



Universiteit  
Leiden

# Master Computer Science

Effects of the power distance index on multicultural  
software engineering teams

Name: Tanishq Likhi  
Student ID: s2614197  
Date: 17/01/2022  
Specialisation: Data Science  
1st supervisor: Dr.ir. E. Aivaloglou  
2nd supervisor: Dr.ir. F.F.J. Hermans

Master's Thesis in Computer Science

Leiden Institute of Advanced Computer Science (LIACS)  
Leiden University  
Niels Bohrweg 1  
2333 CA Leiden  
The Netherlands

# Abstract

With the advent of global software engineering, companies have started hiring highly skilled software developers from around the globe. Also, due to globalization, people are migrating to different countries around the globe to work in multicultural teams. With this mix of team members belonging to different cultural backgrounds, there have arisen various impediments in the functioning of software development teams leading to the need to study and understand the effects of culture in these multicultural software engineering teams. There are various factors in terms of cultural differences that need to be understood in the formation of teams. Also, companies (and employees) should be considerate towards the cultural influences which can greatly impact mental and social well-being of employees and hence improve overall team efficiency by keeping these factors in mind. According to Hofstede, such multicultural teams can be studied on various cultural dimensions such as power distance, individualism vs. collectivism, uncertainty avoidance, masculinity vs. femininity and long-term vs. short-term orientation. The goal of this research is to understand the effects of power distance index on multicultural software engineering teams. For this purpose, interviews were conducted with ten participants from eight different software engineering/development companies. The participants discussed about their background details, various cultural aspects in their teams and their relationships with colleagues, managers or higher management and juniors in their team. Thematic analysis was applied on the interview data which revealed several effects of power distance and other cultural factors which affect day-to-day working of team members within multicultural software development teams. The effects of power distance that were revealed with thematic analysis relate to inclusiveness, employee empowerment, team dynamics, team structure, power distribution, communication with hierarchy, work distribution within team members and preference for organization structure. The analysis also uncovered several other cultural factors that affect multicultural software development team's performance and productivity that relate to virtual communication, multicultural work environment, time-zone differences, cultural interpretation of language, colleagues of same culture and the level of adaptation with new culture. By understanding the above-mentioned factors, we gain an understanding of how to improve overall team efficiency and productivity within multicultural teams by overcoming challenges that come up in communication and collaboration due to the differences stemming from power distance.

# Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
<b>2</b>	<b>Related Work</b>	<b>3</b>
2.1	Cultural Dimensions . . . . .	3
2.2	Power Distance Index . . . . .	4
2.3	Cultural Effects in Software Development Teams . . . . .	5
<b>3</b>	<b>Methods</b>	<b>7</b>
3.1	Interview Process . . . . .	7
3.2	Participants . . . . .	8
3.3	Data Processing and Analysis . . . . .	10
<b>4</b>	<b>Results</b>	<b>14</b>
4.1	Profile Characteristics . . . . .	14
4.1.1	Cultural Experiences . . . . .	14
4.2	Effects of Power Distance . . . . .	14
4.2.1	Addressing Seniors . . . . .	15
4.2.2	Inclusiveness . . . . .	16
4.2.3	Employee Empowerment . . . . .	16
4.2.4	Preference for Organization Structure . . . . .	17
4.2.5	Team Dynamics . . . . .	17
4.2.6	Team Structure . . . . .	19
4.2.7	Work Distribution . . . . .	19
4.2.8	Communication with Hierarchy . . . . .	20
4.2.9	Power Distribution . . . . .	21
4.3	Other Cultural Effects . . . . .	22
4.3.1	Colleagues of Same Culture . . . . .	23
4.3.2	Cultural Interpretation of Language . . . . .	23
4.3.3	Time Zone Differences . . . . .	24
4.3.4	Virtual Communication . . . . .	24
4.3.5	Multicultural Work Environment . . . . .	25
4.3.6	Adaptation with New Cultures . . . . .	26
<b>5</b>	<b>Discussion</b>	<b>27</b>
5.1	Limitations . . . . .	29
<b>6</b>	<b>Conclusion</b>	<b>30</b>
<b>7</b>	<b>References</b>	<b>31</b>
<b>A</b>	<b>Recruitment Form</b>	<b>34</b>
<b>B</b>	<b>Interview Protocol</b>	<b>36</b>

# 1 Introduction

Software engineering is a growing set of disciplines and procedures for the dependable development and maintenance of software. Software engineering has been defined as “systematic, disciplined, quantifiable approach to the development, operation, and maintenance of software” [32]. By systematic we mean that there is a framework which is being used to achieve results and build on past mistakes. We can quantify the team output and results into chunks of modules which are tested and maintained by the organization.

The concept of global software development started becoming a global phenomenon among companies in 1990s as it is inexpensive and faster. This happened due to the PC revolution problems in 1990s [2] which lead to problems such as shortage of resources and limited budget which motivated companies to set up offices in different countries. Global software development is not new and has been practiced in industry for quite some time [8]. This phenomenon has caught the attention of researchers and the field has evolved over the past three decades. According to Smite et al. [31], “there are indications of success and total failure, indications of vast amounts of variations in contexts and yet no clear guidance for applying the right practices in the right situation”.

Over the recent years, global software development has become a commonplace initiative taken by companies. Previously, software was either designed and developed locally or it was created in nations that are more developed in their software industries [4]. With recent globalization and liberalization of economies, multicultural software development teams are being formed creating the necessity to understand the effects of culture in software development practices and teams. Also, due to large software companies having their offices distributed globally, teams have to collaborate with other teams situated in different time zones and cultures. Distributed software development requires the teams to work in decentralized manner but to use right tools for effective and productive collaboration. It attracted attention due to the complexity and challenges related to globally distributed development teams. Factors like improving time to market of product, low cost high skilled human resources and to minimize the risk in case of catastrophes have driven companies to distribute the teams globally [30]. According to Damian and Moitra [8], the various challenges are related to aspects such as “economical, technical, organizational, and cultural issues to those arising from different time zones, languages, and geographical locations”.

With the advent of global software engineering, companies have also started hiring highly skilled software developers from around the globe. This has led to the formation of multicultural software engineering teams. People are migrating from their country to other regions around the world to work in such multicultural teams or they are working remotely for companies residing in other countries. With this mix of team members belonging to different cultural backgrounds, there have arisen various impediments in the functioning of software development teams. According to Espinosa et al. [12], these impediments were seen in terms of cultural differences and language differences. Team members’ understanding of the project requirements and different perspectives on resolving issues within the project were highly influenced by cultural differences. There were problems with communication within the team which created an obstacle in understanding each other’s behaviour. Also, language differences between native and non-native speakers developed setbacks in the project and less participation from

non-native speakers. Non-native speakers could not understand the subtle nuances in the language during project meetings which led to miscommunication and reduced team performance.

