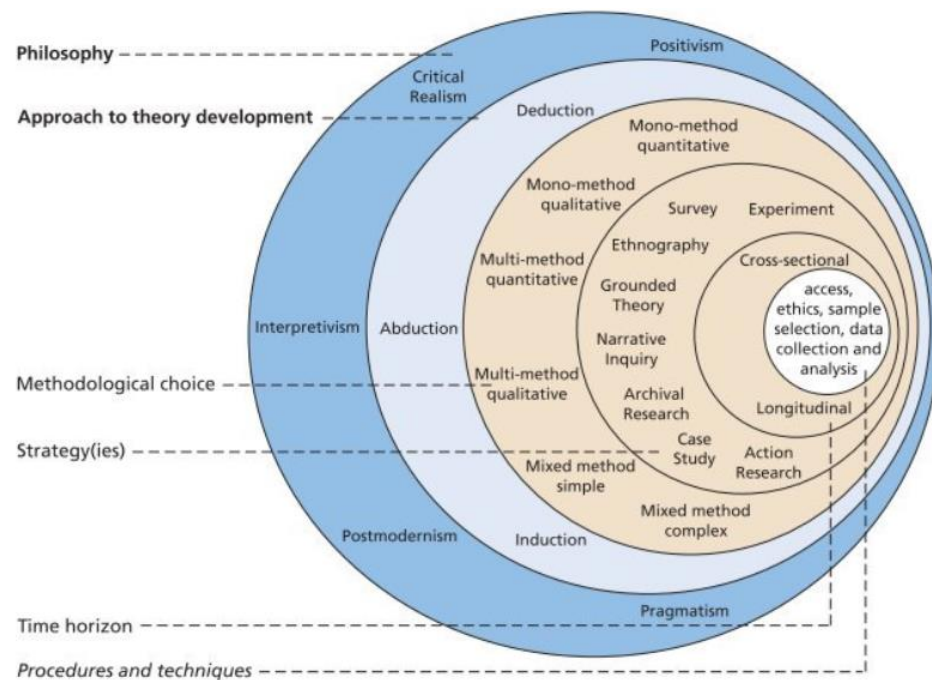
Figure 4.1 The 'research onion'
Source: © 2022 Mark NK Saunders; developed from Saunders et al. 2019

Figure 1: The research onion

Ontological and epistemological research philosophies suit our study. Positivism would be the approach used for this research. It relied on general information, through a large scale of social data collection (Žukauskas, Vveinhardt and Andriukaitienė, 2018). This method was also considered observations based on direct experiences and not speculations. The positivist type of research paradigm allows us to conduct the research without impacting the actual study as issues were handled objectively by the research. Following positivist philosophy, a deductive approach would be taken rather than an inductive approach, as a quantitative research method with the use of survey

distribution, data collection method, and data analysis to achieve the objectives and test the hypothesis. A deductive approach was the most compatible with quantitative type of research while an inductive approach was often compatible with qualitative research. In the deductive approach, the flow of the research follows Theory > Method > Data > Finding. The structure of the theory was required before the analysis was done.

3.4 RESEARCH DESIGN

Research design is the plan on how the researcher will go about answering the research question, achieving the research aim, and meeting the research objectives (Saunders *et al.,* 2023). There were various types of quantitative research methods such as surveys, descriptive, experimental, etc.

The selection of the quantitative method over the qualitative method was due to this   following reason:

1. The study must understand the general opinion rather than individual attitudes.
2. The research strategy is to use a survey (questionnaire) to gather information on cross-cultural workplaces.
3. Through the quantitative method, we may be able to access an entire population (i.e.,   working pharmaceutical professionals in India). Participants are from pharmaceutical companies in India.
4. Limitation of Time and Resources. Quantitative methods making use of questionnaires can produce useful data in a brief time with a reasonable investment of personnel and material.
5. The quantitative method aligns with the research objective of understanding relationships in cross-cultural work environments.
6. This research can be used as a base for further research if a need to extrapolate to wider topic regions.
7. A quantitative approach may use numbers, figures, or statistics to carry out the   research (i.e., numerical approach) while qualitative research is based on statements, words, or narrations (I.e., Theoretical approach)
8. There is a need to test the hypotheses which is only possible in quantitative research   as it is a characteristic of the quantitative research method and not the qualitative one

As pointed out above, this study would be using survey research which explores individual views and experiences to test the hypothesis by using statistics. The survey was the most common method for quantitative assessment. The questionnaire was used as a tool for data collection as it can examine variables between different data sources by collecting individual views and experiences. The methodological choice was mono-method quantitative which uses only one research approach for the study. This study followed a cross-sectional time horizon as it collected and reported data at a specific moment rather than long-term investigations.

3.5 DATA COLLECTION METHOD

The survey was the research instrument used for this study. A survey was chosen as it explores the individual views and experiences that will be used to test the hypotheses,

by using statistics. It is also the common method for collecting data in quantitative research. It enables us to gather large amounts of data from large numbers of people systematically. The gathered data are reliable and valid standard form and can be analyzed as coded or numerical data. The survey was created using Google Forms and would be used to collect primary data. The survey comprised 29 questions, including multiple-choice questions, open-ended questions, and the 7-point Likert scale questions.

PILOT STUDY

The pilot study contributes to the efficient and hassle-free survey process. It also allows us to identify ambiguousness and impressions that can be mitigated by revisiting and clarifying the questions. It is also used as a trial method to reduce errors. The full questionnaire content is available (See **Appendix A**). Pilot study was not done as an existing established questionnaire is used. It has been published and previously validated by (Bucker *et al.*, 2015)

3.6 POPULATION AND SAMPLING

3.6.1 Population

Population is defined as any complete group of entities that share some common set of characteristics (Quinlan, Babin, Carr, Griffin and Zikmu, 2019). The target population would be mostly from India or having prior work exposure in Indian pharmaceutical companies. India was chosen as the country of study as companies outsource their project to India due to low cost and abundance of human resources. As per Statista (2023), India is one of the leading players in the global pharmaceutical and vaccine industries. In terms of pharma production value and production volumes, India is ranked fourteenth and third respectively. The demand for India's medicine is due to the pharmaceutical industry's resilience during the COVID-19 pandemic, affordable prices, and superior quality. Also, India is known for its diverse culture and religions. The participants will be focused on sales, marketing, regulatory affairs, human resources, finance, logistics and quality department in a pharmaceutical organization where there exists a cross-cultural collaboration.

3.6.2 Sample Population

A sample is a subset of a larger population (Quinlan *et al.,* 2019). For this study, a non-probability sampling technique would be used. This technique was considered because of the convenience of accessing the participants through email or messages (See **Appendix B**). However, in the case of non-probability sampling, the proportion of the population sample was uncertain. Purposive sampling was one type of non-probability sampling, and it was adopted in this study. This type of sampling was considered because of the specificity of the target population.

3.6.2.1 Participants

The participants would be from sales, marketing, regulatory affairs, human resources, finance, logistics and quality department in a pharmaceutical organization where there exists a cross-cultural collaboration.

Regulatory Affairs - They act as liaisons between the company and the regulatory body of the exporting/ importing country.

Quality Department (QA and QC) - They ensure the product's quality meets required standards. The certificate of analysis is issued by this department. This assists with the export and import/customs clearance. They also assist with the document when requested by the global regulatory authorities.

Sales and Marketing - They are responsible for the sales and marketing of medicinal products in the domestic or foreign country

Finance and Logistics - Handles the process from receipt of purchase order to delivery of the medicinal product.

Human Resources - Responsible for global and remote hiring and onboarding.

The most important thing for the quantitative study was the need for a large sample size. Therefore, the sampling frame for this research was set at 100 employees, but we expect limitations such as time constraints and lack of resources. The data related to years of experience was collected to understand the correlation between the research topic and experience. Also, they needed to give an opinion based on their experience.

3.7 DATA ANALYSIS

In general, research can be carried out using either qualitative or quantitative approaches or in some cases, both approaches can be used.

A quantitative research design was adopted for this research study. Since the main aim of this study is to understand the impact of international or cross-cultural collaboration on the employees working in pharmaceutical companies in India, a quantitative research method was considered. Through a quantitative method, we may be able to access an entire population (i.e., working pharmaceutical professionals in India).

In our case, the data collected falls under categorial, and the level of measurement will be nominal and ordinal. Nominal data would be used to analyze the demographic question while ordinal would be focused on the level of agreement like on the Likert scale question. Since we have both, a combination of descriptive and inferential statistics would be applied to this research. Microsoft Excel acts as an auxiliary tool to gather raw data. The analysis tool IBM SPSS Statistics will be used to analyze the data collected. The result would be used to answer the research question, meet the research objectives, and test the hypotheses. IBM SPSS analysis tool was considered due to familiarity with the software by the peer and the availability of a one-year free subscription through college.

The data analysis requires us to assess scale reliability (using Cronbach's alpha values) and factor loadings. For acceptable reliability, Cronbach's alpha should be greater than or equal to 0.70 while factor loadings should exceed 0.50. Th next step is conducting confirmatory factor analyses (CFA) and discriminant validity testing., To assess model fit we test for normed chi-square ($\chi 2$/d.f.), Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (SRMR), non-normed fit index

(NNFI), and comparative fit index (CFI). The acceptable limit required is RMSEA $\leq$ 0.05, SRMR $\leq$ 0.06, NNFI $\geq$ 0.90, CFI $\geq$ 0.95, and $\chi 2$/d.f. less than or equal to 2 (Byrne, 2001; Hu and Bentler, 1999). The nomological validity of the CQS was accessed using regression analyses to find the relationships of CQ with dependent variables (i.e., gender, age group, education, work experience, and department) and independent variable (total cultural intelligence score) (Bucker *et al.,* 2015).

3.8 ETHICAL CONSIDERATIONS

For research methods, ethical consideration includes respecting and protecting the interests and privacy of the people. The survey link was distributed on social media and via email. Each participant was informed of the research's nature, the time frame for completing it, and its significance. The introductory statement specified that participation in the survey was voluntary, and that the privacy of participants would be protected throughout the research. At the beginning of the questionnaire, participants could withdraw their participation at any stage. They expressed their informed consent to participate in the survey and were informed about maintaining complete anonymity while conducting the survey and further data analysis. Personal details such as names and personal contact of the participants were not asked (Except demographic details - country of residence). Provision was made so that the participants could receive additional information about the study and could contact the investigator at any time. The collected questionnaires were saved in a separate folder with a password protected. During the data analysis, confidentiality was retained by using several codes. After the survey analysis, all the collected data and contact lists were deleted. The data collected was used specifically for scholarly purposes to complete the dissertation.

3.9 LIMITATIONS

For this study, the below-mentioned limitations are.

1. Time constraints and resources: The delay in obtaining the results from the research proposal left a time of less than three months to complete the dissertation. Also, the submission of the initial draft few weeks prior was extremely challenging. Therefore, the researcher was under pressure to draft the survey and finalize it, before sharing it on social media platforms and to the target population. A longer time for dissertation completion would be beneficial to getting a bigger sample size which would have added greater reach and implication of the study.

2. Voluntary nature of the survey: As it was available for voluntary purposes, the participant's preference for completion was the limiting factor for data collection and analysis.

3. Sampling techniques: The use of purposive sampling to identify the target population from India may not fully represent the population of the pharmaceutical industry.

4. Reliability of the cross-cultural competence (3C) instruments: Various literature has expressed differences in the reliability and validity of the research model.

5. Literature gap: Most of the cross-cultural theories/models were drafted a decade ago and there have been many constructs and models during time making it difficult to identify a suitable construct or model for this research study. The studies related to cultural intelligence in pharmaceutical companies related to offshoring and outsourcing activities are very less.

6. Geographical limitation for the study: The scope of the study was limited to pharmaceutical companies in India

3.10 CONCLUSION

The selection of the right research methodology and conveying the significance of this study were vital plans for its execution. It explained the steps involved, such as data collection and analysis, and the target population and sampling methods. The researcher used a quantitative method to conduct the study. The ethical guidelines set the need for ethical procedures for safeguarding the privacy of the participants. Understanding the limitations also helped in careful planning to meet the research objectives, answer the research questions, and test the hypotheses.

CHAPTER 4: FINDINGS AND ANALYSIS

4.1 INTRODUCTION

This chapter will represent the analysis of the data from the primary research conducted through an online survey sent to individuals who had or working within the pharmaceutical industry in India. The participants will be focused on sales, marketing, regulatory affairs, human resources, finance, logistics and quality department in a pharmaceutical organization where there exists a cross-cultural collaboration. The demographics of the participants such as gender, age, educational qualification, work experience, working department, country of origin, and presence of diverse cultural management are collected. We received responses from a total of 120 respondents. The statistical data from the descriptive of the sample, CQS survey responses, normality, and homogeneity testing, and factor analyses of the CQS construct were used to conclude the population. To test the hypotheses, a non-parametric test (Mann-Whitney U test and Kruskal-Wallis Test) will be used to test two or more independent variables.

The flow of this chapter is as follow:

a. **Descriptive statistics of the participants** - Demographics Data (Means, Range, Minimum, Maximum, frequency, Percentage, Cumulative percentage and Bar chart)
b. **Descriptive statistics of CQS questions** (Means, Range, Minimum, Maximum, Mean, Median, Mode, Standard Deviation, Variance and Bar chart)
c. **Reliability tests of the variables** (Cronbach's alpha, Inter-Item Correlation, Corrected Item-Total Correlation and Alpha if Item Deleted Values)
d. **Exploratory factor analysis (EFA)** (Kaiser-Meyer-Olkin Measure of Sampling Adequacy, Bartlett's Test of Sphericity, Correlation Matrix, Total Variance Explained, Scree plot, Parallel Analysis, Pattern Matrix, Two Factor Solution, Communalities Tables)
e. **Confirmatory factor analyses (CFA) and assessing the fitness of the model**
f. **Discriminant validity**
g. **Normality** (5% Trimmed Mean, Skewness, Kurtosis values, Kolmogorov-Smirnov, Shapiro-Wilk Values, Histograms) **and homogeneity testing** (Levene's test)
h. **Non-parametric testing** (Mann-Whitney U Test and Kruskal-Wallis Test)

4.2 CODEBOOK FOR THE STATISTICAL ANALYSIS

Below is the codebook, which summarizes instructions used to convert information from the participants into a format IBM SPSS can understand. This can be used to identify the variable coded in the SPSS in the below sections

Table 1:Codebook for the statistical analysis

Variable	Coding Instructions	Measuring Scale
Demographics Data		
1. You provide consent for participating in the survey?	1 = Yes, 2 = No	Nominal
2. Kindly indicate your gender	1 = Male, 2 = Female, 3 = Prefer not to say	Nominal
3. Please indicate your age group	1 = 20-30, 2 = 31-40, 3 = 41-50, 4 = 51 and above	Ordinal
4. What is your education level?	1 = High School 2 = Bachelor's Degree 3 = Master's Degree 4 = Doctoral Degree	Ordinal
5. Work experience	1 = Less than 5 years 2 = 5-10 years 3 = 11-15 years 4 = 16 years and above	Ordinal
6. Which department do you work for?	1 = Regulatory Affairs 2 = Quality Department (QA and QC) 3 = Sales and Marketing 4 = Finance and Logistics 5 = Human Resources	Nominal
7. What country are you from?	1 = India 2 = Turkey 3 = Botswana 4 = Ukraine 5 = Nigeria 6 = Netherlands 7 = Ireland 8 = Sweden	Nominal
8. Do you collaborate with a cross-cultural workforce?	1 = Yes, 2 = No	Nominal
9. Do you think your company has a culturally diverse management?	1 = Yes, 2 = No, 3 = Maybe	Nominal

CQS Questionnaire		
1. I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.		Ordinal
2. I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.		Ordinal
3. I am conscious of the cultural knowledge I apply to cross-cultural interactions.		Ordinal
4. I check the accuracy of my cultural knowledge as I interact with people from different cultures.		Ordinal
5. I know the legal and economic systems of other cultures.		Ordinal
6. I know the rules (e.g. vocabulary, grammar) of other languages.		Ordinal
7. I know the cultural values and religious beliefs of other cultures.	1 = Very Strongly Disagree, 2 = Strongly Disagree, 3 = Disagree 4 = Not Decided 5 = Agree 6 = Strongly Agree 7 = Very Strongly Agree	Ordinal
8. I know the marriage systems of other cultures		Ordinal
9. I know the arts and crafts of other cultures		Ordinal
10. I know the rules of expressing nonverbal behaviors in other cultures.		Ordinal
11. I enjoy interacting with people from different cultures		Ordinal
12. I am confident that I can socialize with locals in a culture that is unfamiliar to me.		Ordinal
13. I am sure that I can deal with the stresses of adjusting to a culture that is new to me		Ordinal
14. I enjoy living in cultures that are unfamiliar to me.		Ordinal
15. I am confident that I can get accustomed to the shopping conditions in a different culture.		Ordinal
16. I change my verbal behavior (e.g. accent tone) when cross-cultural interaction requires it.		Ordinal
17. I use pause and silence to suit different cross-cultural situations.		Ordinal
18. I vary the rate of my speaking when a cross-cultural situation requires it.		Ordinal
19. I change my non-verbal behavior when a cross-cultural situation requires it.		Ordinal
20. I alter my facial expressions when a cross-cultural interaction requires it.		Ordinal
TCIS (Rounded to 0 decimal point)	1 = Very Low Cultural Intelligence 2 = Low Cultural Intelligence 3 = Somewhat Low Cultural Intelligence 4 = Moderate Cultural Intelligence 5 = Somewhat High Cultural Intelligence 6 = High Cultural Intelligence 7 = Very High Cultural Intelligence	Scale

4.3 DESCRIPTIVE STATISTICS OF THE PARTICIPANTS

To achieve the research objectives, we must collect some context and background information of the participants involved in the study. In the descriptive statistics, the central tendencies (i.e. Mean, Minimum, and Maximum) were collected. Each of the survey questions was accessed for frequency, percentage, and cumulative percentage. A bar chart was used to represent pictorially the distribution of each question's responses.