According to Hofstede, teams can be studied on various cultural dimensions such as power distance, individualism and others [20]. With this research, we aim to study and understand one such area of cultural differences. The goal of this research is to understand the effects of the power distance index on multicultural software engineering teams.

Power distance is a measure to understand the level at which a culture takes into account social inequality. High power distance cultures are defined by a strong sense of hierarchy, a preference for differentiated status and restricted communication between members belonging to different levels of the hierarchy whereas low power distance cultures are characterized by taking every person as equal within the society, regardless of imbalance in power, status or wealth [20].

Specifically, the research question that is to be answered with this study is:

**RQ: What are the effects of cultural differences relating to the power distance index on multicultural software engineering teams?**

To answer this research question, interviews are conducted with 10 participants from 8 different software development companies. The participants discussed their background details, various cultural aspects in their teams and their relationships with colleagues, managers or higher management and juniors in their team. After this, thematic analysis was applied on the interview data and the data was coded as described in the approach by Clarke and Braun [1]. During the coding process, the major themes and subsequently the labels were identified from the data to answer the research question.

This research paper has been divided into five sections. First, we present the relevant background literature in Chapter 2 which gives information about the current work done in this field. Then we elaborate on the method and data used for this research study in Chapter 3. In Chapter 4, we give a detailed analysis and present our findings using thematic analysis before moving on to Chapter 5 to discuss and reflect on our findings as well as limitations. Lastly, Chapter 6, discusses the conclusion and proposes possible future work.

## 2 Related Work

### 2.1 Cultural Dimensions

Culture has been defined in many different ways. While culture is a difficult concept to define, there have been many influential culture theorists who have narrowed down and simplified its definition to specific dimensions. The definition of culture in existing research has been simplified to dimensions by researchers such as Hofstede [19], Hall [17] and Trompenaars & Hampden-Turner [18]). In this research, the main focus will be on Hofstede's definition of culture and cultural dimensions.

According to Hofstede [19], culture can be defined as "the collective programming of the mind which distinguishes the members of one group or category of people from another". He indicates that even though people are working under the same organizational values, the collective mental programming is highly influenced by culture. This influence of culture shapes a person's perceptions, behavior, beliefs and values, which are learned during the first ten years of life [27].

Hofstede carried out a large-scale study by conducting a survey on 116,000 IBM employees from more than 50 countries around the globe to study the influence of culture in large multi-national organizations. This research led to the development of Hofstede's five cultural dimensions where a cultural dimension is "an aspect of culture which can be measured relative to other cultures" [20]. The five cultural dimensions are as follows:

1. Power distance [20]: Power distance is a measure to understand the level at which a culture takes into account social inequality. Low power distance cultures are characterized by taking every person as equal within the society, regardless of imbalance in power, status or wealth whereas high power distance cultures are defined by a preference for distinctive social strata, strong feeling of strict hierarchy, and limited communication amongst the members belonging to these distinct social strata.
2. Individualism vs. Collectivism [20]: Individualism vs. Collectivism is used to measure the way an individual is perceived in a culture. This measurement can be done by either observing a person's individual characteristics or by the characteristics of the group to which one associates to. A highly collectivist culture is one where collective interests come before and have a higher preference over individual interests and people tend to look after each other as a group.
3. Uncertainty avoidance [20]: Uncertainty Avoidance is the extent to which risk is accepted within a culture. This dimension represents the level of tolerance a person from a specific culture shows when facing unknown or unfamiliar situations.
4. Short-Term vs. Long-Term orientation [20]: Short-Term vs. Long-Term Orientation is the level to which a society takes a short-term versus a long-term orientation in life. A culture with short-term orientation supports short-term commitments and advocates for quick and fast outcomes.
5. Masculinity vs Femininity [20]: Masculinity vs. Femininity suggests that either feminine norms like quality of life, people orientation and relationship or masculine norms such as material orientation and success are important in a culture. In a feminine culture, gender

roles are more flexible whereas a masculine culture has specific and clearly defined social gender roles.

The above-mentioned dimensions have been used in many research works to study the influence of culture in global teams. For example, Dekker et al [9] research study on global virtual teams where they studied 35 participants from USA, India and Belgium based on all five cultural dimensions by Hofstede and tried to understand their perception on behaviour that team members found to be crucial for day-to-day team activities and compared them with the original Dutch study. However, there have been many criticisms and debates about these dimensions as culture is emergent and changes over time [26] [33] [22] [23]. The concept of national culture is a relatively new phenomenon in human history [27] and cannot be limited by borders. Despite these criticisms, Hofstede's cultural dimensions have been used in many research studies to understand the probable effects of cross-cultural communication between corporations [23] [28].

## 2.2 Power Distance Index

Based on Hofstede's work, Schermerhorn and Bond [29] conducted their research to understand the effects of power distance index on cross-cultural teams and leadership. It frequently happens that managers from one culture move to a different country for work and lead teams that are based on different culture. For example, if a manager moves from a western nation to work in an office of the same organization based in Asia, they often face various challenges. Given the large and complex nature of multi-national organizations, power distance plays an important role where people are structured within authority and status hierarchies [13]. The manager in a high power distance team needs to understand that people working with him/her in such situations are more conforming, reserved and respectful towards their seniors higher up in the hierarchy.

Communication and understanding of language is another common issue within teams that is affected by high power distance. Even though English is a common language spoken around the world, the way it is understood by people from different nationalities is highly influenced by their culture. It may seem that all members in a team speak the same language but the way it is actually "heard" is influenced by linguistic nuances and colloquialisms [29]. Even though people are speaking the same language, it is crucial here to understand the cultural contexts and meaning within their usage of English words. The communication within team members based in Western countries is influenced by their low power distance perception that is very different from the perception of language in Asian countries which is influenced by high power distance. There are subtle differences in understanding of the language with non-native speakers and usually it creates a problem within the team as such members are not able to understand underlying non-spoken issues [12]. For example, in low power distance countries, colleagues address each other by their names irrespective of hierarchy within the organization which is acceptable whereas in high power distance countries, employees need to address their seniors by showing respect which is more commonplace.

According to Zhang and Begley [35], power distance also has an impact on team participation and the empowerment of team members. As widely believed that low power distance leads to more team participation and empowerment, there study in China revealed that in some situations high power distance can also lead to a larger team participation. A key finding of their

research was that employers' should pay attention to employees' cultural background thereby trying to understand the impact of power distance on their behaviour. It is, therefore, important to find the right balance between power distance, team participation and empowerment which can lead to better results in terms of performance and innovation within a team.

Given the above-mentioned influence of culture, it is imperative that one needs to understand and adapt their working style to take into consideration these cultural differences. Overcoming these issues will lead to less misunderstandings within a team by keeping them motivated and engaged as well as improving overall organizational performance which is important in today's modern globalized world [34].

## 2.3 Cultural Effects in Software Development Teams

Multicultural teams are also being formed in software development companies. With globalization, more and more companies are hiring from around the world which has risen the need to understand behavioural patterns of various cultures [21]. Team members have to collaborate on software projects and understand user requirements keeping aside their personal values and beliefs [7]. Such efforts have to be made in order to deliver the projects in a timely manner. As opposed to current belief, a large number of such projects get delayed as team members have different perceptions and understanding of software projects which are unintentionally affected by their cultural identity and background. To overcome such challenges, there are a number of research conducted in this direction to improve software development team collaboration [14] and performance [5] [24].

Dorairaj et al. [11] conducted their research on cultural differences in distributed agile software development teams by interviewing 18 agile practitioners based across 10 different software companies. In order to gain a holistic understanding of the problems faced in distributed agile software teams, they interviewed participants with different positions in the software teams. These positions varied from Developers to Scrum Masters to Testers. They used Grounded Theory approach to perform a systematic analysis on the collected data from interviews. The typical data collection technique includes interviews when using the Grounded Theory research method [15] [3] [6] which was their main motivation to use this approach. The major focus behind the interview questions was to understand the difficulties in distributed Agile teams and the actions taken within the team to overcome these issues efficiently. The interview questions were framed in such a manner so as to allow the participants to bring up the problems themselves while answering the questions instead of creating preconceived notions and avoid any biased responses. This research revealed five valuable strategies that would aid in overcoming cultural differences within software teams which are:

1. "Engendering cultural awareness" meaning team members should be made aware about the different values and work habits stemming from cultural identity and background. This will help them to cope and handle cultural issues within the team with mutual respect.
2. "Understanding cultural differences" will help provide cultural training within the team from those who have vast experience in working with people from different cultures.
3. "Rotating team ambassadors" where team members are rotated between onsite and offshore offices so as to be able to get to know the whole team and their culture.

4. "Sharing work practices" can be useful for teams that have to work with time zone differences. Due to such differences, it is more convenient if team meetings such as standup and retrospectives are rotated after a certain interval of time according to the different team locations' timezone.
5. "Managing language barriers" is an important aspect where there are non-native speakers of the language involved in a team. Writing down meeting issues beforehand and speaking consciously so that there is clear communication can be useful in building team understanding.

Deshpande et al. [10] performed a three-step research study in India to understand and highlight different techniques and solutions undertaken by project managers to overcome cultural differences in geographically distributed software development teams. 15 Project Managers and Senior Executives from six software development organizations participated in this research. The research protocol consisted of a questionnaire that was used to gather initial information followed by telephonic interviews with the participants as well as structured face-to-face on-site interviews. The research focus was to understand the management of cultural diversity within teams in India and the various strategies that can be adopted to leverage cultural differences. In this research also, Grounded Theory approach was used as the researchers wanted their findings to be based directly on the data they have collected. As India is a multicultural nation state, there are differences in people's cultural backgrounds that had to be managed efficiently by the managers along with managing their international team members. In order to manage their local teams, managers have to be made aware of the local cultural differences, local languages, plan meetings around religious festivals thereby creating backup teams from 10 percent of the workforce that are available for 24/7 support and maintain gender diversity within the teams. To handle cultural differences on an international level, project managers sent onsite coordinators who worked from the client site, planned regular onsite visits as well as provided extensive cultural training to team members to educate them about the cultural differences which helped bridge the gap in behavioural understanding.

## 3 Methods

The goal of this research is to explore the effect of power distance hierarchy within multicultural software engineering teams within an organization and understand these differences based on first hand experiences of people working in multicultural teams. To achieve this goal, semi-structured interviews were conducted with 10 employees working in 8 different organizations with their offices located globally. The complete interview process and data analysis method undertaken during this research study is explained further in the subsequent paragraphs.

### 3.1 Interview Process

Interviews are a valuable data collection method when it comes to qualitative analysis. Designing an appropriate interview so that we can get the adequate data out of it involves significant time and effort. According to Maccoby and Maccoby [25], interviews are defined as “a face-to-face verbal exchange, in which one person, the interviewer, attempts to elicit information or expressions of opinion or belief from another person or persons”. This definition has been interpreted in different ways by different qualitative researchers however, in essence it means a conversation between the interviewer asking the questions to the interviewee in order to get information about their opinions or experiences on a certain subject. Similarly, in this research, interviews were found to be a useful data collection method as a large amount of information about the participants experiences in multicultural software engineering teams could be gathered within a short duration of time.

There are several advantages and disadvantages of conducting interviews in a qualitative research. One of the advantages is that during interviews if an interviewee needs some clarifications for answering questions, the interviewer can provide these clarifications immediately thereby resolving any issues. Another advantage is the interviewer can also comprehend the non-verbal body language of the interviewee. Interviews can save a lot of time in data collection where all answers are gathered immediately during the conversation. Some of the disadvantages of interviews are interviewee may not be comfortable to share their personal experiences/information with an unknown person, there may be concerns about anonymity which needs to be taken care of by the interviewer by anonymizing all data so that it does not trace back to the participants, and there is too much reliance that the participant provides unbiased and accurate data during the interview.

The next step was choosing the right type of interview so that the participants had significant opportunity to share their experiences without being restricted. The three main types of interviews are structured, semi-structured and unstructured interviews. For this research, semi-structured interview was chosen where there were a predefined set of questions to guide the interview and some additional set of follow up questions based on the participants' responses. These additional set of questions were intended to clarify some of the points made by the participants which gave a better understanding when interpreting the data. This technique is helpful as we want to have a directed conversation with the participants with open-ended questions and at the same time give them the opportunity to communicate their view points on this domain within a limited timeframe. It also enables us to understand some responses in greater depth and resolve any contradictory viewpoints first hand or understand new experiences that were not initially anticipated from the participants.

The interview protocol consisted of questions covering five broad topics related to this research:

1. Background
2. Cultural aspects in a team
3. Relationship with co-workers
4. Relationship with managers/higher management
5. Relationship with juniors

The interview was structured in such a way so that a general idea was gained from the participants initially before moving on to more specific questions about their view points on hierarchy within multicultural software engineering teams. This method was useful during the data analysis process as the participants responses could be compared against each other to draw up conclusions towards the research question. The interview protocol that was used is provided in Appendix [B](#).