Table 2: Summary of the Descriptive Statistics of the target population

Descriptive Statistics

	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Mean Std. Error
1. You provide consent for participating in the survey?	120	0	1	1	1.00	.000
2. Kindly indicate your gender	120	1	1	2	1.45	.046
3. Please indicate your age group	120	3	1	4	1.68	.064
4. What is your education level?	120	2	2	4	2.88	.046
5. Work experience	120	3	1	4	1.82	.073
6. Which department do you work for?	120	4	1	5	2.53	.107
7. What country are you from?	120	7	1	8	1.23	.097
8. Do you collaborate with a cross-cultural workforce?	120	1	1	2	1.13	.031
9. Do you think your company has a culturally diverse management?	120	2	1	3	1.29	.062
Valid N (listwise)	120					

Descriptive Statistics

	Std. Deviation Statistic	Variance Statistic	Skewness Statistic	Skewness Std. Error	Kurtosis Statistic	Kurtosis Std. Error
1. You provide consent for participating in the survey?	.000	.000	.	.	.	.
2. Kindly indicate your gender	.500	.250	.204	.221	-1.992	.438
3. Please indicate your age group	.700	.490	.996	.221	1.363	.438
4. What is your education level?	.505	.255	-.211	.221	.725	.438
5. Work experience	.799	.638	.746	.221	.072	.438
6. Which department do you work for?	1.173	1.377	.442	.221	-.643	.438
7. What country are you from?	1.059	1.122	4.958	.221	24.949	.438
8. Do you collaborate with a cross-cultural workforce?	.341	.117	2.185	.221	2.820	.438
9. Do you think your company has a culturally diverse management?	.679	.460	2.026	.221	2.331	.438
Valid N (listwise)						

4.3.1 Consent for participating in the survey

1. You provide consent for participating in the survey?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	120	100.0	100.0	100.0
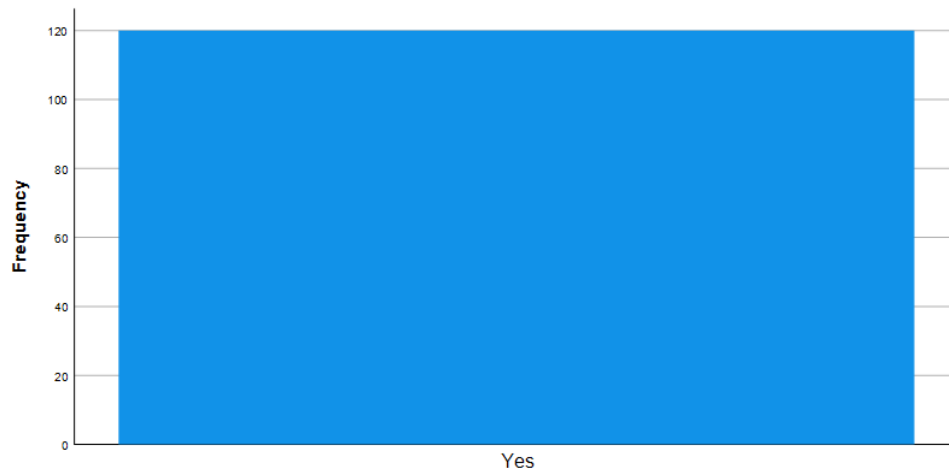
Figure 2: Participant's Consent Data

In compliance with the ethical form, the consent of the survey was collected. We received 120 responses.

4.3.2 Gender

2. Kindly indicate your gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Male	66	55.0	55.0	55.0
	2 Female	54	45.0	45.0	100.0
	Total	120	100.0	100.0	
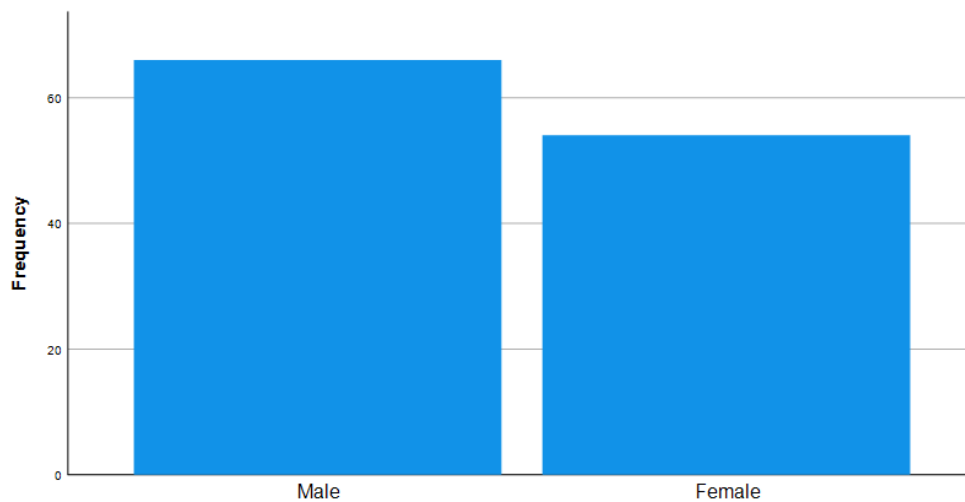
2. Kindly indicate your gender

Figure 3: Gender Data

A multiple-choice question style was used for this question. Gender was categorized as Male and Female with Males (55%) and Female (64%). There was a provision for "Prefer not to say", however, we didn't receive any response under this category. The purpose was to be inclusive to all the form of genders.

4.3.3 Age

3. Please indicate your age group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 20-30	52	43.3	43.3	43.3
	2 31-40	58	48.3	48.3	91.7
	3 41-50	7	5.8	5.8	97.5
	4 51 and above	3	2.5	2.5	100.0
	Total	120	100.0	100.0	
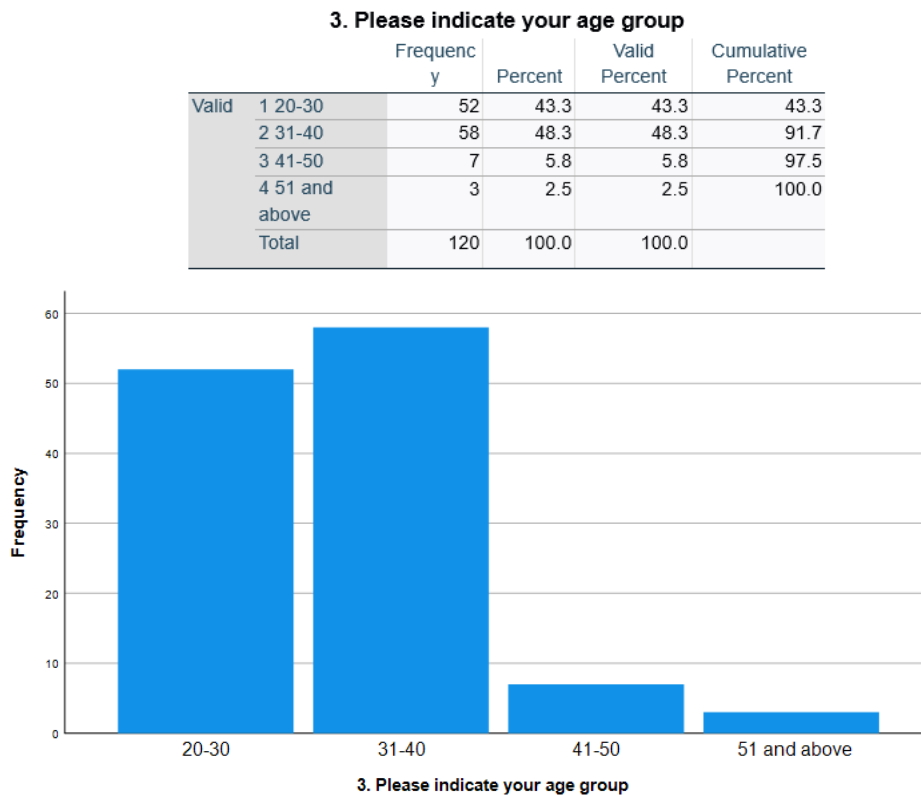
Figure 4: Age Group Data

The age group was categorized following the age range of 20-30, 31-40, 41-50, and 51 and above. The age groups were not equally distributed. We wanted to consider the young age group considering there might be internships. However, the distribution shows the age group 20-30 (43.3%), 31-40 (48.3%), 41-50 (5.8%) and 51 and above (2.5%). This depicted the pharmaceutical companies generally consisting of the 20-40 age group. This is evident as the number of positions available to people over 50 years and above is less.

4.3.4 Education Qualification

4. What is your education level?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2 Bachelor's Degree	23	19.2	19.2	19.2
	3 Master's Degree	88	73.3	73.3	92.5
	4 Doctoral Degree	9	7.5	7.5	100.0
	Total	120	100.0	100.0	
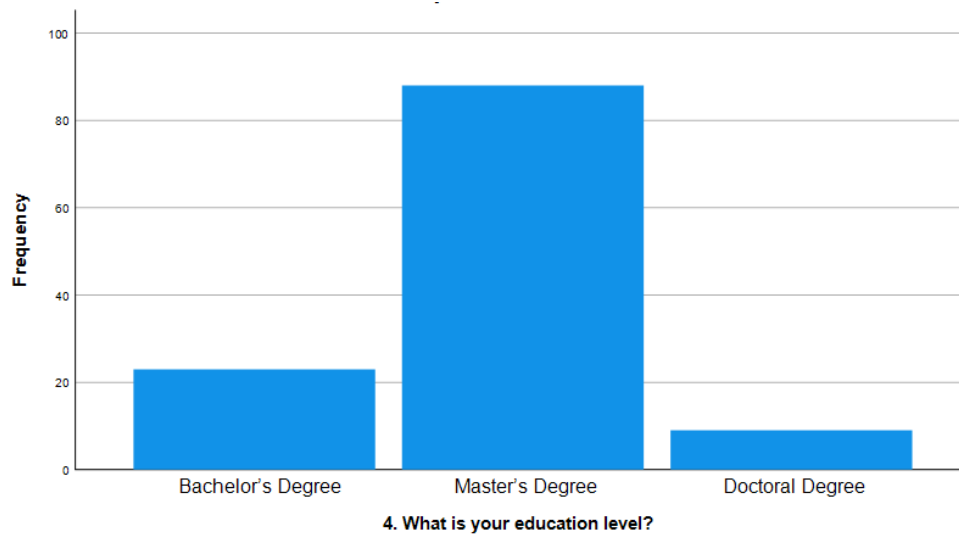
Figure 5: Education Qualification Data

Most of the participants have completed a bachelor's degree (19.2%), or master's degree (73.3%), and a few completed a doctoral degree. There was a provision for "High School", however, we didn't receive any responses under this category. This may also be an indication that a master's degree is essential to be eligible for higher promotion.

4.3.5 Work Experience

5. Work experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Less than 5 years	47	39.2	39.2	39.2
	2 5-10 years	52	43.3	43.3	82.5
	3 11-15 years	17	14.2	14.2	96.7
	4 16 years and above	4	3.3	3.3	100.0
	Total	120	100.0	100.0	
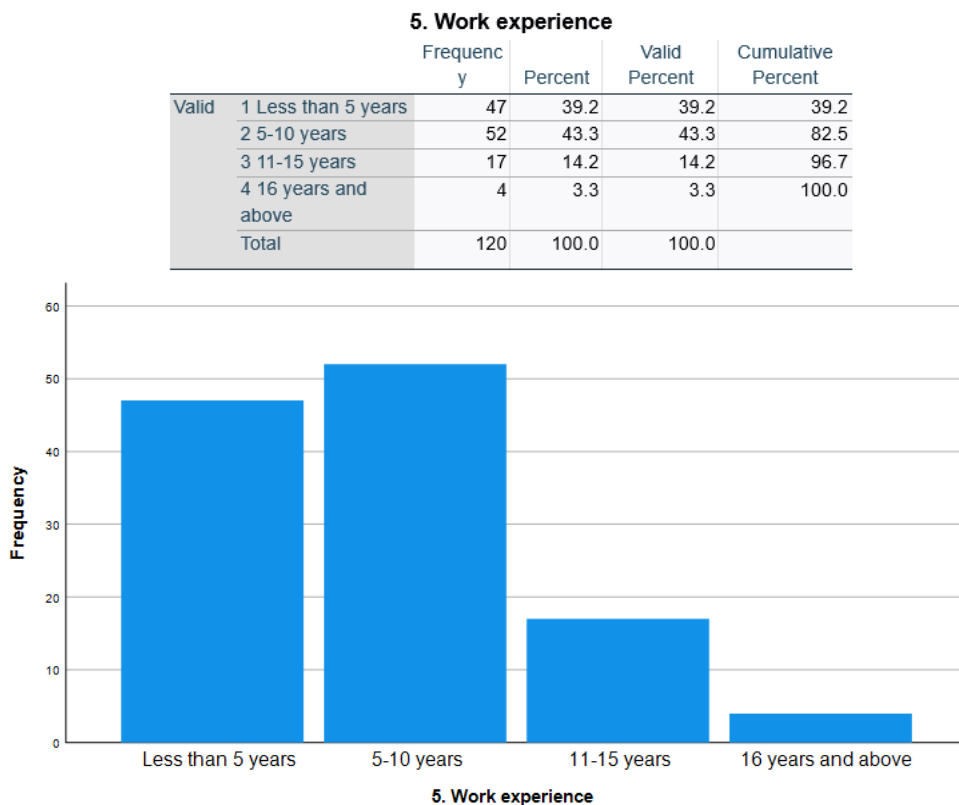
Figure 6: Work Experience Data

Most of the participants have work experience of 5 - 10 Years (43.3%), followed by Less than 5 Years (39.2%), 11-15 Years (14.2%), and 16 years and above (3.3%).

4.3.6 Department

6. Which department do you work for?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Regulatory Affairs	25	20.8	20.8	20.8
	2 Quality Department (QA and QC)	40	33.3	33.3	54.2
	3 Sales and Marketing	29	24.2	24.2	78.3
	4 Finance and Logistics	18	15.0	15.0	93.3
	5 Human Resources	8	6.7	6.7	100.0
	Total	120	100.0	100.0	
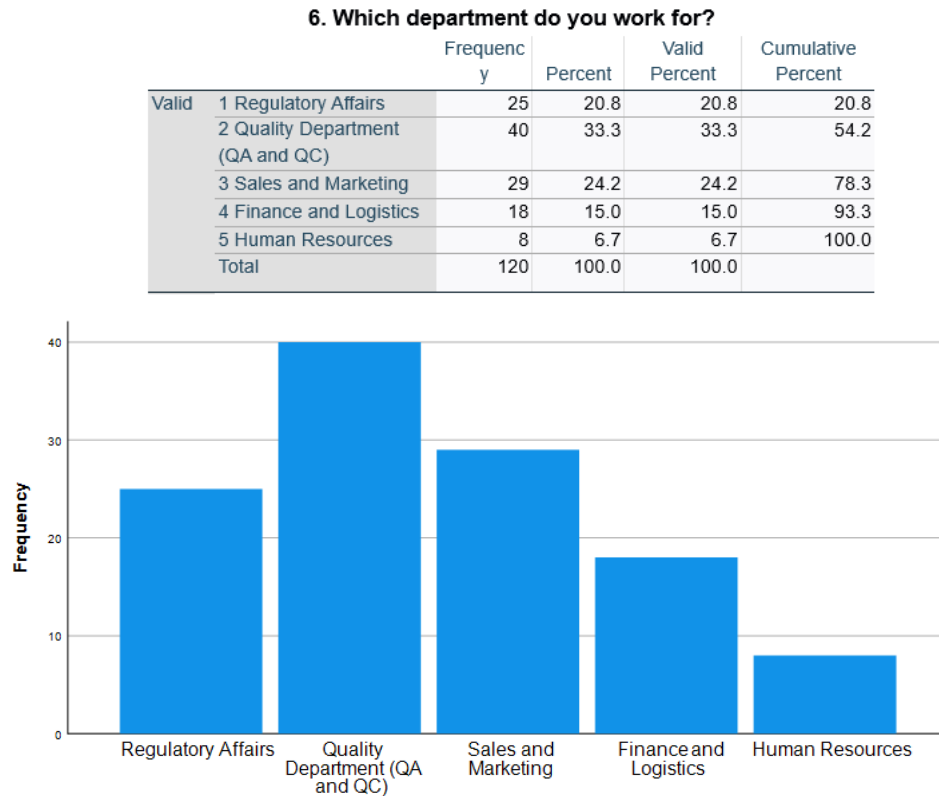
Figure 7: Working Department Data

The result indicated the majority were 5 -10 years (43.3%) followed by Less than 5 years (39.2%), 11 – 15 years (14.2% and 16 years and above (3.3%).