The background topic was to get an understanding of the participants background such as their nationality, age, educational qualifications, professional experience, current location and previously lived countries. This section was created to collect the demographic information of the participants for this study. It consisted of questions such as *“Can you tell me something about your personal background? Where are you from? How old are you? Your educational background?”*.

The second topic about “Cultural aspects in a team” was to understand whether people have collaborated with people from different cultures in their previous or current role and their general cultural experiences working in multicultural software engineering teams. The questions here were more focused on the general influence of culture within their team members. One such question in this section was *“How do you think culture influences the working style within your team members?”*.

The relationship with co-workers, managers/higher management and juniors sections were aligned to answer the research question after getting a general idea about employees’ experiences. These sections helped to understand their experiences of hierarchy and power distance within their software engineering teams as well as various relationships within the team structure. One example question is *“What are your views on the way leaders or managers exercise power around issues concerning your team and distribution of work within the team?”* which was an open-ended question enabling the participants to be able to discuss their experiences with their managers.

### 3.2 Participants

For this research, one of the crucial factors was to recruit participants who are currently working in multicultural software engineering teams irrespective of their roles. This would help towards this research as their experiences and perceptions of working in such teams would give us the necessary information in order to validate our research question. Participants who are

working in software development or software consultancy companies were contacted directly via email. A recruitment message was also posted on social media platforms in order to be able to reach out to a greater number of participants. Once the participant agreed that they wanted to participate in this research, they were asked to fill in the recruitment form which gave a brief description about the researcher and research. The participants gave their formal consent for participating in the research and their availability based on which the interviews were conducted. The interview recruitment form has been attached in Appendix A.

10 employee interviews were conducted who belonged to 8 different companies with their offices situated all around the globe. The highest level of education for two of the participants is a Bachelors degree, seven participants have a Masters degree and one participant has attained their PhD before working in their respective companies. The participants came from different nationalities which are Germany, Greece, India, The Netherlands, Spain, Syria and United Kingdom. The majority of the participants are currently based in the Netherlands whereas one participant is currently based in United Kingdom, one participant in the United States of America and one participant is based in Sweden. Eight participants in this research declared themselves as male and two participants declared themselves as female. The age of the participants ranges from 26 years to 41 years. The various job roles that the participants are currently working in within their software engineering teams are: four participants are Software Engineers, one participant is Backend Developer, one participant is Lead Systems Engineer, one participant is Data Scientist, one participant is Senior Software Specialist, one participant is Product Owner and one participant is Lead Software Engineer. The participants' number of years of experience within software engineering domain ranges from 2 to 17 years. The background details of each of the interviewees are given in Table 1 below.

Participant	Nationality	Age	Education	Years of Experience	Current Location
P1	UK	26-30	Master	2	The Netherlands
P2	UK	26-30	Master	3	UK
P3	Spain	31-35	Master	5	The Netherlands
P4	Germany	31-35	PhD	3	USA
P5	The Netherlands	26-30	Master	3	The Netherlands
P6	Syria	31-35	Bachelor	4	The Netherlands
P7	The Netherlands	26-30	Master	7	The Netherlands
P8	Greece	41-45	Master	16	Sweden
P9	The Netherlands	36-40	Bachelor	17	The Netherlands
P10	India	26-30	Master	2	The Netherlands

Table 1: Background details of participants

The 10 interviews were conducted over Zoom or Google Meet call sessions which were voice-recorded. Before starting the voice-recording, consent was taken from each participant confirming their permission that they allow the interview to be recorded for further processing purposes. The duration of the interviews was 30 to 45 minutes. After this, the interviews were transcribed manually using a document processor during which the interviews were completely anonymized to protect the participants' privacy.

During this interview process, various ethical considerations were taken into account in order

to conform to ethical guidelines. There were three main ethical issues which needed to be addressed during this interview process which are as follows:

1. **Privacy:** As was mentioned before, the interviewees might not always feel comfortable in sharing their information with unknown people. It is well within their rights to choose with whom they would want to share their information or experiences. They can choose to decide whether and how much information they want to share with the interviewer. This also means that the interviewer should not share the participants information to third parties without their consent. In order to mitigate this issue, the participants were informed before the start of the interview that they have a choice to opt out of the interview at any point that they wish to without having the need to provide any explanation.
2. **Informed Consent:** This is an important ethical aspect that needs to be taken into consideration before the interview. The researcher is obligated to inform the participants about the research and how the data collected will be used. This should give the participants a clear overview about the research so that they can decide whether to give their consent for participating in the research. Only once the researcher has the official consent from the participant can they start the data collection process. In this research, informed consent was taken from the participant via the recruitment form once they agreed to participate and the second consent was taken before the start of the interview via the consent form about whether they agree to have their interview recorded.
3. **Anonymity:** Anonymity is maintained in order to protect the privacy of each individual in the research. This needs to be done so that no personally identifiable information is recognized when processing the data. During the transcription process, all personally identifiable information was anonymized and participant names were substituted with participant codes. The interview recordings and consent forms were also stored in password protected folders so as to protect the confidentiality of the participants and it can only be accessed by the researcher.

Keeping all these things in mind, this research was approved by the Data Protection Officer and the Ethics Committee of Leiden University to ensure all measures were appropriately taken.

### **3.3 Data Processing and Analysis**

Thematic analysis was used to analyze the transcripts obtained from the 10 interviews conducted. Thematic analysis is a systematic method used to generate themes from a qualitative dataset thereby summarizing the main observations in a research. According to Braun and Clarke [1], thematic analysis has been defined as a “method for identifying, analyzing and reporting patterns of meaning (themes) within data”. The main aim of thematic analysis is to identify codes or labels within the qualitative dataset that represent relevant information within the dataset for answering the research question. The idea here is to not only summarize the data but rather to determine the key features which lead to creation of codes and subsequently broad themes which help in analyzing the dataset. This analysis helps a researcher to record the observations directly by interpreting the various meanings within the data.

The analysis done on the dataset was a two-step process. First, starting with the themes which were generated directly from the research question, and second, the labels which were generated under these themes from the interview data. There were three major themes which

were identified from the data based on the research idea for this thesis: Profile Characteristics, Effects of Power Distance and Other Cultural Effects. The interview protocol was designed in such a way so that the questions resonated with these three broad themes and subsequently the labels were determined.

Thereafter, the transcribed interviews were labelled where new labels were generated based on the data. These new labels were also classified under the three major themes as determined before. This approach of labelling and classifying labels under the broad themes was followed for the initial five interviews after which it was seen that these labels started repeating in the next five interviews. Hence, 17 labels were identified under three themes for this thematic analysis approach. These data-driven labels were used to code all 10-interview data. Also, in some cases data from some labels in one theme was combined with the data from another label in another theme to get a better interpretation of the information provided. For example, in understanding the way employees in different countries address their seniors, information was also taken from their background details such as nationality and current location to understand the power distance differences in various countries.

As mentioned before, there were three major themes determined from the research interest and 17 labels were generated based on the interview data. The meaning of each of these derived themes and labels are as explained below:

1. Profile Characteristics:

- (a) Cultural Experiences: Cultural experiences is a label created to understand various cultures that the participants have collaborated with or been exposed to during their professional career. This includes the nationalities of their colleagues in present or previous software development teams.
- (b) Background Details: Background details explains about the background information for each participant. This includes details such as their education, age, professional experience. It also includes information such as nationality and their current location where the participant is based in.

2. Effects of Power Distance:

- (a) Addressing seniors: Addressing seniors indicates the manner in which seniors are addressed in a workplace that can be either by first names or with a salutation. This gives a strong indication in a workplace about whether the software development team has a high-power distance or low power distance. It also shows whether the senior members of a team require their junior members to address them with respect.
- (b) Communication with hierarchy: Communication with hierarchy denotes the style of communication between junior and senior member in a team. This communication can be formal or informal depending on the hierarchical structure of the team and organizational culture. The modes of communication can also vary depending on the level of comfort and openness within the team.
- (c) Inclusiveness: Inclusiveness is to understand the level of involvement of each team member in setting up team goals and decision making process for various projects. This gives an understanding of the level of openness of team members are to

differing and diverse opinions from different cultural perspectives. It also indicates whether people are empathetic towards the difficulties faced by their colleagues from different cultural backgrounds.

- (d) Employee Empowerment: Employee empowerment or individual autonomy in a workplace is the freedom of an employee to be able to make their own decisions and goals and manage their work independently. It promotes more opportunities for the employees to learn as they are given the freedom to make their own decisions in terms of doing the work, which leads to a higher involvement in upskilling activities taking place in the company. Employee empowerment is the freedom of individuals to do things oneself without causing discomfort to the workflow of other individuals in an organization.
- (e) Preference for organization structure: Due to globalization, people are moving to different countries for working in multicultural teams. After getting experience in different countries and working with cultures, people might develop a preference for the type of organization they would want to work in which can be high power distance or low power distance.
- (f) Power Distribution: Power distribution signifies the way in which power and authority is distributed within a team. This has a huge impact on the decision making process within the team and whether this power is equally distributed within the team or is concentrated in the hands of only a few members.
- (g) Team Dynamics: Team dynamics is an important aspect when trying to understand the day-to-day working style of a team. Various aspects can be seen here such as problem-solving within team members, communication, raising issues and freedom to voice concerns. These aspects may or may not be influenced by power distance depending on the composition of the team.
- (h) Team Structure: Team structure is to understand and get a clear picture about the composition of the team. It is to also recognize leadership roles and designated role of each team member thereby revealing whether or not the team has a hierarchical structure.
- (i) Work distribution: Work distribution signifies the way in which tasks are divided within the team.

### 3. Other Cultural Effects:

- (a) Adaptation with new culture: Adaptation to new culture is to understand whether employees can easily adjust and work in new multicultural environments. This can happen when they move from their home country to another country or from one country they had been previously working in to another country.
- (b) Colleagues of same culture: This was to understand the opinions and experiences of participants based on when they had colleagues of same/shared culture.
- (c) Cultural interpretation of language: Cultural interpretation of language signifies whether or not language can be affected by a person's cultural background and perception.
- (d) Multicultural work environment: Multicultural work environment can have various advantages and disadvantages depending on how team members can adjust with each other and adapt to new working styles.

- (e) Time zone differences: Time zone differences can have its effects on the team in terms of team collaboration and work completion. This was to understand how teams cope with time zone issues when working in multicultural teams.
- (f) Virtual communication: Participants talked about the way in which virtual communication affects their day-to-day work while working in a multicultural team. This can have both advantages and disadvantages depending on the team situation.

## 4 Results

The participants in this study have been assigned participant codes and are denoted as P1 to P10. This anonymization is done to protect the participants' privacy and all personally identifiable information have been concealed. All information in quotes in this section are taken verbatim from the participants' interview.

### 4.1 Profile Characteristics

#### 4.1.1 Cultural Experiences

All 10 participants spoke about their experiences with people of different nationalities and cultures during the interviews. Every participant has worked in multicultural software development teams which made them suitable for this research.

P1 has worked with people from India, Turkey, Portugal, Italy, Israel, Romania and the Netherlands. P2 has worked with colleagues from the Netherlands, Latvia, Finland, Lithuania, France, India and Turkey. P3 has collaborated with people from Portugal, Greece, Turkey, the Netherlands, Spain, United States of America, Belgium and India. P4 has worked with people from India, China, Greece and United States of America. P5 has worked with colleagues from France, China, the Netherlands, Poland, United States of America, Romania, Portugal, United Kingdom and Philippines. P6 has collaborated with people from Romania, Greece, the Netherlands, Germany, India, Yemen and Turkey. P7 has worked with people from India, the Netherlands and United Kingdom. P8 has worked with colleagues from Russia, Greece, India, Pakistan, United Kingdom, Italy, France, Spain, United States of America, Mexico, Argentina, Brazil, Romania, Ukraine, Bulgaria, Greece, China, Sweden and Estonia. P9 has collaborated with people from the Netherlands, Germany, Switzerland, Spain and Romania. P10 has worked with people from India, the UK, Greece, Turkey, Brazil, Italy and Reunion Islands.

As can be seen here, all the participants have extensive experience working in multicultural software development teams and have worked with people from diverse nationalities which helped them share their experiences towards this research. Four participants also had experience working in the same culture software development teams as well due to which they could compare and share their experiences in both situations.

### 4.2 Effects of Power Distance

During this research, there were various effects of power distance found within a team. The participants discussed about these various effects during the interview which are given as the labels below. The effect of each label has been described in detail in the following subsections. Figure 1 presents a summary of the labels. The labels which were highly discussed by the participants and were the most concerning effects of power distance have a higher value in the graph.