4.3.7 Country

7. What country are you from?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 India	113	94.2	94.2	94.2
	2 Turkey	1	.8	.8	95.0
	3 Botswana	1	.8	.8	95.8
	4 Ukraine	1	.8	.8	96.7
	5 Nigeria	1	.8	.8	97.5
	6 Netherlands	1	.8	.8	98.3
	7 Ireland	1	.8	.8	99.2
	8 Sweden	1	.8	.8	100.0
	Total	120	100.0	100.0	
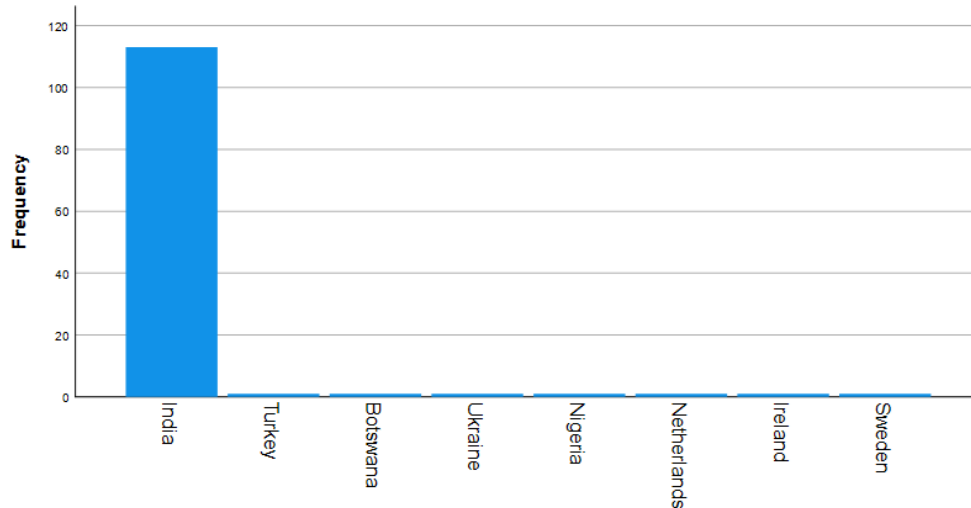
Figure 8: Country of Origin Data

Country of origin was set at open-ended questions. However, to compute the data in SPSS, all the responses were coded. India reported 94.2% while all the other constituted of just one response from each country (0.8%). It is not clear whether these individuals had worked previously in India. However, as the number represented a very small percentage it was not a major issue.

4.3.8 Collaboration

8. Do you collaborate with a cross-cultural workforce?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	104	86.7	86.7	86.7
	2 No	16	13.3	13.3	100.0
	Total	120	100.0	100.0	
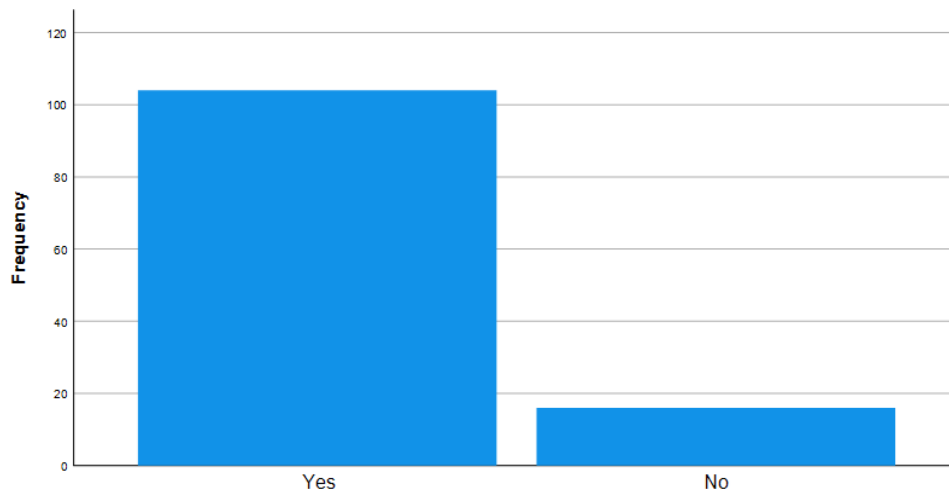
Figure 9: Collaboration with Cross-Cultural Workforce Data

86.7% of the participants reported having collaborated with a cross-cultural workforce while 13.3% reported not.

4.3.9 Presence of culturally diverse management

9. Do you think your company has a culturally diverse management?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	100	83.3	83.3	83.3
	2 No	5	4.2	4.2	87.5
	3 Maybe	15	12.5	12.5	100.0
	Total	120	100.0	100.0	
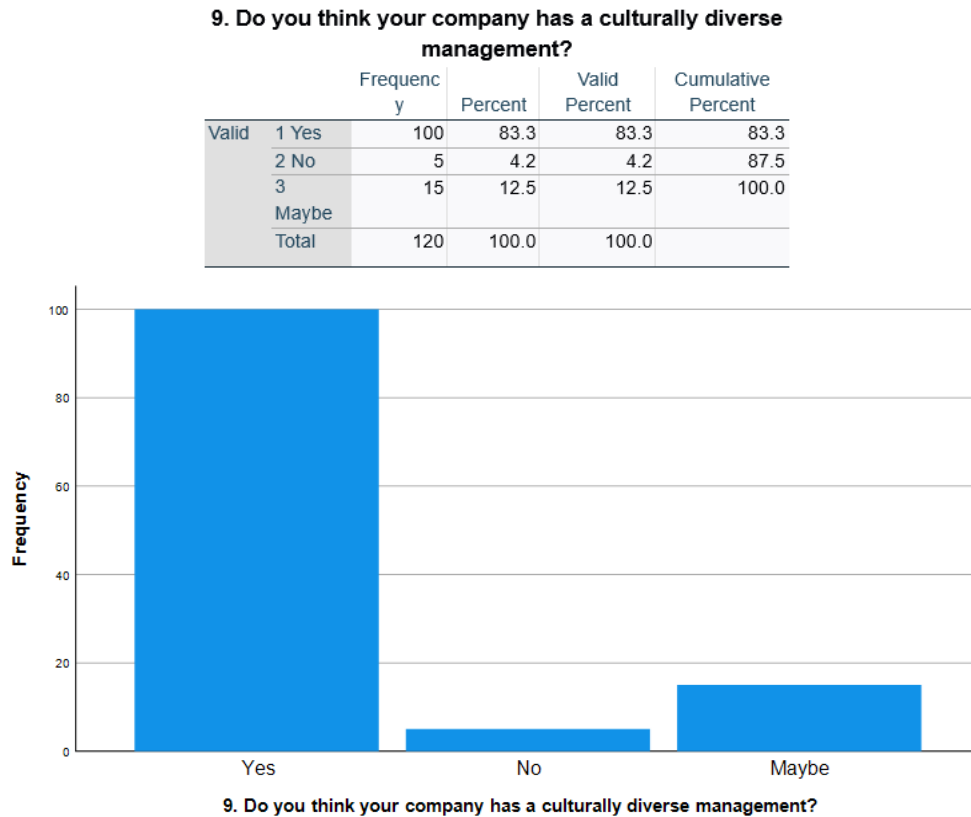
Figure 10: Collaboration with Cross-Cultural Workforce Data

The participants reported 83.3% as being aware of the culturally diverse management in their organization against 4.2% who weren't. Interestingly, 12.5% reported not being sure of the presence of a culturally diverse management system in their company.

4.4 DESCRIPTIVE STATISTICS OF CQS QUESTIONS

The below descriptive statistics provide data on median, mode, range, minimum, maximum, mean, standard deviation, and variance. The pictorial representation of responses to each survey question is also provided.

Total Cultural Intelligence Score (TCIS) = (Average of Metacognitive Factor Score + Average of Cognitive Factor Score + Average of Motivational Factor Score + Average of Behavioral Factor Score)/ 4.

Table 3: Summary of the Descriptive Statistics of the CQS Scale responses

Descriptive Statistics

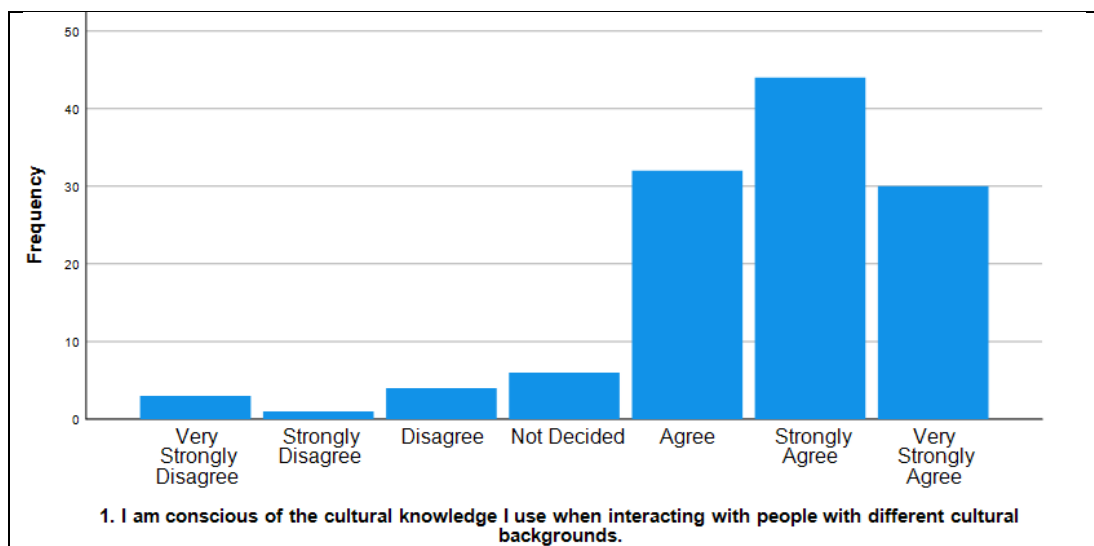|	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
1. I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.	120	6	1	7	5.63	1.284	1.648
2. I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.	120	6	1	7	5.46	1.250	1.561
3. I am conscious of the cultural knowledge I apply to cross-cultural interactions.	120	6	1	7	5.51	1.152	1.328
4. I check the accuracy of my cultural knowledge as I interact with people from different cultures.	120	6	1	7	5.23	1.242	1.542
5. I know the legal and economic systems of other cultures.	120	6	1	7	4.37	1.539	2.369
6. I know the rules (e.g. vocabulary, grammar) of other languages.	120	6	1	7	4.23	1.663	2.764
7. I know the cultural values and religious beliefs of other cultures.	120	6	1	7	4.72	1.402	1.966
8. I know the marriage systems of other cultures	120	6	1	7	4.26	1.548	2.395
9. I know the arts and crafts of other cultures	120	6	1	7	4.21	1.593	2.536
10. I know the rules of expressing nonverbal behaviors in other cultures.	120	6	1	7	4.40	1.626	2.645
11. I enjoy interacting with people from different cultures	120	6	1	7	5.89	1.448	2.097
12. I am confident that I can socialize with locals in a culture that is unfamiliar to me.	120	6	1	7	5.49	1.341	1.798
13. I am sure that I can deal with the stresses of adjusting to a culture that is new to me	120	6	1	7	5.41	1.306	1.706
14. I enjoy living in cultures that are unfamiliar to me.	120	6	1	7	5.17	1.368	1.871
15. I am confident that I can get accustomed to the shopping conditions in a different culture.	120	6	1	7	5.26	1.319	1.739
16. I change my verbal behavior (e.g. accent tone) when cross-cultural interaction requires it.	120	6	1	7	4.98	1.531	2.344
17. I use pause and silence to suit different cross-cultural situations.	120	6	1	7	5.22	1.285	1.650
18. I vary the rate of my speaking when a cross-cultural situation requires it.	120	6	1	7	5.25	1.278	1.634
19. I change my non-verbal behavior when a cross-cultural situation requires it.	120	6	1	7	4.94	1.451	2.106
20. I alter my facial expressions when a cross-cultural interaction requires it.	120	6	1	7	4.86	1.474	2.173
Valid N (listwise)	120						

		1. I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.	2. I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.	3. I am conscious of the cultural knowledge I apply to cross-cultural interactions.	4. I check the accuracy of my cultural knowledge as I interact with people from different cultures.	5. I know the legal and economic systems of other cultures.
N	Valid	120	120	120	120	120
	Missing	0	0	0	0	0
Mean		5.63	5.46	5.51	5.23	4.37
Median		6.00	6.00	6.00	5.00	4.50
Mode		6	5	6	5	5
Std. Deviation		1.284	1.250	1.152	1.242	1.539
Range		6	6	6	6	6

		6. I know the rules (e.g. vocabulary, grammar) of other languages.	7. I know the cultural values and religious beliefs of other cultures.	8. I know the marriage systems of other cultures	9. I know the arts and crafts of other cultures	10. I know the rules of expressing nonverbal behaviors in other cultures.
N	Valid	120	120	120	120	120
	Missing	0	0	0	0	0
Mean		4.22	4.72	4.26	4.21	4.40
Median		4.00	5.00	4.00	4.00	5.00
Mode		5	5	5	5	5
Std. Deviation		1.663	1.402	1.548	1.593	1.626
Range		6	6	6	6	6

		11. I enjoy interacting with people from different cultures	12. I am confident that I can socialize with locals in a culture that is unfamiliar to me.	13. I am sure that I can deal with the stresses of adjusting to a culture that is new to me	14. I enjoy living in cultures that are unfamiliar to me.	15. I am confident that I can get accustomed to the shopping conditions in a different culture.
N	Valid	120	120	120	120	120
	Missing	0	0	0	0	0
Mean		5.89	5.49	5.41	5.17	5.26
Median		6.00	6.00	5.00	5.00	5.00
Mode		7	5	5	5	5
Std. Deviation		1.448	1.341	1.306	1.368	1.319
Range		6	6	6	6	6

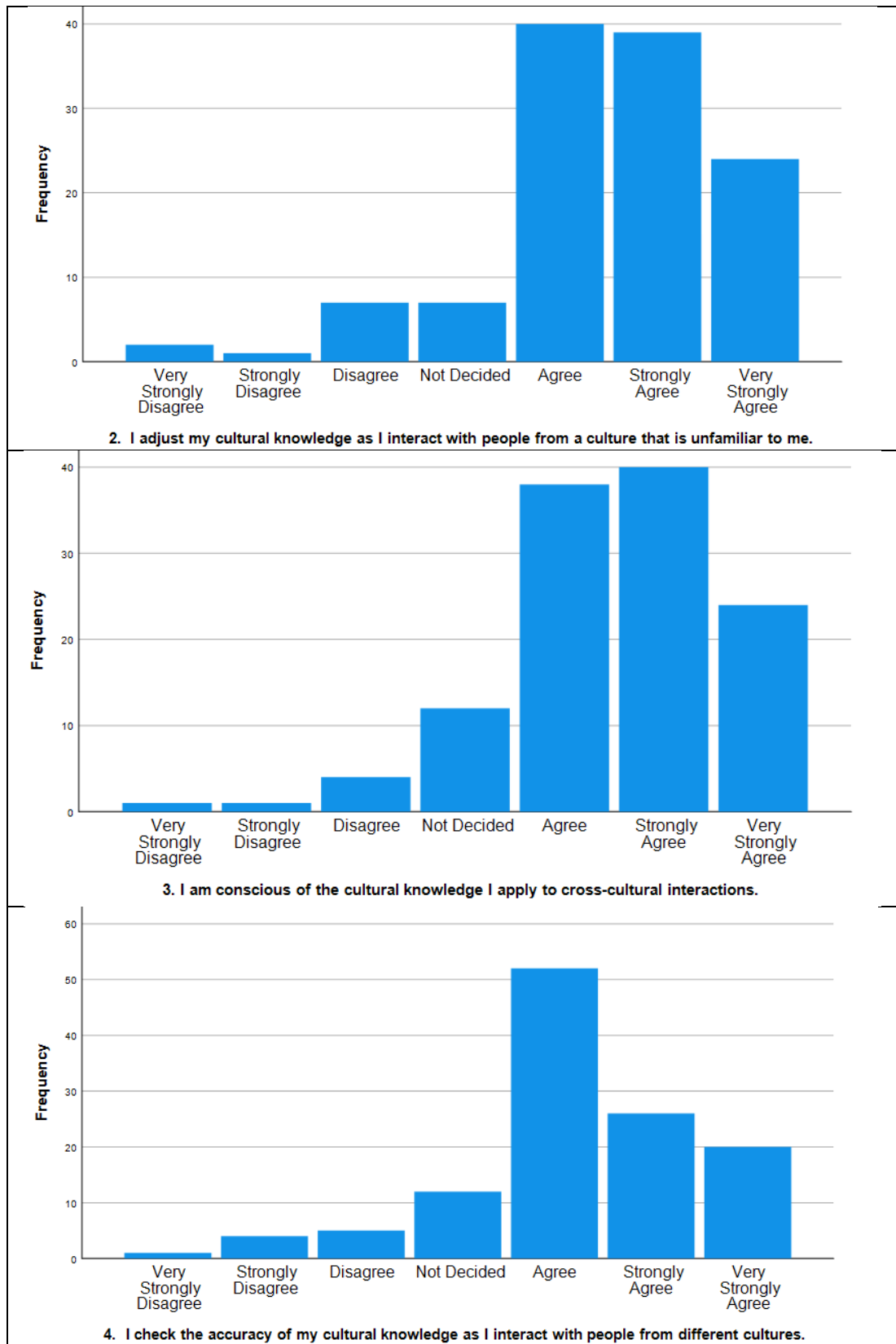|		16. I change my verbal behavior (e.g. accent tone) when cross-cultural interaction requires it.	17. I use pause and silence to suit different cross-cultural situations.	18. I vary the rate of my speaking when a cross-cultural situation requires it.	19. I change my non-verbal behavior when a cross-cultural situation requires it.	20. I alter my facial expressions when a cross-cultural interaction requires it.
N	Valid	120	120	120	120	120
	Missing	0	0	0	0	0
Mean		4.97	5.22	5.25	4.94	4.86
Median		5.00	5.00	5.00	5.00	5.00
Mode		5	5	5	5	5
Std. Deviation		1.531	1.285	1.278	1.451	1.474
Range		6	6	6	6	6