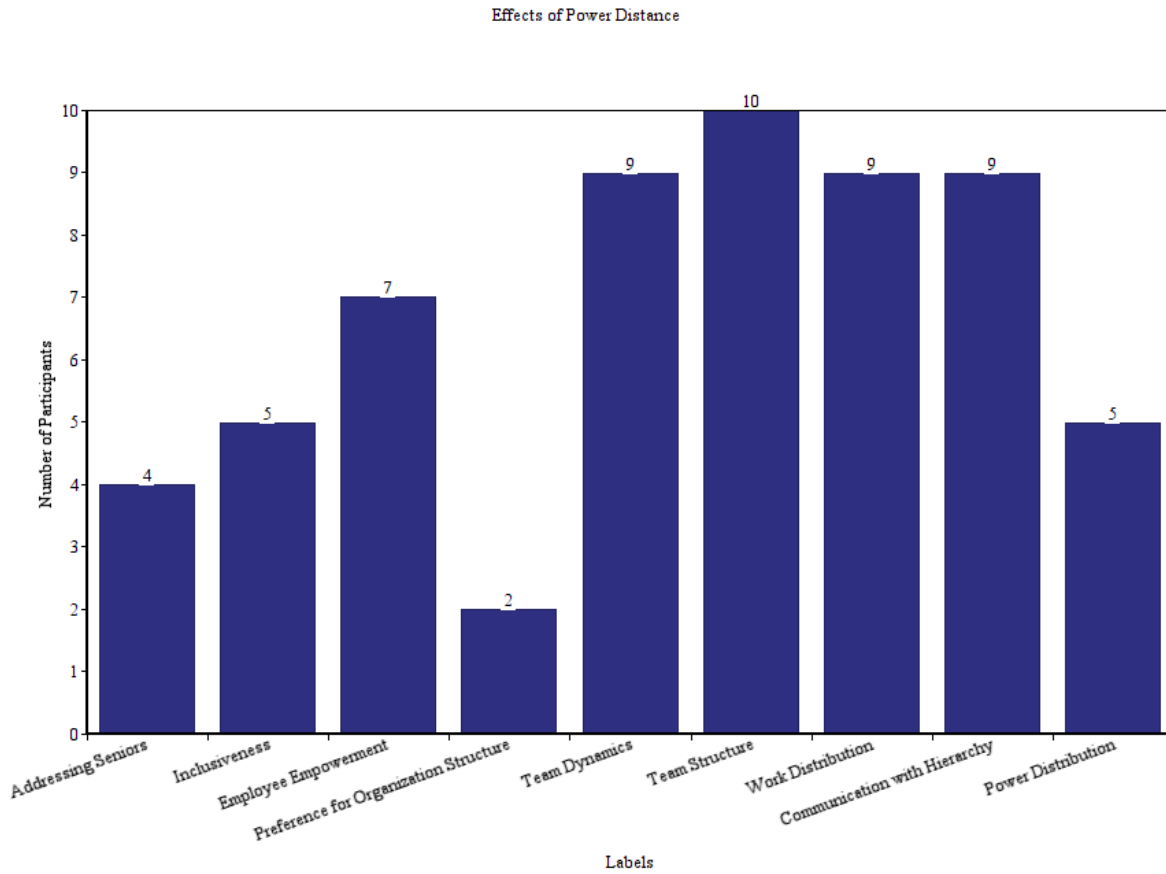


Figure 1: Summary showing number of participants per label

#### 4.2.1 Addressing Seniors

Out of 10 participants, 4 participants talked about the way employees address their seniors in different countries in an organization. It can be seen that there is a difference in the way people address their seniors in an organization, either through in-person communication or via digital mediums, which is highly influenced by their cultural background and nationality. People usually coming from high power distance index countries usually tend to address their seniors as formally by calling them Sir/Madam or Mr./Mrs. <first-name>, which has become normalized for them as they have been taught this superior/subordinate relationship since their childhood. People coming from low power distance index countries are more informal in their approach to seniors and address them directly by their first names. In a multicultural team, when people from high power distance index countries address people from low power distance index countries within their team in a formal manner, it can sometimes make them disconcerted if they are not familiar with these cultural differences who are used to treating everyone in the organization as equal.

3 participants who are currently working in Europe mentioned that they address their seniors or have been addressed by their juniors in an informal manner. One participant who is working in the Netherlands which is a low power distance index country specifies that people from *“Netherlands or from the Western Europe would just immediately say hi <first-name>”* (P5) in their first meeting. She also indicates that people from Asia or Eastern Europe are always more formal and address her as Miss or Mrs. Similarly, another participant has also observed

that his German colleagues “*always need to address somebody formally*” (P9) and not by their first name.

#### 4.2.2 Inclusiveness

5 participants from different organizations mentioned the importance of having inclusiveness within a multicultural team and how it boosted their work performance. In a high-power distance organization, the setting of goals and decision making is concentrated in the hands of a few people, which often does make the decision-making process faster and the sharing of information is restricted down the hierarchy. However, this can make the employees feel disconnected from their organization goals and slows down the process of creating inclusive culture where people do not feel comfortable enough to speak up and discuss their ideas in front of managers or higher management. In a low power distance organization, decision making is done in a more collaborative manner where every member of a team is equally involved and respected for their viewpoints and information is shared with everyone irrespective of their position in the hierarchy.

Making an organization more safe, open and welcoming to employees from different cultures is an important step towards inclusiveness as highlighted by P7 who is from Netherlands. He also highlights the importance of inclusivity by saying that we need to make “*people feel welcome and safe and they're sort of like building a foundation to be able to work on things.*” Managers should actively provide more opportunities and give independence to individuals to set their goals, making a multicultural team more inclusive as said by two participants. It was recognized that lack of open communication and lack of transparency created friction and tension in a multicultural team. P6 from Syria who is working in the Netherlands, feels that their meetings were inclusive where everyone felt comfortable to speak up and give their input as well as “*ask or discuss whatever you want*”. P2 indicated that it was also important to schedule meetings around “*public holidays or certain timeframe*”. P10 from India who is currently working in the Netherlands suggests that working in a multicultural environment makes a person more open and compassionate towards other cultures.

#### 4.2.3 Employee Empowerment

Overall, 7 participants discussed the role of employee empowerment within their organizations. Employee empowerment or individual autonomy in a workplace is the freedom of an employee to be able to make their own decisions and goals and manage their work independently. It promotes more opportunities for the employees to learn as they are given the freedom to make their own decisions in terms of doing the work.

During the interviews, we saw clear distinctions between the level of empowerment of employees within high and low power distance organizations. Participants working in organizations having low power distance mentioned that they were given the freedom to discuss and change goals as well as the ability to choose their own work while planning work distribution as specified by P1: “*we have a very big opportunity to discuss them and change them and do things with them as a team*”. On the other hand, employees working with people coming from high power distance index countries had to follow the strict procedures for every decision which caused some friction within the team as elaborated by P5: “*He was way more strict on like following the the procedures, the complete procedures, right? So we have to we have to do step one*

*and OK we need to get approval. [...] Insisted on having it on paper and was way more strict on that, and that's also caused some friction, And yeah, the Chinese architect that we were working with was way more strict on that than having like approval on paper"*. P7 indicated that, when working with people from high power distance countries, they had to direct and assign the work to them whereas when working with people from low power distance countries, they usually decide together on the work needed to be done and have autonomy in choosing the work based in their choice. P9 who is from the Netherlands specified that working in an agile manner within their team gave them more autonomy where everyone within the team had equal rights and votes. Two participants indicated that when employees come from high power distance countries to work in low power distance countries, initially there was some hesitation in asking questions or feeling empowered to ask questions. However, with some coaching and guidance people got used to this new style of working and were "*empowered to actually shape*" (P2) their work.