1. I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.

2. I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.

3. I am conscious of the cultural knowledge I apply to cross-cultural interactions.

4. I check the accuracy of my cultural knowledge as I interact with people from different cultures.

5. I know the legal and economic systems of other cultures.

6. I know the rules (e.g. vocabulary, grammar) of other languages.

7. I know the cultural values and religious beliefs of other cultures.

8. I know the marriage systems of other cultures

9. I know the arts and crafts of other cultures

10. I know the rules of expressing nonverbal behaviors in other cultures.

11. I enjoy interacting with people from different cultures
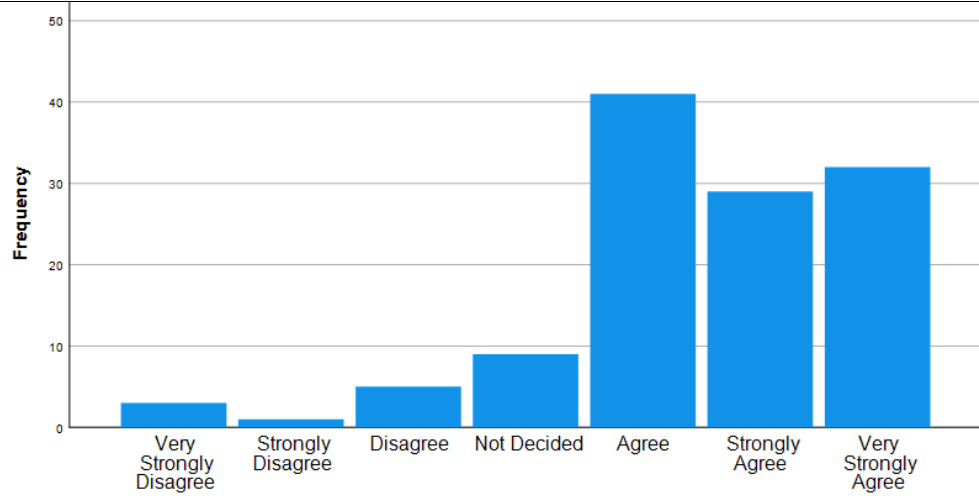
12. I am confident that I can socialize with locals in a culture that is unfamiliar to me.

13. I am sure that I can deal with the stresses of adjusting to a culture that is new to me

14. I enjoy living in cultures that are unfamiliar to me.

15. I am confident that I can get accustomed to the shopping conditions in a different culture.

16. I change my verbal behavior (e.g. accent tone) when cross-cultural interaction requires it.

17. I use pause and silence to suit different cross-cultural situations.

18. I vary the rate of my speaking when a cross-cultural situation requires it.

19. I change my non-verbal behavior when a cross-cultural situation requires it.
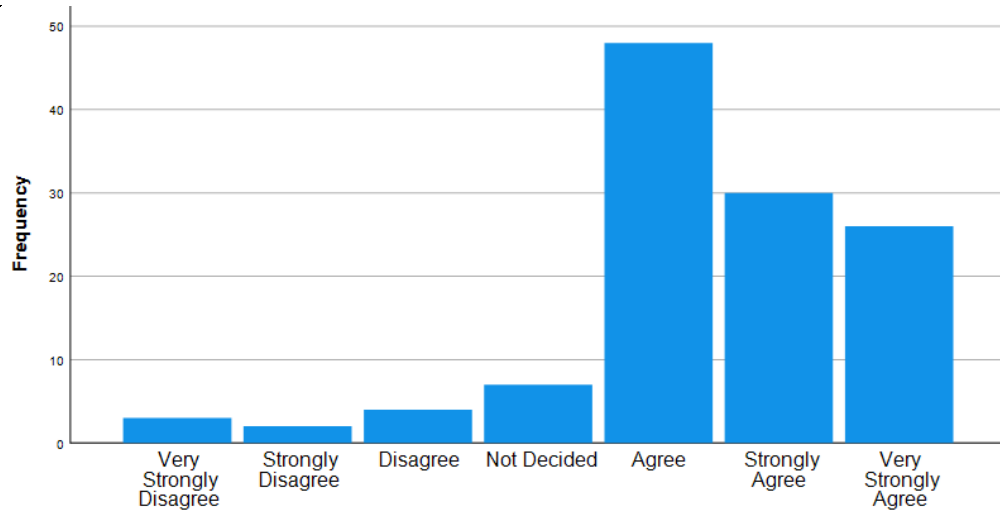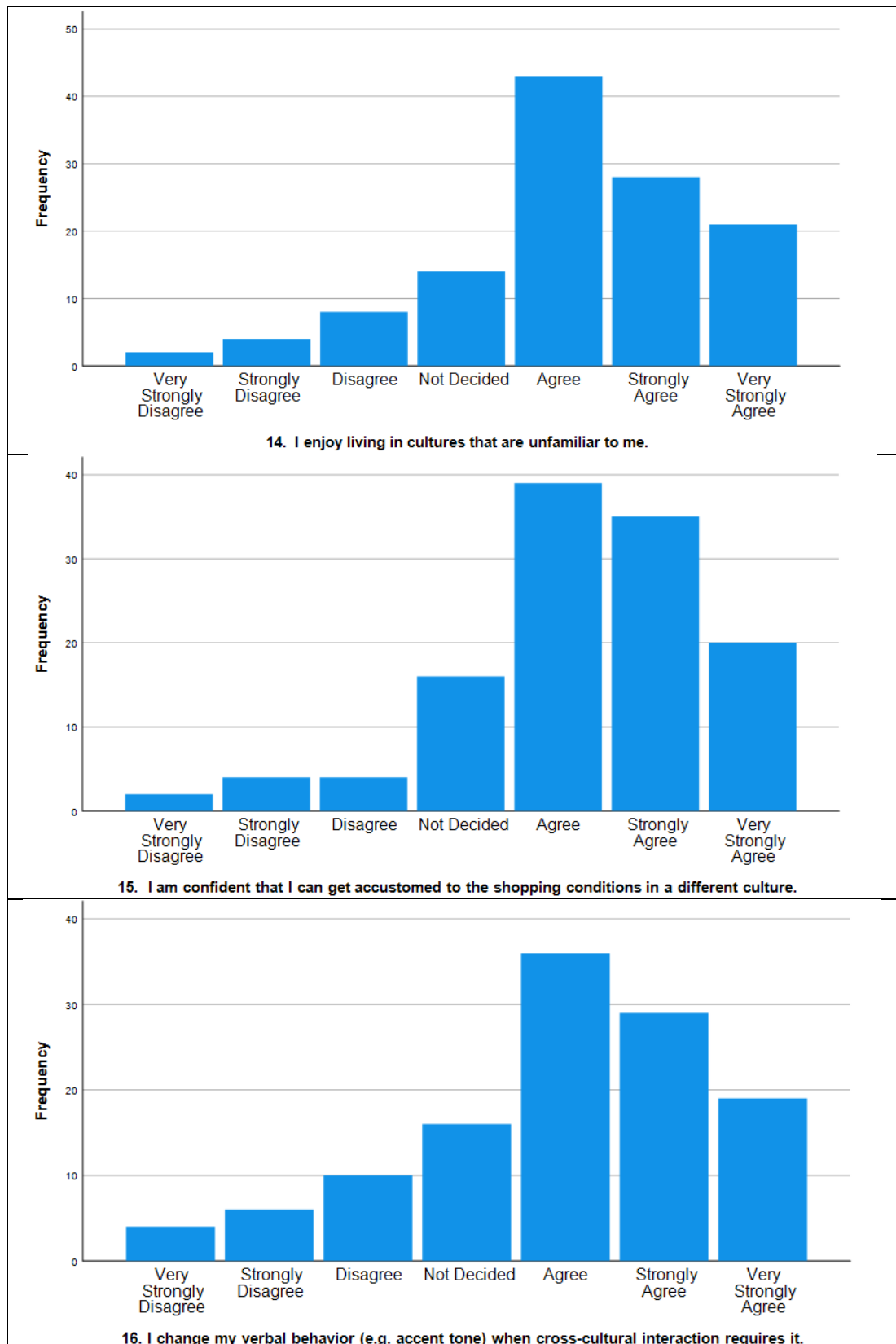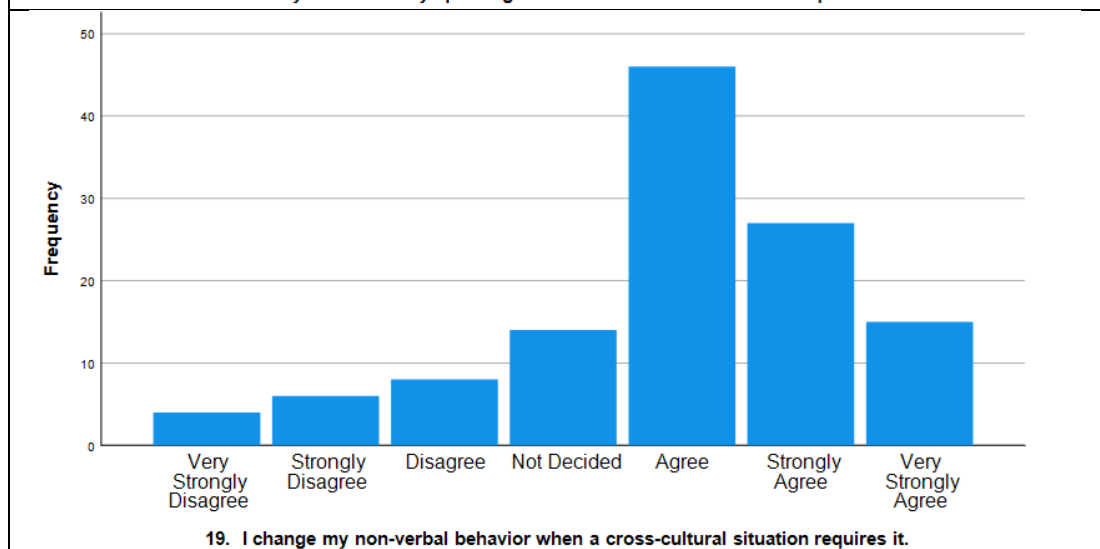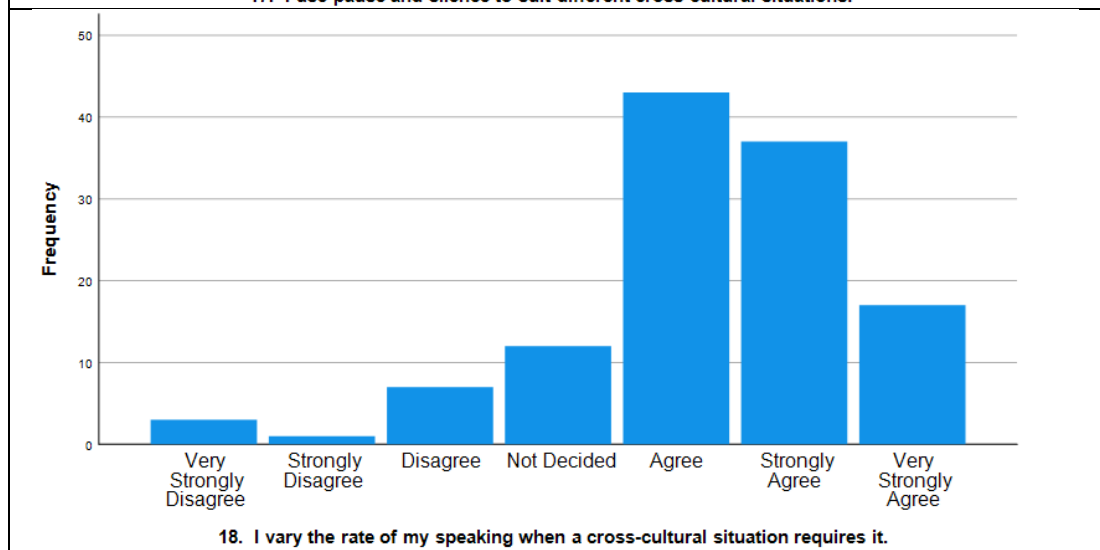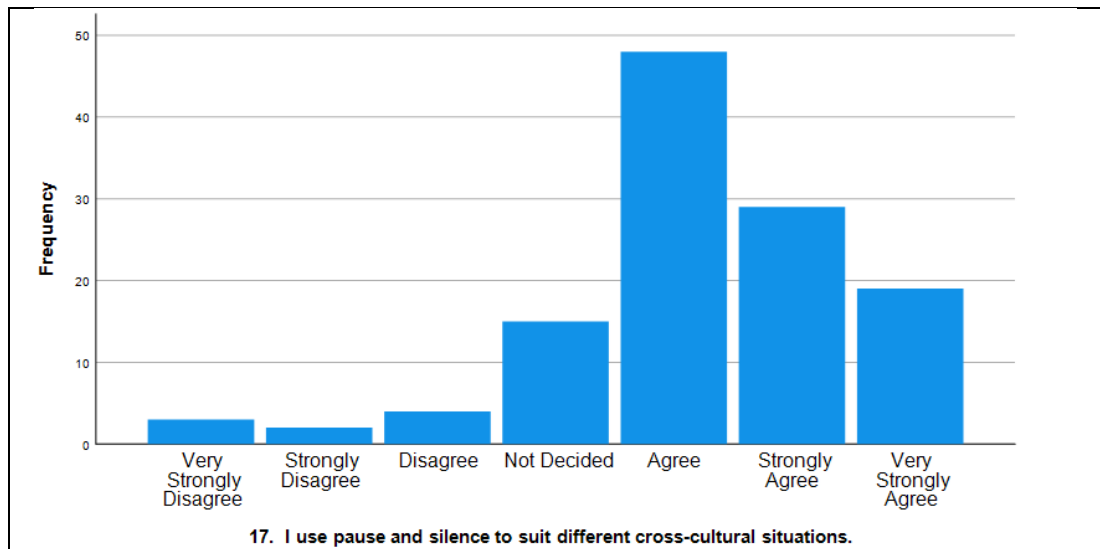
Figure 11: Participant's Responses to CQS Survey

4.5 RELIABILITY TESTS OF THE VARIABLES

The acceptable value of Cronbach's alpha is greater than 0.70. Anything below that range is questionable concerning its level of reliability (Pallant, 2016).

a. Cronbach's alpha values

Case Processing Summary

		N	%
Cases	Valid	120	100.0
	Excludedª	0	.0
	Total	120	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.947	.949	20

Figure 12: Cronbach's alpha values

i. N of items represents the number of items (i.e. CQS Questions) and N represents the number of cases (Here 120). There were no missing values.

ii. From the internal consistency or reliability testing that was analyzed, Cronbach's alpha value from the CQS Survey was 0.947, based on the 20 7-point Likert scale questions. This shows that the reliability score of the scale used is acceptable.

iii. A positive **Inter-Item Correlation** values indicate items in the CQS are measuring the same underlying characteristics while negative values could indicate items are not correctly reversed (Pallant, 2016).
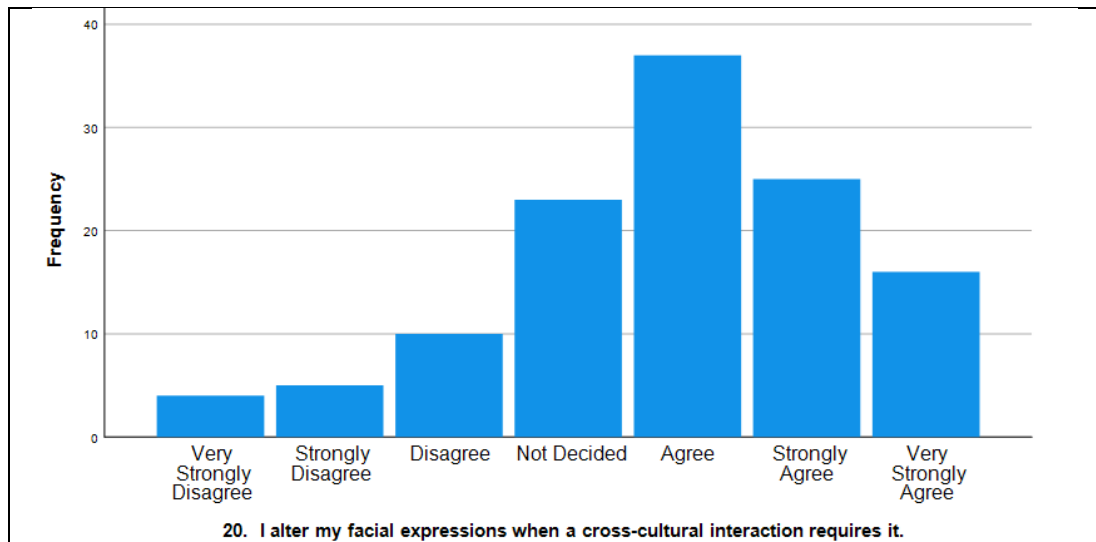
iv. The **Corrected Item-Total Correlation** values in the **Item-Total Statistics** table (data table not shown here for space reasons), tell us how much degree each item correlates with the total score. Low values (less than 0.3) indicate that the item is measuring something different from the scale. For the CQS scale, the corrected item-total correlation ranged from 0.595 to 0.736 (Pallant, 2016).

v. **Alpha if Item Deleted** (not shown here for space reasons), gives the impact of removing each item from the scale is given. If these values are higher than the final alpha value, we may want to consider removing this item from the scale. In the item-total statistics, "Cronbach's alpha if item deleted" ranged from 0.944 to 0.946. The Cronbach's alpha value from the CQS Survey was 0.947 (Pallant, 2016).

4.6 EXPLORATORY FACTOR ANALYSIS (EFA)

Before the actual analysis of the variables, it is necessary to examine whether the variables measure appropriately what they intended to measure. For this, Exploratory Factor Analysis (EFA) is used to understand the underlying structure of the data. A commonly used factor analysis technique is Principal Component Analysis (PCA). This will help to access factor loading to see which items are grouped. Both are essential steps in validating the CQS Scale.

To verify if our data set is suitable for factor analysis, the **Kaiser-Meyer-Olkin Measure of Sampling Adequacy** (KMO) value should be equal or above 0.6 and Bartlett's **Test of Sphericity** value should be significant (i.e. the Sig. value should be less than or equal to 0.05) (Pallant, 2016). For our data, we got a **Kaiser-Meyer-Olkin Measure of Sampling Adequacy** (KMO) value of 0.911 and **Bartlett's Test of Sphericity** value < 0.001. In the **Correlation Matrix** table (data table not shown here for space reasons), the correlation coefficients for most of the variables were 0.3 and above.

Closer examination of Kaiser's values will give an indication of how many factors to extract. Key is to identify components having eigenvalue of 1 or more in the "**Total Variance Explained**" table (Pallant, 2016). In our example, only the first three components recorded eigenvalues above 1 (i.e. 10.252, 2.795, 1.125). These three components explain a total of 70.863% percent of the variance.

In the **Scree plot,** we look for a break in the shape of the plot. We retain only those components above this point (Pallant, 2016). In this example, there is quite a clear break between the second and third components. From this scree plot, it is recommended to retain only two components

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.911
Bartlett's Test of Sphericity	Approx. Chi-Square	2022.953
	df	190
	Sig.	<.001

Figure 13: KMO and Bartlett's Test

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.252	51.262	51.262	10.252	51.262	51.262
2	2.795	13.976	65.238	2.795	13.976	65.238
3	1.125	5.625	70.863	1.125	5.625	70.863
4	.895	4.474	75.337			
5	.761	3.805	79.142			

Figure 14: Total Variance Explained
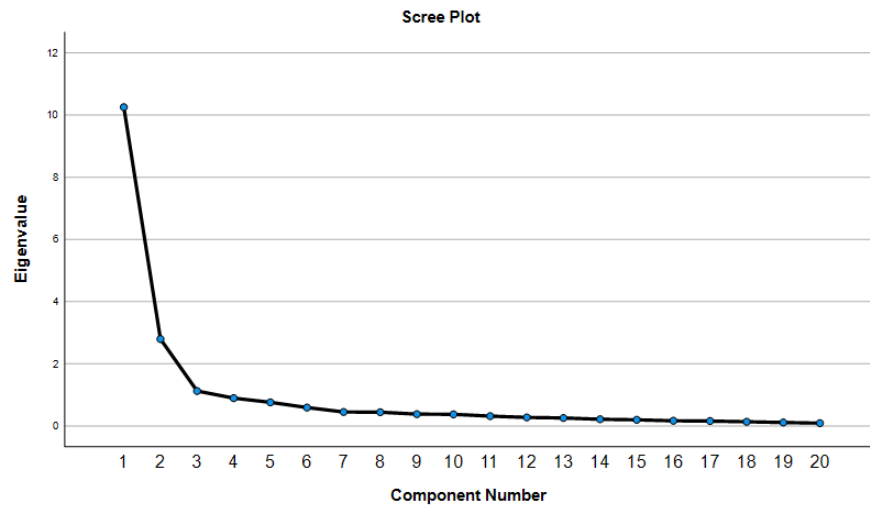
Figure 15: Scree Plot

a. Parallel Analysis

To further confirm the number of factors to retain in factor analysis, we performed a parallel analysis. I ran the syntax code for the parallel analysis (Math Guy Zero, 2020). The program will calculate the average eigenvalues for randomly generated samples.

If your total initial eigenvalue is larger than the Means from parallel analysis, then we can retain the factor otherwise we can reject it (Pallant, 2016). From the below data, it is evident that the analysis supports two-component retention.

Table 4: Parallel Analysis Evaluation

Total Variance Explained

Component	Initial Eigenvalues Total	% of Variance	Cumulative %	Extraction Sums of Squared Loadings Total	% of Variance	Cumulative %
1	10.252	51.262	51.262	10.252	51.262	51.262
2	2.795	13.976	65.238	2.795	13.976	65.238
3	1.125	5.625	70.863	1.125	5.625	70.863
4	.895	4.474	75.337			
5	.761	3.805	79.142			

```
Run MATRIX procedure:

PARALLEL ANALYSIS:

Principal Components

Specifications for this Run:
Ncases    120
Nvars      20
Ndatsets  100
Percent    95

Random Data Eigenvalues
      Root        Means      Prcntyle
  1.000000     1.809317     1.928843
  2.000000     1.647079     1.767107
  3.000000     1.525750     1.624697
  4.000000     1.428097     1.497933
  5.000000     1.343722     1.414801
  6.000000     1.259724     1.324929
  7.000000     1.180774     1.232198
  8.000000     1.109625     1.160159
  9.000000     1.043360     1.088564
 10.000000      .978878     1.023085
 11.000000      .921832      .970960
 12.000000      .864900      .912398
 13.000000      .805657      .845012
 14.000000      .754246      .803589
 15.000000      .696768      .744877
 16.000000      .642315      .690026
 17.000000      .587452      .644172
 18.000000      .531257      .575486
 19.000000      .469309      .533410
 20.000000      .399939      .449411

------ END MATRIX -----
```

b. Confirmation of factors

Component Matrix shows the unrotated loadings of each of the items on the three components (Pallant, 2016). From the below table, most of the items load quite strongly (above 0.4) on the first two components. Very few items load on Components 3. This suggests a two-factor solution.

Table 5: Component Matrix

Component Matrixᵃ

	Component 1	Component 2	Component 3
12. I am confident that I can socialize with locals in a culture that is unfamiliar to me.	.796		
13. I am sure that I can deal with the stresses of adjusting to a culture that is new to me	.795		
15. I am confident that I can get accustomed to the shopping conditions in a different culture.	.790		
14. I enjoy living in cultures that are unfamiliar to me.	.780		
2. I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.	.776	-.347	
17. I use pause and silence to suit different cross-cultural situations.	.767		
3. I am conscious of the cultural knowledge I apply to cross-cultural interactions.	.754	-.343	
19. I change my non-verbal behavior when a cross-cultural situation requires it.	.740		.473
18. I vary the rate of my speaking when a cross-cultural situation requires it.	.733		.395
20. I alter my facial expressions when a cross-cultural interaction requires it.	.728		.523
1. I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.	.727	-.346	
11. I enjoy interacting with people from different cultures	.713	-.366	
4. I check the accuracy of my cultural knowledge as I interact with people from different cultures.	.709		
16. I change my verbal behavior (e.g. accent tone) when cross-cultural interaction requires it.	.689		
9. I know the arts and crafts of other cultures	.672	.594	
8. I know the marriage systems of other cultures	.645	.605	
5. I know the legal and economic systems of other cultures.	.638	.440	
7. I know the cultural values and religious beliefs of other cultures.	.602	.562	
10. I know the rules of expressing nonverbal behaviors in other cultures.	.594	.627	
6. I know the rules (e.g. vocabulary, grammar) of other languages.	.613	.615	

Extraction Method: Principal Component Analysis.ᵃ
a. 3 components extracted.

Pattern Matrix table shows a rotated three-factor solution. This shows the items loadings on the three factors with ten items loading above 0.3 on Component 1, six items loading on Component 2, and five items on Component 3 (Pallant, 2016). Further supporting our decision to retain only two factors.

Hence, we can force a two-factor solution using the IBM SPSS Software.

Table 6: Pattern Matrix

Pattern Matrix [a]

	Component		
	1	2	3
1. I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.	.927		
12. I am confident that I can socialize with locals in a culture that is unfamiliar to me.	.825		
13. I am sure that I can deal with the stresses of adjusting to a culture that is new to me	.817		
3. I am conscious of the cultural knowledge I apply to cross-cultural interactions.	.788		
2. I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.	.787		
14. I enjoy living in cultures that are unfamiliar to me.	.737		
11. I enjoy interacting with people from different cultures	.734		
15. I am confident that I can get accustomed to the shopping conditions in a different culture.	.717		
4. I check the accuracy of my cultural knowledge as I interact with people from different cultures.	.695		
8. I know the marriage systems of other cultures		.896	
9. I know the arts and crafts of other cultures		.881	
10. I know the rules of expressing nonverbal behaviors in other cultures.		.863	
6. I know the rules (e.g. vocabulary, grammar) of other languages.		.826	
7. I know the cultural values and religious beliefs of other cultures.		.804	
5. I know the legal and economic systems of other cultures.		.693	
20. I alter my facial expressions when a cross-cultural interaction requires it.			.882
19. I change my non-verbal behavior when a cross-cultural situation requires it.			.839
18. I vary the rate of my speaking when a cross-cultural situation requires it.			.751
16. I change my verbal behavior (e.g. accent tone) when cross-cultural interaction requires it.			.540
17. I use pause and silence to suit different cross-cultural situations.		.380	.534

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.
[a] Rotation converged in 6 iterations.

c. Two Factor Solution

The **component correlation matrix** shows the strength of the relationship between the two factors. This gives us information to decide whether it was reasonable to assume that the two components were not related (the assumption underlying the use of Varimax rotation) or whether it is necessary to use, and report, the Oblimin rotation solution shown here (Pallant, 2016).

For our case, we have used Oblimin rotation. The oblimin rotation provides two tables of loadings.

i. **Pattern Matrix** - In our result, the main loadings on Component 1 are items 2 and 3. These are all positive affect items (enthusiastic, inspired, alert, attentive). The main items on Component 2 (10,8) are negative affect items (nervous, afraid, scared, distressed) (Bucker *et al.*, 2015).

Table 7: Pattern Matrix of Two Factor Solution

Pattern Matrixᵃ

	Component 1	Component 2
2. I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.	.894	
3. I am conscious of the cultural knowledge I apply to cross-cultural interactions.	.873	
11. I enjoy interacting with people from different cultures	.861	
1. I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.	.856	
13. I am sure that I can deal with the stresses of adjusting to a culture that is new to me	.840	
12. I am confident that I can socialize with locals in a culture that is unfamiliar to me.	.799	
15. I am confident that I can get accustomed to the shopping conditions in a different culture.	.793	
17. I use pause and silence to suit different cross-cultural situations.	.771	
18. I vary the rate of my speaking when a cross-cultural situation requires it.	.755	
4. I check the accuracy of my cultural knowledge as I interact with people from different cultures.	.706	
14. I enjoy living in cultures that are unfamiliar to me.	.685	
19. I change my non-verbal behavior when a cross-cultural situation requires it.	.671	
20. I alter my facial expressions when a cross-cultural interaction requires it.	.545	
16. I change my verbal behavior (e.g. accent tone) when cross-cultural interaction requires it.	.536	
10. I know the rules of expressing nonverbal behaviors in other cultures.		.887
8. I know the marriage systems of other cultures		.881
6. I know the rules (e.g. vocabulary, grammar) of other languages.		.880
9. I know the arts and crafts of other cultures		.879
7. I know the cultural values and religious beliefs of other cultures.		.819
5. I know the legal and economic systems of other cultures.		.700

ii.   The Structure Matrix table gives information about the level of correlation between variables and factors (Pallant, 2016).

Table 8: Structure Matrix of Two Factor Solution

Structure Matrix

	Component 1	Component 2
2. I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.	.845	.323
13. I am sure that I can deal with the stresses of adjusting to a culture that is new to me	.837	.394
3. I am conscious of the cultural knowledge I apply to cross-cultural interactions.	.823	.310
12. I am confident that I can socialize with locals in a culture that is unfamiliar to me.	.823	.431
15. I am confident that I can get accustomed to the shopping conditions in a different culture.	.817	.427
1. I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.	.799	
17. I use pause and silence to suit different cross-cultural situations.	.793	.413
11. I enjoy interacting with people from different cultures	.791	
14. I enjoy living in cultures that are unfamiliar to me.	.769	.504
18. I vary the rate of my speaking when a cross-cultural situation requires it.	.765	.380
19. I change my non-verbal behavior when a cross-cultural situation requires it.	.738	.460
4. I check the accuracy of my cultural knowledge as I interact with people from different cultures.	.730	.387
20. I alter my facial expressions when a cross-cultural interaction requires it.	.683	.548
16. I change my verbal behavior (e.g. accent tone) when cross-cultural interaction requires it.	.654	.502
9. I know the arts and crafts of other cultures	.456	.897
8. I know the marriage systems of other cultures	.427	.885
6. I know the rules (e.g. vocabulary, grammar) of other languages.	.393	.868
10. I know the rules of expressing nonverbal behaviors in other cultures.	.372	.863
7. I know the cultural values and religious beliefs of other cultures.	.399	.823
5. I know the legal and economic systems of other cultures.	.471	.766

Extraction Method: Principal Component Analysis

iii.   The **communalities table** provides information about how much of the variance in each item. Low values (Less than 0.3) indicate that the item does not fit well with the other items (Pallant, 2016). In our case, all the items had values greater than 0.3.

Table 9: Communalities of Two Factor Solution

Communalities

	Initial	Extraction
1. I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.	1.000	.649
2. I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.	1.000	.722
3. I am conscious of the cultural knowledge I apply to cross-cultural interactions.	1.000	.686
4. I check the accuracy of my cultural knowledge as I interact with people from different cultures.	1.000	.536
5. I know the legal and economic systems of other cultures.	1.000	.601
6. I know the rules (e.g. vocabulary, grammar) of other languages.	1.000	.754
7. I know the cultural values and religious beliefs of other cultures.	1.000	.677
8. I know the marriage systems of other cultures	1.000	.782
9. I know the arts and crafts of other cultures	1.000	.805
10. I know the rules of expressing nonverbal behaviors in other cultures.	1.000	.747
11. I enjoy interacting	1.000	.642
with people from different cultures		
12. I am confident that I can socialize with locals in a culture that is unfamiliar to me.	1.000	.679
13. I am sure that I can deal with the stresses of adjusting to a culture that is new to me	1.000	.701
14. I enjoy living in cultures that are unfamiliar to me.	1.000	.616
15. I am confident that I can get accustomed to the shopping conditions in a different culture.	1.000	.669
16. I change my verbal behavior (e.g. accent tone) when cross-cultural interaction requires it.	1.000	.474
17. I use pause and silence to suit different cross-cultural situations.	1.000	.630
18. I vary the rate of my speaking when a cross-cultural situation requires it.	1.000	.585
19. I change my non-verbal behavior when a cross-cultural situation requires it.	1.000	.560
20. I alter my facial expressions when a cross-cultural interaction requires it.	1.000	.530

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.252	51.262	51.262	10.252	51.262	51.262
2	2.795	13.976	65.238	2.795	13.976	65.238
3	1.125	5.625	70.863			

Figure 16: Total Variance Explained of Two Factor Solution

Test Summary

The suitability of data for factor analysis was assessed and the Cultural Intelligence Scale (CQS) was run through Principal Components Analysis (PCA) using IBM SPSS version 28. The Kaiser-Meyer-Olkin value was 0.911 and Bartlett's Test of Sphericity achieved statistical significance indicating the factorability of the correlation matrix.