#### 4.2.4 Preference for Organization Structure

Two participants indicated their preference of organization structure in which they would like to work in. It was seen that employees usually prefer to work in software development or software engineering companies where there is a flat hierarchy, meaning low power distance. The various reasons for such a preference are transparency, clearer communication, faster issue resolution, swift decision-making process, high team cohesion and improved team productivity. Flat hierarchy also helps in reaching out to more colleagues when in need of help as this hierarchy barrier is no longer present thereby resolving issues much faster. P6 confirms this by saying "*I'll eliminate a lot of stackers that you that might you might face when you would try to work with your team and have any issues so you can directly reach out to whoever you want and that will yeah help you a lot to fix any any. Yeah, let's say any issues you face.*"

According to both participants' perceptions and personal work experience, the power distance in Netherlands is low as compared to other countries such as Syria and Germany. Given this situation, according to P9, "*Every single person would like to switch from high power distance index to lower power distance index I think.*"

#### 4.2.5 Team Dynamics

Nine participants from eight different companies discussed their team dynamics. This included various aspects such as day-to-day working within multicultural software development teams, communication within the team, decision-making on team goals, raising issues and concerns and problem solving. These aspects are necessary within a team to ensure proper collaboration and team productivity.

Most of the participants revealed that their teams followed agile/scrum methodology in their day-to-day software development. According to one participant, "*agile is the most low power distance index development method*" (P9) that is currently followed by software development teams. In Scrum, the software development lifecycle is based on sprints where every team must follow certain sprint rituals such as standup, sprint planning, backlog refinement and sprint reviews. Team members usually have a lot of opportunities during such rituals to discuss their ideas and voice their concerns. During sprint planning and backlog refinement in multicultural teams, there were some differences in understanding of the different tasks and stories that

were discussed.

There were two major reasons identified for this: language barrier and power distance. First, in most teams, English is the most common language of communication with which user stories and tasks are created. The understanding of English is heavily influenced by a person's cultural background and sometimes not everyone is fluent in it. This has caused some discrepancies for understanding the end goal of the task as well as the effort required to fulfil the tasks. P8 confirms this as: *"I think the communication between me and the team in Russia is mostly problematic because of language I think, so they are willing to come to me and ask me things or tell me problems, but uh, but it's the language that makes it a little bit complicated."* Second, as people coming from high power distance countries come to work in multicultural teams, they are often not comfortable speaking up and asking questions during team meetings to clarify issues before starting to work on the tasks. Also, when a multicultural team is formed with a combination of members from low power distance and high-power distance countries, there are small nuances in communication and understanding which can easily be overlooked. Such situations can be challenging for the team and sometimes lead to less ideal collaboration. P5 explains such a situation in her team constituted of people from the Netherlands and Poland where Polish team members were not comfortable raising their concerns and asking questions during backlog refinement: *"Dutch people immediately start talking. [...] The Polish team is a bit more friendly [...] We actually want to commit. Then we do definitely see some deviations there. It could be caught. Yeah, it could be caused because of power distance that they are not comfortable in these comfortable with actually uh, and participating in the refinements"*. Therefore, it is also important to support the team members when working in such a multicultural team.

Five participants indicated that they were expected to actively participate in meetings during the planning of their team goals. The team members had the freedom to communicate and prioritize issues that they thought were important and needed to be achieved during the upcoming weeks. Two participants pointed out that one needs to wait for the appropriate moment in the conversation to voice disagreement on any matter where P1 believes *"once there is a moment which is appropriate, it's okay to say to voice disagreement."* Sprint planning was an important meeting where such ideas and issues were discussed among the whole team as part of a biweekly session and a monthly meeting with the larger department as part of the departmental goals. P7 who was quite involved in the planning of his team goals specifies *"I think that, at least on the side of the developers, we were expected to. Yeah, do those activities basically right, we had to say which were the most pressing issues that we needed to dive into in the next Sprint and also sort of estimate how much time it would take and it would be like best candidate to pick up these issues."* However, one participant who is currently working in a multicultural software development team where their team members are all from high-power distance countries working in the Netherlands, specified that they could see the hierarchy in terms of planning of team goals and the tasks to be achieved. P10 mentions this by saying *"[...] general team goal of what are the things that need to be decided or what are the things that need to be done, how they should be achieved. It's mostly the manager, product owner or the senior team."*

Another interesting aspect of low power distance teams as pointed out by P6 was that every member of the team worked in the same office space room and every member could be easily

reached, including the manager of the team. Team members were also easily reached out via online chat applications such as Teams or Skype to schedule a meeting when further details needed to be discussed.

#### 4.2.6 Team Structure

All 10 participants talked about their team structure so that an insight could be gained about the way software development teams are formed in an organization. There were some that have a flat hierarchy whereas others have a hierarchical structure. However, irrespective of this hierarchy, interaction and communication in some teams were open and transparent. A software development team following agile, more specifically, scrum methodology constituted of project/product owner or project/product manager, scrum master and developers. In some cases, the teams also had a separate technical lead whereas sometimes the product owner acted as a team lead. For example, in P9's team *"the product owner is the one that gives direction. But not so much hierarchical because the team decides what it does. [...] this product owner is not like hierarchical above us is just the one that feeds us with with tasks"*. Also, as P5 mentions about their team, who had a similar team structure, *"Scrum Master is just one of our developers"*.

Four participants pointed out that even though their teams had a hierarchical structure, this hierarchy was not rigid and team members discussed ideas among themselves openly. P2 described about this team structure where he is manager and discusses with his team before making any decision by saying *"we do have a hierarchical structure however I would say is not rigid for eg. I am the current lead for the team there are few engineers who would be in an organisation below myself however I make an decision that anything we are planning to do is discussed and kind of refactored alongside with our junior engineers and senior engineers"*. The labels such as junior or senior are *"a little bit of career progress"* (P7) within an organization.