In the PCA, three components had eigen values exceeding 1.0 with 51.262%, 13.976%, and 5.625% of the variance respectively. Scree plot showed a clear break after the second component. Hence, it was finalized to retain two components for further investigation. This was further supported by the results of Parallel Analysis, which showed two components with eigen values exceeding the corresponding criterion values for a randomly generated data matrix.

The two-component solution had a total of 65.238% variance. Component 1 contributed 51.262% while Component 2 contributed 13.976%. Oblimin rotation was performed to confirm the results. The Oblimin rotated solution revealed the presence of a simple structure, with both components showing some strong loadings. The interpretation of the two components on the CQS Scale indicates positive affect items loading strongly on Component 1 and negative affect items loading strongly on Component 2 (Bucker *et al.*, 2015).

4.7 CONFIRMATORY FACTOR ANALYSES (CFA) AND ASSESSING THE FITNESS OF THE MODEL

In this study, we used EFA to identify the underlying factor structure of the CQS. Confirmatory Factor Analysis (CFA) is used to confirm/ validate the factor structure identified by exploratory factor analysis (EFA). Model fitness is evaluated using tests such as chi-square, Root Mean Square Error of Approximation (RMSEA), comparative fit index (CFI), Tucker-Lewis Index (TLI), and Standardized Root Mean Square Residual (SRMR). It requires software like AMOS which integrates with SPSS. The lack of access to this software and financial limitations limits our ability to perform CFA.

Considering this study is exploratory, EFA will meet the requirement and there is no need to go for CFA analysis or alternative split-sample validation. Also, as evident in the above section, the robustness of the EFA result is clear with high factor loadings and meaningful constructs. We used multiple criteria such as comparison with Eigenvalues, scree plot, and parallel analysis to back the CFA result. We have also got reliability testing Cronbach's alpha to be 0.947 which further strengthens our justification. Thus, making the omission of the CFA analysis justifiable.

4.8 ASSESSING DISCRIMINANT VALIDITY

Discriminant validity ensures that construct or factors are truly distinct. In other words, whether items from different dimensions are not highly correlated. The method of measurement uses the Fornell-Larcker Criterion. In this method, the square root of the Average Variance Extracted (AVE) is compared with the correlations between the CQS dimensions. It is tested after performing Confirmatory Factor Analysis (CFA) (Bucker *et al.*, 2015).

4.9 NORMALITY AND HOMOGENEITY TESTING

4.9.1 Normality Testing

In our study, the Total Cultural Intelligence Score (TCIS) is a dependent continuous variable while gender, age, educational qualification, work experience, working department, country of origin, and presence of diverse cultural management are independent variables (Pallant, 2016).

Key observation to access normality

a. 5% Trimmed Mean

It is the mean calculated after removing the top and bottom 5 percent of the cases. This will reveal how much the extreme scores influencing the mean (Pallant, 2016). We got a 5% Trimmed Mean of 5.17 and the original mean of 5.11. The two mean values are similar.

b. Skewness and Kurtosis values

Skewness values: Positive skewness values indicated the results are clustered to the left at the low values. Negative skewness values indicate a clustering of result at the high value (Pallant, 2016). We have a skewness value of -1.044.

Kurtosis value: Positive values indicate that the distribution is peaked with long thin tails. Kurtosis values below zero indicate a flat distribution with many cases in the extremes. (Pallant, 2016). We have a Kurtosis value of 2.956.

Descriptives

			Statistic	Std. Error
Total Cultural Intelligence Score (TCIS)	Mean		5.11	.093
	95% Confidence Interval for Mean	Lower Bound	4.92	
		Upper Bound	5.29	
	5% Trimmed Mean		5.17	
	Median		5.00	
	Variance		1.039	
	Std. Deviation		1.019	
	Minimum		1	
	Maximum		7	
	Range		6	
	Interquartile Range		1	
	Skewness		-1.044	.221
	Kurtosis		2.956	.438

Figure 17: Descriptive of TCIS

Table 10: Average of CQS Components

Sl. No.	Components	Average Score
1	Average Metacognitive score	5.45625
2	Average Cognitive score	4.363888889
3	Average Motivational score	5.443333333
4	Average Behavioral score	5.048333333

c. Kolmogorov-Smirnov and Shapiro-Wilk Values

It indicates the normality of the distribution of scores. A non-significant result (Sig. value < 0.05) indicates normality. In our study, the Sig. value is 0.001, suggesting a violation of the assumption of normality (Pallant, 2016).

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Total Cultural Intelligence Score (TCIS)	.283	120	<.001	.842	120	<.001

a. Lilliefors Significance Correction

Figure 18: Test of Normality

d. Histograms (Normally Q-Q Plot)

The observed value for each score is plotted against the expected value from the normal distribution. A reasonably straight line suggests a normal distribution (Pallant, 2016). In our case, there is a distortion from the normal distribution.
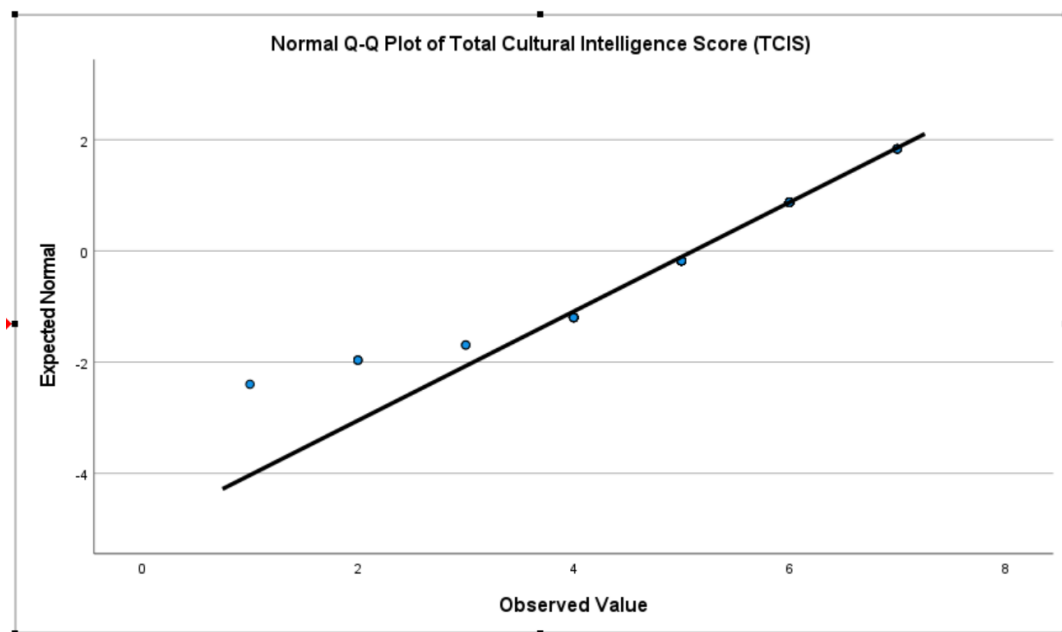
Figure 19: Normal Q-Q Plot of TCIS

e. Detrended Normal Q-Q Plots

The actual deviation of the scores from the straight line. There should be no real clustering of points, with most collecting around the zero line (Pallant, 2016). In our case, there is a distortion from the straight line.
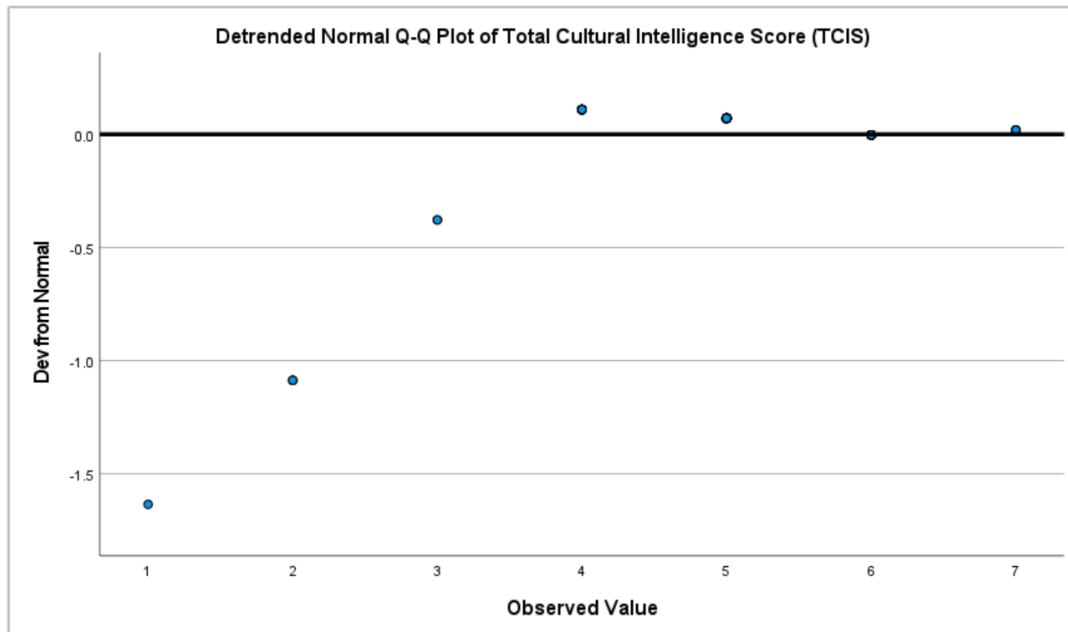
Figure 20: Detrended Normal Q-Q Plot of TCIS

The above result indicates a trend toward non-parametric tests.

4.9.2 Homogenelty Testing

Considering parametric techniques assume that samples obtained from populations are equal variance. We use **Levene's test** for equality of variance. A significance value of less than 0.05 indicates variances for the two groups are not equal, and we have violated the assumption of homogeneity of variance (Pallant, 2016). In our case, we obtained a value greater than 0.05 which indicates the test is not significant (i.e. a significant level of greater than 0.05) and the assumption of homogeneity of variances is met (Pallant, 2016).

Oneway

Tests of Homogeneity of Variances		Levene Statistic	df1	df2	Sig.
Total Cultural Intelligence Score (TCIS)	Based on Mean	.169	1	118	.682
	Based on Median	.096	1	118	.757
	Based on Median and with adjusted df	.096	1	117.691	.757
	Based on trimmed mean	.143	1	118	.706

Figure 21: Test for Homogeneity of Variances

Both the normality and homogeneity testing conclude that the non-parametric test suits our tests.

Test Summary

Given these results, we have:

- Homogeneity of Variances (Levene's Test): Met

- Normality (Shapiro-Wilk's Test): Violated

Shapiro-Wilk's test (p-value < 0.05) indicates that the assumption of normality is violated, hence it is advisable to use non-parametric tests. Non-parametric tests do not assume a normal distribution (Pallant, 2016).

4.10   NON-PARAMETRIC TESTING

To test the hypotheses of this research, the non-parametric test Kruskal Wallis test will be used for independent variables such as age, education qualification, work experience, working department, country of origin, presence of diverse cultural management and Mann-Whitney U test for independent variables such as gender and collaboration.

The hypotheses proposed in the chapter 1 were tested to answer the following questions:

Research Question 1: What is the total cultural intelligence score (TCIS) among employees in Indian pharmaceutical companies?

Research Question 2: How does cultural intelligence vary among employees from different demographic backgrounds (e.g. age, gender, education), roles, and work experience in Indian pharmaceutical companies?

Research Question 3: Do Indian pharmaceutical companies have a diverse cultural management team (e.g. Diversity, Equity, and Inclusion (DEI)/ Diversity and Inclusion (D&I) Team?

Research Question 4: What is the total cultural intelligence score (TCIS) among employees who don't interact with clients from diverse cultural backgrounds?

In the next section hypotheses will be tested by using non-parametric tests. The hypotheses will either be accepted or rejected depending on the level of significance ($p \geq 0.05$).

4.10.1 Testing of Normality and Homogeneity of independent against dependent variables

The normality and homogeneity testing for each independent variable against the dependent variable Total Cultural Intelligence Score (TCIS) were also tested. The results are depicted below:

Table 11: Table for observed discrepancies in Normality and Homogeneity

Tests of Normality

	2. Kindly indicate your gender	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Total Cultural Intelligence Score (TCIS)	1 Male	.289	66	<.001	.833	66	<.001
	2 Female	.275	54	<.001	.850	54	<.001

a. Lilliefors Significance Correction

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Total Cultural Intelligence Score (TCIS)	Based on Mean	.169	1	118	.682
	Based on Median	.096	1	118	.757
	Based on Median and with adjusted df	.096	1	117.691	.757
	Based on trimmed mean	.143	1	118	.706

Tests of Normality

	3. Please indicate your age group	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Total Cultural Intelligence Score (TCIS)	1 20-30	.281	52	<.001	.818	52	<.001
	2 31-40	.288	58	<.001	.840	58	<.001
	3 41-50	.360	7	.007	.664	7	.001
	4 51 and above	.385	3	.	.750	3	.000

a. Lilliefors Significance Correction

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Total Cultural Intelligence Score (TCIS)	Based on Mean	.209	3	116	.890
	Based on Median	.331	3	116	.803
	Based on Median and with adjusted df	.331	3	113.419	.803
	Based on trimmed mean	.301	3	116	.825

Tests of Normality

	4. What is your education level?	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Total Cultural Intelligence Score (TCIS)	2 Bachelor's Degree	.260	23	<.001	.857	23	.004
	3 Master's Degree	.307	88	<.001	.820	88	<.001
	4 Doctoral Degree	.248	9	.116	.913	9	.338

a. Lilliefors Significance Correction

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Total Cultural Intelligence Score (TCIS)	Based on Mean	.192	2	117	.825
	Based on Median	.129	2	117	.879
	Based on Median and with adjusted df	.129	2	110.661	.879
	Based on trimmed mean	.390	2	117	.678

Tests of Normality

	5. Work experience	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Total Cultural Intelligence Score (TCIS)	1 Less than 5 years	.266	47	<.001	.831	47	<.001
	2 5-10 years	.308	52	<.001	.841	52	<.001
	3 11-15 years	.295	17	<.001	.859	17	.015
	4 16 years and above	.307	4	.	.729	4	.024

a. Lilliefors Significance Correction

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Total Cultural Intelligence Score (TCIS)	Based on Mean	1.339	3	116	.265
	Based on Median	1.151	3	116	.332
	Based on Median and with adjusted df	1.151	3	106.990	.332
	Based on trimmed mean	1.456	3	116	.230

Tests of Normality

	6. Which department do you work for?	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Total Cultural Intelligence Score (TCIS)	1 Regulatory Affairs	.328	25	<.001	.826	25	<.001
	2 Quality Department (QA and QC)	.304	40	<.001	.824	40	<.001
	3 Sales and Marketing	.309	29	<.001	.798	29	<.001
	4 Finance and Logistics	.287	18	<.001	.801	18	.002
	5 Human Resources	.240	8	.195	.858	8	.114

a. Lilliefors Significance Correction

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Total Cultural Intelligence Score (TCIS)	Based on Mean	.489	4	115	.744
	Based on Median	.601	4	115	.663
	Based on Median and with adjusted df	.601	4	109.660	.663
	Based on trimmed mean	.459	4	115	.766

Tests of Normality[b,c,d,e,f,g,h]

	7. What country are you from?	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Total Cultural Intelligence Score (TCIS)	1 India	.284	113	<.001	.840	113	<.001

a. Lilliefors Significance Correction
b. Total Cultural Intelligence Score (TCIS) is constant when 7. What country are you from? = 2 Turkey. It has been omitted.
c. Total Cultural Intelligence Score (TCIS) is constant when 7. What country are you from? = 3 Botswana. It has been omitted.
d. Total Cultural Intelligence Score (TCIS) is constant when 7. What country are you from? = 4 Ukraine. It has been omitted.
e. Total Cultural Intelligence Score (TCIS) is constant when 7. What country are you from? = 5 Nigeria. It has been omitted.
f. Total Cultural Intelligence Score (TCIS) is constant when 7. What country are you from? = 6 Netherlands. It has been omitted.
g. Total Cultural Intelligence Score (TCIS) is constant when 7. What country are you from? = 7 Ireland. It has been omitted.
h. Total Cultural Intelligence Score (TCIS) is constant when 7. What country are you from? = 8 Sweden. It has been omitted.

Tests of Homogeneity of Variances

		Levene Statistic
Total Cultural Intelligence Score (TCIS)	Based on Mean	.[a]

a. Levene's Test of Equality of Error Variances is not computed because there are less than two nonempty groups.

Tests of Normality

	8. Do you collaborate with a cross-cultural workforce?	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Total Cultural Intelligence Score (TCIS)	1 Yes	.260	104	<.001	.849	104	<.001
	2 No	.330	16	<.001	.784	16	.002

a. Lilliefors Significance Correction

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Total Cultural Intelligence Score (TCIS)	Based on Mean	4.826	1	118	.030
	Based on Median	1.590	1	118	.210
	Based on Median and with adjusted df	1.590	1	100.784	.210
	Based on trimmed mean	4.182	1	118	.043

Tests of Normality

	9. Do you think your company has a culturally diverse management?	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Total Cultural Intelligence Score (TCIS)	1 Yes	.279	100	<.001	.850	100	<.001
	2 No	.231	5	.200*	.881	5	.314
	3 Maybe	.345	15	<.001	.763	15	.001

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Total Cultural Intelligence Score (TCIS)	Based on Mean	1.446	2	117	.240
	Based on Median	1.320	2	117	.271
	Based on Median and with adjusted df	1.320	2	109.755	.271
	Based on trimmed mean	1.685	2	117	.190

4.10.2 Mann-Whitney U Test

The Mann-Whitney U Test is used to measure differences between two independent groups on a continuous measure. In Mann-Whitney U Test compares medians by converting them into ranks across the two groups. (Pallant, 2016).

As the Asymp. Sig. (2-tailed) (which is our p values) for both the independent variables (Gender and collaboration) are not less than 0.05. The result is not significant. Therefore, we should retain the null hypothesis that there is no significant difference among various subcategories in genders and collaboration levels. This means that the scores are similar between these variables. This also indicates these variables are not a differentiating factor in the Total Cultural Intelligence Score.

Table 12: Mann-Whitney U Test Results

Mann-Whitney Test

Ranks

	2. Kindly indicate your gender	N	Mean Rank	Sum of Ranks
Total Cultural Intelligence Score (TCIS)	1 Male	66	58.99	3893.50
	2 Female	54	62.34	3366.50
	Total	120		

Test Statistics^a

	Total Cultural Intelligence Score (TCIS)
Mann-Whitney U	1682.500
Wilcoxon W	3893.500
Z	-.570
Asymp. Sig. (2-tailed)	.569

a. Grouping Variable: 2. Kindly indicate your gender

Total Cultural Intelligence Score (TCIS) * 2. Kindly indicate your gender

Total Cultural Intelligence Score (TCIS)

2. Kindly indicate your gender	N	Median
1 Male	66	5.00
2 Female	54	5.00
Total	120	5.00

Mann-Whitney Test

Ranks

	8. Do you collaborate with a cross-cultural workforce?	N	Mean Rank	Sum of Ranks
Total Cultural Intelligence Score (TCIS)	1 Yes	104	62.63	6513.00
	2 No	16	46.69	747.00
	Total	120		

Test Statistics^a

	Total Cultural Intelligence Score (TCIS)
Mann-Whitney U	611.000
Wilcoxon W	747.000
Z	-1.851
Asymp. Sig. (2-tailed)	.064

a. Grouping Variable: 8. Do you collaborate with a cross-cultural workforce?

Total Cultural Intelligence Score (TCIS) * 8. Do you collaborate with a cross-cultural workforce?

Total Cultural Intelligence Score (TCIS)

8. Do you collaborate with a cross-cultural workforce?	N	Median
1 Yes	104	5.00
2 No	16	5.00
Total	120	5.00

IBM SPSS does not provide an effect size statistic for this test (Pallant, 2016). The approximate value of r using the z value can be calculated using the formula.

r = z / square root of N where N = total number of cases.

Table 13: Computing the r values

Variable	z value	r value
Gender	-0.57	0.052
Collaboration	-1.851	0.169

This would be considered a very small effect size using criteria of .1=small effect, .3=medium effect, and .5=large effect.

4.10.3 Kruskal-Wallis Test

The Kruskal-Wallis Test/ Kruskal-Wallis H Test allows you to compare the scores on some continuous variable for three or more groups. In Kruskal-Wallis Test, scores are converted to ranks and the mean rank for each group is compared (Pallant, 2016).

As the Asymp. Sig. (which is our p values) for the independent variables (age, educational qualification, work experience, working department, country of origin, and presence of diverse culture management) are not less than 0.05. The result is not significant. Therefore, we should retain the null hypothesis that there is no significant difference among various subcategories in these variables. The scores are similar across different subcategories. This also indicates that these variables might not be a differentiating factor in the context of the Total Cultural Intelligence Score (TCIS).

Table 14: Kruskal-Wallis Test Results

Kruskal-Wallis Test

Ranks

Total Cultural Intelligence Score (TCIS)	3. Please indicate your age group	N	Mean Rank
	1 20-30	52	58.74
	2 31-40	58	58.78
	3 41-50	7	78.29
	4 51 and above	3	82.67
	Total	120	

Test Statistics[a,b]

	Total Cultural Intelligence Score (TCIS)
Kruskal-Wallis H	3.912
df	3
Asymp. Sig.	.271

a. Kruskal Wallis Test

b. Grouping Variable: 3. Please indicate your age group

Kruskal-Wallis Test

Ranks

Total Cultural Intelligence Score (TCIS)	4. What is your education level?	N	Mean Rank
	2 Bachelor's Degree	23	54.91
	3 Master's Degree	88	60.95
	4 Doctoral Degree	9	70.33
	Total	120	

Test Statistics[a,b]

	Total Cultural Intelligence Score (TCIS)
Kruskal-Wallis H	1.563
df	2
Asymp. Sig.	.458

a. Kruskal Wallis Test

b. Grouping Variable: 4. What is your education level?

Kruskal-Wallis Test

Ranks

Total Cultural Intelligence Score (TCIS)	5. Work experience	N	Mean Rank
	1 Less than 5 years	47	63.79
	2 5-10 years	52	54.98
	3 11-15 years	17	64.88
	4 16 years and above	4	75.00
	Total	120	

Test Statistics[a,b]

	Total Cultural Intelligence Score (TCIS)
Kruskal-Wallis H	3.172
df	3
Asymp. Sig.	.366

a. Kruskal Wallis Test

b. Grouping Variable: 5. Work experience

Kruskal-Wallis Test

Ranks

Total Cultural Intelligence Score (TCIS)	6. Which department do you work for?	N	Mean Rank
	1 Regulatory Affairs	25	67.80
	2 Quality Department (QA and QC)	40	52.51
	3 Sales and Marketing	29	63.28
	4 Finance and Logistics	18	68.67
	5 Human Resources	8	49.19
	Total	120	

Test Statistics[a,b]

	Total Cultural Intelligence Score (TCIS)
Kruskal-Wallis H	6.162
df	4
Asymp. Sig.	.187

a. Kruskal Wallis Test

b. Grouping Variable: 6. Which department do you work for?

Kruskal-Wallis Test

Ranks

Total Cultural Intelligence Score (TCIS)	7. What country are you from?	N	Mean Rank
	1 India	113	61.29
	2 Turkey	1	52.00
	3 Botswana	1	52.00
	4 Ukraine	1	52.00
	5 Nigeria	1	52.00
	6 Netherlands	1	14.00
	7 Ireland	1	14.00
	8 Sweden	1	98.00
	Total	120	

Test Statistics[a,b]

	Total Cultural Intelligence Score (TCIS)
Kruskal-Wallis H	5.927
df	7
Asymp. Sig.	.548

a. Kruskal Wallis Test

b. Grouping Variable: 7. What country are you from?

Kruskal-Wallis Test

Ranks

	9. Do you think your company has a culturally diverse management?	N	Mean Rank
Total Cultural Intelligence Score (TCIS)	1 Yes	100	61.04
	2 No	5	62.80
	3 Maybe	15	56.13
	Total	120	

Test Statistics[a,b]

	Total Cultural Intelligence Score (TCIS)
Kruskal-Wallis H	.332
df	2
Asymp. Sig.	.847

a. Kruskal Wallis Test

b. Grouping Variable: 9. Do you think your company has a culturally diverse management?

4.11   SUMMARY OF ANALYSIS

In conclusion, this quantitative analysis was conducted to assess the cultural intelligence of the employees working in pharmaceutical companies in India. The background information collected such as gender, age, educational qualification, work experience, working department, collaboration, and presence of diverse cultural management was used as the independent variable while the total cultural intelligence score will be the dependent continuous variable.

The Cultural Intelligence Scale (CQS) was used as the research scale to measure CQ. In our study, we found that the CQ construct is best conceptualized by a two-factor dimension model. Due to the study's limitation, Confirmatory Factor Analysis and Discriminant Validity were not performed. However, we have justified this omission with a robust EFA analysis.

The hypotheses were tested by using the non-parametric analysis by applying the Kruskal Wallis Test and Mann-Whitney U test. Null hypotheses were retained for all hypotheses. This means there is no significant difference in total cultural intelligence score between the independent and dependent variables.

Therefore, the answers to the research questions based on the hypotheses are as follows:

Research Question 1: The survey reported a mean total cultural intelligence score of 5.11. A score above 4 is considered somewhat high cultural intelligence.

Research Question 2: The survey responses and statistical analysis of different demographic backgrounds (e.g. age, gender, education), roles, and work experience in Indian pharmaceutical companies are given below:

a. **Age:** Employees 51 years and above reported a mean rank of 82.67, followed by 41-50 years (78.29), 31-40 years (58.78), and 20-30 years (58.74). However, the Kruskal-Wallis Test revealed no significant difference in total cultural intelligence scores across four different age groups **(Refer to Table 15).**

b. **Gender:** Female reported a higher mean rank (62.34) compared to Male (58.99). However, the Mann-Whitney U Test revealed no significant difference in the total cultural intelligence score of males and females **(Refer to Table 13).**

c. **Education Level**: A doctoral degree reported a mean rank of 70.33 followed by a master's degree (60.95), and a bachelor's degree (54.91). However, the Kruskal-Wallis Test revealed no significant difference in total cultural intelligence scores across four different educational qualification groups **(Refer to Table 15).**

d. **Role:** Finance and Logistics reports mean rank of 68.67, followed by Regulatory Affairs (67.80), Sales and Marketing (63.28), Quality Department (52.51), and Human Resources (49.19). However, the Kruskal-Wallis Test revealed no significant difference in total cultural intelligence scores across five different working department groups **(Refer to Table 15**).

e. **Work experience:** Employees having work experience of 16 years and above reported a mean rank of 75, followed by 11-15 years (64.88), 5-10 years (54.98), and less than 5 years (63.79). However, the Kruskal-Wallis Test revealed no significant difference in total cultural intelligence scores across four different work experience groups **(Refer to Table 15).**

Research Question 3: Employee reporting management presence only showed a mean rank of 61.04 compared to its absence (62.80). Maybe was reported to have a score of 56.13. However, the Kruskal-Wallis Test revealed no significant difference in total cultural intelligence score across three responses to the presence of diverse cultural management groups **(Refer to Table 15).**

Research Question 4: Employees reporting having collaborated with the cross-cultural workforce reported a higher mean rank (62.63) than those who haven't (46.69), However, the Mann-Whitney U Test revealed no significant difference in the total cultural intelligence score of collaboration and no collaboration **(Refer to Table 13).**

This study will be an initiative toward understanding the cultural intelligence in outsourcing and offshoring business models. This type of study will be helpful to managers and team leaders in pharmaceutical companies in understanding the cultural intelligence score and how it could affect the employee engagement experience. Considering the limitations of this research such as time constraints and available resources, the voluntary nature of the survey, sampling techniques, and geographical limitations resulted in a sample size of 120 respondents. However, without the limitations, it can be argued that the results may have been different had the sample size been bigger.

The next chapter will compare the findings of the data to see whether the literature reviewed agrees or disagrees with the results of this research study.

CHAPTER 5: DISCUSSION

5.1 INTRODUCTION

The findings of the research analysis will be discussed in this chapter. The results obtained in the "Findings and Analysis" section will be compared with the secondary data collected in the literature review to see will the finding corresponds to each of these sections.

The main aim of carrying out this research is to access the cultural intelligence of the employees working in pharmaceutical companies in India. This aim is further broken down into research objectives. The next section will discuss the findings of the data analysis and see if this correlates with the literature review depicted.

5.2 DISCUSSION

5.2.1 Research Objectives 1 (RO1)

RO1: To measure the total cultural intelligence score among employees in various pharmaceutical companies in India.

Cultural intelligence allows employees to adapt and behave accordingly and avoid misunderstanding and interaction problems (Bogilović *et al*., 2017). The Economic Times reported in one of the articles that cultural intelligence is an extremely important soft skill that helps us gain a competitive advantage in the highly globalized employment landscape (Tandon, 2024). Challener, 2020 feels that cultural intelligence is an indispensable asset in roles such as managerial positions, sales, HR, and customer services and in industries such as hospitality and tourism, international business and trade, etc. Any cross-cultural differences and intercultural communication can affect decision-making processes and thus managers should develop cross-cultural intelligence (Bajaj, Khandelwal and Budhwar, 2021). In one of the studies among Indian managers, evaluating their Cultural Intelligence, they showed highly efficient in handling diversity in the organization. The change readiness score also shows that they are prepared to handle emotionally and intellectually the international market's dynamics (Sharma and Singh, 2016). Kapur and Janakiram (2016) reported that non-IT sector employees focus on Diversity recognition, Cultural influence on behavior, and Pre-research on culture before overseas negotiation. Another example was from an article by Challener, 2020. He described that in leadership positions, pharma companies are looking for people outside pharma, who have expertise in digital, big data, artificial intelligence, and machine learning and candidates from diverse backgrounds ranging from international work experience to different cultures, ethnicities, and sexual orientations. Cultural intelligence enhances the ability of pharma companies to market their products to diverse groups of people.

In our study, we had a mean total cultural intelligence score of 5.11. A score above 4 is considered high cultural intelligence. This is indeed in line with the above literature review. Also, India is home to various cultures, religions, and languages. However, Metacognitive factors reported the highest average score of 5.46 followed by Motivational (5.44), Behavioral (5.05), and Cognitive (4.36). Cognitive Factors are the pain areas of cross-cultural collaboration. Most of the MNC companies outsourced

most of their activities to India due to cheap labor power and high resources. In most cases, the Global Virtual Teams were used to establish rapport with the clients. The cognitive factors focus on the legal, and economic system, rules (e.g. vocabulary, grammar) of other languages, cultural values, and religious beliefs, awareness of marriage systems of other cultures, arts and crafts of other cultures, and rules of expressing nonverbal behaviors. Considering the exchange of information usually in common languages and most of the aspects of the work are related to the technical part of the work, we can assume that cognitive factors do not play much role in the functioning of pharmaceutical companies.

5.2.2 Research Objectives 2 (RO2)

RO2: To analyze the difference in cultural intelligence among employees from different demographic backgrounds (e.g. age, gender, education) in the Indian pharmaceutical industry.

Age - The literature review points out that a young workforce is very flexible in their approach toward corporate work style and with the help of the internet, they have been exposed to various new cultures through social media. They can anticipate the changes brought about by a foreign assignment and will be better able to adapt themselves (Ng, Schweitzer, and Lyons, 2010). In one of the studies among Indian managers, evaluating their Cultural Intelligence, they showed highly efficient in handling diversity in the organization. The change readiness score also shows that they are prepared to handle emotionally and intellectually the international market's dynamics (Sharma and Singh, 2016).

Our study also indicates that there is no significant difference in total cultural intelligence scores across four different age groups. Employees 51 years and above reported a mean rank of 82.67, followed by 41-50 years (78.29), 31-40 years (58.78), and 20-30 years (58.74). Because our young generation is exposed to multiple cultures, languages, and religions, they can exhibit high cultural intelligence.

Gender - Sethi, *et al*., 2024 found that female expatriates were found to use social and emotional support more than their male counterparts. According to a study by Wawrosz and Jurasek, 2021, there is no relationship between cultural intelligence and intercultural self-efficacy on gender.

Our study also indicated that revealed no significant difference in the total cultural intelligence score of males and females which is in line with the findings of Wawrosz and Jurasek, 2021.

Education - Literature points out that education enhances cultural intelligence. Reference to literature includes those of Sethi, *et al*., 2024. It reported that a good educational background and multilinguistic ability enhanced an individual's efficiency in work and better relationships with colleagues resulted in a stress-free work environment. The importance of education is further supported by the work on BCIQ (Business Cultural Intelligence Quotient) validated by Alon, *et al*., 2018. Alon, *et. al.*, 2018, and Caputo *et al.*, 2019 signify that the most important factors for cultural intelligence were identified as the number of countries an employee has lived in, the number of languages he/she spoke, and their level of education. Cecil *et al*., 2013 feel

education also plays a role in the ethnocentric behavior of an employee, with higher academic qualifications, the ability to adjust, his/her team behavior, productivity, and commitment towards the organization is found to increase. The work of Goh (2012) made tremendous improvements in our education curriculum by incorporating CQ in basic school education by many classroom activities, and reward structures. He believes that early educational intervention and training can result in the development of CQ, a proximal skill to facilitate the pacific coexistence of diverse sociocultural groups in society at large.

Our study reported that a doctoral degree has a mean rank of 70.33 followed by a master's degree (60.95), and a bachelor's degree (54.91). However, the test revealed no significant difference in total cultural intelligence scores across four different educational qualification groups. This contrasts with the information provided in the above paragraph. The only possible reason might be the difference in the sample size between each of the educational groups. Master's degree has the highest sample of 88, followed by bachelor's degree had 23 and Doctoral degree had only 9. There were no participants from High School.

5.2.3 Research Objectives 3 (RO3)

RO3: To compare the cultural intelligence of employees across different roles and work experience levels within pharmaceutical companies.

Roles - The literature by Kapur and Janakiram (2016) identified a differential approach of IT and non-IT sectors towards cross-cultural HRM and diversity management aspects. Non-IT sector employees focus more on Diversity recognition, Cultural influence on behavior, and Pre-research on culture before overseas negotiation. This indicated that there is a difference in how the companies handle or look at diversity and inclusion activity and overall, in the cultural intelligence development. While Challener, 2020 feels that cultural intelligence is an indispensable asset in roles such as managerial positions, sales, HR, and customer services and in industries such as hospitality and tourism, international business and trade, etc.

Our study revealed no significant difference in total cultural intelligence scores across five different working department groups. If we checked the individual mean rank, Finance, and Logistics reported the highest mean rank (68.67), followed by Regulatory Affairs (67.80), Sales and Marketing (63.28), Quality Department (52.51), and Human Resources (49.19). Almost most of the departments received a score above 50 except human resources. The human resources department reported the lowest number of participants. The result contradicts the above statement by Challener, 2020.

Work Experience – There wasn't much literature review comparing work experience with cultural intelligence. The only reference, we obtained was of Challener, 2020 where he stated that leadership positions in pharma companies are looking for people outside pharma, who have expertise in digital, big data, artificial intelligence, and machine learning and candidates from diverse backgrounds ranging from international work experience to different cultures, ethnicities, and sexual orientations. Cultural intelligence enhances the ability of pharma companies to market their products to diverse groups of people.

Our study revealed no significant difference in total cultural intelligence scores across four different work experience groups. The 16 years and above recorded the highest mean rank (75.00), followed by 11-15 years (64.88), Less than 5 years (63.79), and 5-10 years (54.98). This was quite in contrast with the above statement as it was expected that cultural intelligence increases with the increase in work experience. Manager-level positions were expected to have high cultural intelligence.

5.2.4 Research Objectives 4

RO4: To understand if pharmaceutical companies have diverse cultural management teams.

The diversity inclusion data of a company are confidential and info on such diversity inclusion practices in the workplace is available on company websites. However, we find reference that due to these management practices, there was a differential approach of IT and non-IT sectors towards cross-cultural HRM and diversity management aspects Kapur and Janakiram (2016). This indicated that there is a difference in how the companies handle or look at diversity and inclusion activity and overall, in the cultural intelligence development. Challener, 2020 statement on leadership positions is that pharma companies are looking for people outside pharma, who have expertise in digital, big data, artificial intelligence, and machine learning and candidates from diverse backgrounds ranging from international work experience to different cultures, ethnicities, and sexual orientations is also an indicator of the diversity inclusion in the workplace.

If we look at our demographics data, the number of male participants is 66 while females are 54. Age groups include 20–30 years (Number of participants is 52), 31–40 years (58): 41–50 years (Number of participants is 7): 51 and above years (53). The presence of different age groups and genders may indicate a diverse team atmosphere. However, the Test revealed no significant difference in total cultural intelligence score across three responses to the presence of diverse cultural management groups. 15 out of 120 participants were unsure of diverse cultural management groups in their organization.

5.2.5 Research Objectives 5 (RO5)

RO5: To evaluate the cultural intelligence of employees who don't interact with clients from diverse cultural backgrounds.

On accessing the cultural intelligence of 200 top-tier executives from UK and International organizations it was found that 76% of the business leaders lack cultural intelligence. This will affect the team's inclusion and belongness (TheHRDirector, 2023). We were unable to find much literature review on this parameter as employee engagement data are scarce.

Our study revealed no significant difference in the total cultural intelligence score of collaboration, which contrasts with the above statements. In our study, both groups reported the same mean total intelligence cultural score of 5 which corresponds to high cultural intelligence. The sole reason may be that most of the employees interact in a common language and only in the technical aspects of the work.

5.3 CONCLUSION

In the first hypothesis, the finding revealed that there are no significant differences in the cultural intelligence scores among employees from different demographic backgrounds (e.g. age, gender, education) in the Indian pharmaceutical industry. The study results confirmed the literature data collected for age and gender except for educational qualification which was identified as the most important factor for cultural intelligence.

In the second hypothesis, the finding revealed that there are no significant differences in the cultural intelligence scores among employees in different roles and with more work experience in the Indian pharmaceutical industry. Our data contrast with the information available in the literature for both roles and work experience.

In the third hypothesis, the finding revealed no significant differences in the cultural intelligence scores among employees having diverse cultural management and those who don't. Our data contract with the information available in the literature indicates some level of influence due to diversity inclusion in the companies.

In the fourth hypothesis, the finding revealed there are no significant differences in the cultural intelligence of employees who interact with clients from diverse cultural backgrounds and those who don't. We were unable to find much reference to support this claim.

In conclusion, the null hypothesis for four hypotheses was retained. This means that the null hypotheses were not rejected. The analysis and results of this research study found gaps between what the literature said, versus, the views or opinions of the sample or participants.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSION

The main aim purpose of this research is to assess the cultural intelligence of the employees working in pharmaceutical companies in India. Accelerated interconnectivity between nations and people has led to increased cross-cultural interactions. If we look closer at the current recruitment process, the employee's competency is looked at very closely. Since it was pioneered a few decades ago, it has mostly been overlooked by management leaders. They fail to look at the cultural intelligence required to succeed in the organization. There isn't much literature on the cultural intelligence study in pharmaceutical industries and hope this research pays way more towards cultural intelligence and people begin to understand the reason for many symposiums and seminars conducted by the organization rather than seeing us waste of work time.

To gain an insight into cultural intelligence in pharmaceutical companies in India, there were 5 objectives set out for this study with four hypotheses to be tested. The objective of this research was to measure the total cultural intelligence score among employees in Indian pharmaceutical companies and analyze the difference in cultural intelligence score among employees from different demographic backgrounds, different roles, work experiences and based on their collaboration with diverse cultural backgrounds. Also, we took this opportunity to assess these companies if they have diverse cultural management teams. To meet these objectives, four hypotheses were applied and tested. As a result, the null hypothesis was rejected which meant that there is no significant difference in total cultural intelligence score across age, gender, education qualification, roles, work experience, presence of diverse management team, and between those who collaborated with the cross-cultural workforce, and those who haven't.

The results of the hypotheses tested are rejected and are which indicate there are gaps in the literature review and more streamlined research is needed across pharmaceutical companies in India.

6.2 RECOMMENDATION

For any future research on the topic of cultural intelligence in India Pharmaceutical company, it is vital to target a large sample size within a geographical location. Our survey failed to identify if the companies were small, medium, and large pharmaceutical companies. Along with this, it will be advisable to collect information on work engagement and performance satisfaction index to fully understand the behavioral and mental picture of the cultural intelligence study. Also, we must receive the maximum number of responses to fully represent the target population. It is also important to determine a proper research instrument for the same.

The practical and actionable recommendations for change or improvement to the current practice based on the research findings are the following:

- Companies should incorporate diversity in the company policies to ensure a safe working culture without any cultural and diversity issues. Necessary diversity management intervention strategies and employee training will be required.

- Senior Management employees should act as an example, taking the lead and demonstrating diversity management skills. To handle cultural diversity issues, sufficient training should be provided to managers.

- Another initiative may be to refurbish education policies to include CQ training and promote Cultural Intelligence Training at a pursuable age in children (Kapur and Janakiram, 2016).

6.3 IMPLICATION OF FINDINGS

Cultural intelligence has many positive implications for an organization. It plays a major component in cross-cultural collaboration. Through a survey, it may identify some of the factors of cultural intelligence. The process of improving cultural intelligence will be gradual as the employee needs to understand the importance of cultural intelligence in their work environment. There will not be a specific timeframe for the completion as internal factors such as the changing workforce, age group of the working groups, commitment for the staff, etc. come into the picture.

This study will be an initiative toward understanding the cultural intelligence in outsourcing and offshoring business models. This will be an extension of cultural diversity issues. This type of study will be helpful to managers and team leaders in pharmaceutical companies in understanding the cultural intelligence score and how it could affect the employee engagement experience. This will also be used to explore future studies comparing employee work ethics and stress levels in the workplace. This study also brings our focus on the reason for the company's effort to foster cross-cultural collaboration through symposiums and work-sharing activities.

6.4 PERSONAL LEARNING STATEMENT

Taking on this research study has been a very difficult. During the research process, many challenges occurred which added to pressure in completing it. This topic is a part of cross-cultural management which is a vast and constantly improving subject domain. One of the initial challenges was the identification of valid questionnaires. I had identified to go with the CQS Scale. The second challenge was the literature review was quite difficult as there was not much data from the pharmaceutical companies. Probably such an internal survey will only be shared for the promotion of the organization and may not truly reflect the overall situation of most of the pharmaceutical companies. Companies reflect cultural intelligence indirectly through Diversity and Inclusion programs or their global presence in the world.

This study used a survey as the research instrument and gathering participant's responses was very challenging. The target sample size was 100. This was the third major challenge and the most time-consuming one. Considering the nature of the survey is voluntary, reaching a target size was difficult.

The fourth challenge was the analysis and interpretation of the data collected. SPSS was a new tool to me, and I encountered many difficulties such as data migration, computing the data, identification of the 2-factor solutions, and selection of the non-parametric test. Despite receiving training in the academic year's initial days, the practical usage and application of SPSS were done at a later stage, and it was difficult to manage SPSS. I had to resort to social media and textbooks to find answers to the SPSS issues.

Overall, I underestimated the whole process of conducting research. The recommendation made in this research study might be beneficial in future studies on cultural intelligence in pharmaceutical industries in India.

GLOSSARY

NIL

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Appendix A - Questionnaire

Examining Cultural Intelligence in India's Pharmaceutical Industry: A Global Perspective

B *I* U 🔗 🆇

Dear participant.

Below is a series of questions to evaluate the Cultural Intelligence in India's Pharmaceutical Industry. The results would be used academically.

The survey is carried out anonymously and the results are stored in a secure place. After completion of the study, the data will be deleted. If you do not want to participate in the study, you can withdraw at any time.

In total there are 29 questions, you may take approximately 5-7 minutes to complete.

If you have any further questions about this survey, please contact me by email at aravindmahadevan1991@gmail.com

Thank you for participating.

In this context, cross-cultural interaction refers to team collaboration with international colleagues or clients to achieve mutual business outcomes.

Background information questions

1. You provide consent for participating in the survey? *

○ Yes

○ No

2. Kindly indicate your gender *

○ Male

○ Female

○ Prefer not to say

3. Please indicate your age group *

○ 20-30

○ 31-40

○ 41-50

○ 51 and above

4. What is your education level? *

○ High School

○ Bachelor's Degree

○ Master's Degree

○ Doctoral Degree

5. Work experience *

○ Less than 5 years

○ 5-10 years

○ 11-15 years

○ 16 years and above

6. Which department do you work for? *

○ Regulatory Affairs

○ Quality Department (QA and QC)

○ Sales and Marketing

○ Finance and Logistics

○ Human Resources

7. What country are you from? *

Short answer text

8. Do you collaborate with a cross-cultural workforce? *

○ Yes

○ No

9. Do you think your company has a culturally diverse management? *

○ Yes

○ No

○ Maybe

:::

CQS Cultural Intelligence Scale

Read each statement and select the response that best describes your capabilities. Select the Answer that BEST describes you AS YOU ARE.

Use the following format

The scale of the statement is based on a rate of 1 to 7, were

1 = Very Strongly Disagree

2 = Strongly Disagree

3 = Disagree

4 = Not Decided

5 = Agree

6 = Strongly Agree

7 = Very Strongly Agree

1. I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds. *

	1	2	3	4	5	6	7
	○	○	○	○	○	○	○

2. I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me. *

	1	2	3	4	5	6	7
	○	○	○	○	○	○	○

3. I am conscious of the cultural knowledge I apply to cross-cultural interactions. *

	1	2	3	4	5	6	7
	○	○	○	○	○	○	○

:::

4. I check the accuracy of my cultural knowledge as I interact with people from different cultures. *

	1	2	3	4	5	6	7
	○	○	○	○	○	○	○

5. I know the legal and economic systems of other cultures. *

	1	2	3	4	5	6	7
	○	○	○	○	○	○	○

6. I know the rules (e.g. vocabulary, grammar) of other languages. *

	1	2	3	4	5	6	7
	○	○	○	○	○	○	○

7. I know the cultural values and religious beliefs of other cultures. *

	1	2	3	4	5	6	7
	○	○	○	○	○	○	○

8. I know the marriage systems of other cultures *

	1	2	3	4	5	6	7
	○	○	○	○	○	○	○

9. I know the arts and crafts of other cultures *

	1	2	3	4	5	6	7
	○	○	○	○	○	○	○

10. I know the rules of expressing nonverbal behaviors in other cultures. *

	1	2	3	4	5	6	7
	○	○	○	○	○	○	○

11. I enjoy interacting with people from different cultures *

	1	2	3	4	5	6	7
	○	○	○	○	○	○	○

12. I am confident that I can socialize with locals in a culture that is unfamiliar to me. *

	1	2	3	4	5	6	7
	○	○	○	○	○	○	○

13. I am sure that I can deal with the stresses of adjusting to a culture that is new to me *

	1	2	3	4	5	6	7
	○	○	○	○	○	○	○

14. I enjoy living in cultures that are unfamiliar to me. *

	1	2	3	4	5	6	7
	○	○	○	○	○	○	○

15. I am confident that I can get accustomed to the shopping conditions in a different culture. *

	1	2	3	4	5	6	7
	○	○	○	○	○	○	○

16. I change my verbal behavior (e.g. accent tone) when cross-cultural interaction requires it. *

	1	2	3	4	5	6	7
	○	○	○	○	○	○	○

17. I use pause and silence to suit different cross-cultural situations. *

	1	2	3	4	5	6	7
	○	○	○	○	○	○	○

18. I vary the rate of my speaking when a cross-cultural situation requires it. *

	1	2	3	4	5	6	7
	○	○	○	○	○	○	○

19. I change my non-verbal behavior when a cross-cultural situation requires it. *

1	2	3	4	5	6	7
○	○	○	○	○	○	○

20. I alter my facial expressions when a cross-cultural interaction requires it. *

1	2	3	4	5	6	7
○	○	○	○	○	○	○

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Appendix B - Survey research request

1. Survey research request - social media

Dear Friends

I hope this message finds you well and enjoying your Sunday. As many of you know, I am currently working on my thesis, which focuses on measuring individual ability to understand, act, and manage effectively in culturally diverse settings. To gather the necessary data, I am using the CQS Cultural Intelligence Scale, a well-regarded tool in this field.

I am reaching out to request your support in completing a brief, anonymous survey that will take approximately 5 minutes of your time. Your participation is crucial as I need a minimum of **50 responses** to meet the requirements for my research.

Rest assured, this survey does not collect any information about your workplace, ensuring complete anonymity.

Considering today is a Sunday and many of you might have a bit of free time, I kindly ask you to take a few minutes to help me out. Your input will be invaluable to the success of my thesis.

You can access the survey https://forms.gle/TFuceBz2rKUp9A5h8

Thank you very much for your time and support. I truly appreciate your assistance in helping me achieve this important milestone in my academic journey.

Best regards,

Aravind P M

## 2.	Survey research request - Email

Dear Friends,

I hope this message finds you well and enjoying your Sunday.

My name is Aravind P. M., and I am a Master's student from the National College of Ireland. I am currently writing my thesis evaluating the "**Examining Cultural Intelligence in India's Pharmaceutical Industry: A Global Perspective**" which focuses on measuring individual ability to understand, act, and manage effectively in culturally diverse settings. To gather the necessary data, I am using the CQS Cultural Intelligence Scale, a well-regarded tool in this field.

As part of my dissertation, I am conducting survey research to gather evidence on the topic. I am looking to identify key individuals from **India** who have work exposure in the **Pharmaceutical Industry** and can greatly contribute to my research.

I am requesting your support in completing a brief, anonymous survey that will take about 5 minutes. Your participation is crucial as I need at least 50 responses to meet my research requirements. The survey will be conducted ensuring that participant anonymity can be protected. There are 29 questions, and the survey link can be found at https://forms.gle/TFuceBz2rKUp9A5h8. It would hardly take 5-7 minutes to answer the said questions. Rest assured, this survey does not collect any information about your workplace, ensuring complete anonymity.

Examining Cultural Intelligence in India's Pharmaceutical Industry: A Global Perspective

Dear participant. Below is a series of questions to evaluate the Cultural Intelligence in India's Pharmaceutical Industry. The results would be used academically. The
forms.gle

Considering today is a Sunday and many of you might have a bit of free time, I kindly ask you to take a few minutes to help me out. Your input will be invaluable to the success of my thesis.

Please ask if you have any problem understanding the questions. If you can, please help introduce my study to your friends and answer this questionnaire.

Thank you very much for your time and support. I truly appreciate your assistance in helping me achieve this important milestone in my academic journey.

I look forward to hearing back from you.

Best Regards,

Aravind P M