Two participants indicated that their immediate software development team had a flat hierarchy whereas their departmental team had a strict hierarchy within the organization. Here, P4 shares about his team structure as *"the team at large yes, like the immediate sub team that I work in less so. In the sub team, there is a flat hierarchy irrespective of the position you are in the company."*

#### 4.2.7 Work Distribution

The majority (9 out of 10) of participants talked about the distribution of work within their team. The unanimous idea that came out was that the team members distributed work based on their software development knowledge and skills. The work was always distributed based on their strengths and weaknesses of certain aspects of software engineering that are related to the task at hand. The managers understand the technical differences between senior and junior members and based on these differences the tasks are given. P2 who is a manager working in the Netherlands specifies that *"if it's something new tech stack I would give it to a junior engineer who would have fun exploring it or if I need something rigorously documented and well produced I would give it to a senior engineer who is more experienced producing things such as technical documentation"*. Also, most managers try to find alternative solutions for task completion within the team if needed by engaging more employees to work on the project or sometimes descope the software project so as to have realistic goals for moving forward and

timely completion. This is done to ensure the proper physical and mental health of the team.

The team members are always consulted when dividing the work whether someone is interested in taking up a particular task or their preference where they want to focus and develop themselves. Two participants mention that there becomes *"natural division"* (P9) in the work as team members pick up tasks based on their *"level of knowledge of the company, also products and level of expertise"* (P10). Also, there are some tasks that are necessary to be done in order to achieve the goals of the project which have to be fulfilled by the team, however team members are given the freedom to choose their own methodology in the completion of these tasks. P1 who is software developer working on various projects specifies *"We have things which we are being asked to do so we have to do them but we can do them in our own way. So that's the balance."*

Sometimes, it was seen that work distribution within a multicultural team caused some conflicts within the team members. When a software developer moves from his/her country to work in a software development company in another country with a different culture and language, he/she may not be familiar with local language and culture. In some cases, such software development companies have local clients where requirements gathering for the project is usually done in their native language. Hence, international employees within such teams maybe at a disadvantage of not being able to be involved directly in such projects due to their inability to understand the local language on a professional level. However, with clear communication within the team such conflicts and misunderstandings in work distribution can be resolved. One such case was explained by P6 as *"So recently we we were facing some issues like when distributing the work between employees, so some of the engagements were always go to Dutch people and not to other nationalities, and that's caused some conflicts. But then we had these meetings to discuss that, and, uh, to yeah, riff, yeah, and eliminate any any bias in the work. But sometimes you can't do that because because the the way they explained because the, let's say the client is Dutch and they need somebody people to speak Dutch to them and not in other language."*

To summarize, in most cases, the distribution of work within a software development team is based on the knowledge and skill level of team members. There was no power distance in play when distributing the work between senior and junior members of the team but more so of expertise and experience level with the tech stack used for the ongoing software projects and in some cases understanding of local language on a professional level.

#### 4.2.8 Communication with Hierarchy

The majority (9 out of 10) of participants discussed the different ways of communication experiences they had when communicating with their juniors or seniors in the team or with upper management in their organization. They also discussed about the various ways in which communication takes place. There were certain differences seen in communication that takes place between employees working in a hierarchical team, employees working in a flat hierarchy team and employees coming to work in a flat hierarchy from strict hierarchy teams.

Six participants talked about their experiences while working in a flat hierarchy software development team. The conversation took place in an informal manner and employees could directly

approach their managers. P1 confirms this by saying *"If I have some grievance or some issues, I will just go to my direct manager who I feel very comfortable to talk with anytime about anything."* Team members can get in touch with each other to discuss ideas via various online platforms such as Whatsapp or even call each other. However, if the discussion must be about specific technical aspects of a project, then writing an email to express their ideas was found to be a more suitable method followed by scheduling a meeting where necessary. Managers are always easily approachable, try to listen proactively to their team for new ideas and suggestions and the team members felt empowered to raise their concerns and issues. P2 points out his relationship with his direct manager by mentioning *"I would go the manger or my tech lead at the time and would discuss issues or blockers with them and I would openly raise them and I always felt empowered to do so."* Although, two participants suggest that it is not advisable to *"jump a few layers of management"* (P1) and start approaching senior managers to discuss issues with them and be *"fully honest about certain aspects"* (P8).

Three participants shared their experiences while working in a strict hierarchical software development team. The manager of the teams was very strict with approvals and needed to have everything in formal written communication. As P5 explains, *"And then you need approval at different levels in the company. So from your direct manager and then from senior management senior architect. And yeah, the architect that we were working with was way more strict on that having like approval on paper."* Team members were not interactive during team meetings and did not feel comfortable enough to speak up their opinions. It was more commonplace to send an email after the meeting to share ideas and comments about things discussed during the meeting. Employees usually don't question the manager and the manager's ideas have priority even if one of the team members has a simpler way of doing the tasks when working in a team constituted of people from high power distance countries. The team members feel that the manager is hired to come up with new ideas and are less direct about sharing their own ideas.

Two participants indicated the differences that they felt when coming to work in flat hierarchy multicultural teams from strict hierarchy multicultural team. Coming from a strict hierarchy team where one needs to do what is asked by the manager with no questions asked, moving to a flat hierarchy team where one can be more open with managers with issues made them feel empowered within the team. They felt more open and comfortable sharing their ideas and opinions. P3 shares their experience as: *"Here in the Netherlands, I feel more like you have more power and you, you will be judged depending on your work not dependent of your age. I would say that if you have an idea, you can be open to share with your manager, because if it is a good idea, they are going to go for it."* Also, discussing issues about work with managers helped them when getting acquainted with this new style of working and team structure. P6 who was confused at first when transitioning to flat hierarchy pointed out that *"Sometimes you misunderstand what you need to do, what you have to do. [...] I was discussing all my concerns with my development manager, [...] explaining to me how I'm supposed to react and what I'm supposed to do. So yeah, at that time it really helped."*

#### 4.2.9 Power Distribution

Five out of 10 participants mentioned about the decision-making process and power distribution within their multicultural teams. This is an important aspect of power distance as

it can be clearly seen the way in which power and authority is distributed within a team. Two participants described here that the management is mostly responsible for creating the scope of the project and assigning it to the software development teams and there is little transparency in such decision-making processes. The tasks within such projects are then the responsibility of the teams that they have been assigned to. P4 discusses about this as *"I think it's, uh, I think that decisions are communicated quite in interim. All sort of decisions that are, you know, sort of outside of that scope, and there's very little transparency into that."*

Three participants talk about the decision-making process within their team. In two of these teams, it was seen that the manager discusses and refactors any decision along with the junior and senior team members. The whole team is involved in the decision-making process about the software development projects. However, for one participant's team, it was seen that the methods adopted for the project and team goals were mostly planned and decided upon by the senior members of the team. P10 elaborates on this by saying *"When it comes to like what how the project should be done or what are the team goals, it should be planned or what are the the tasks that should be achieved within the Sprint. That's when you see the power distance hierarchy."*

### 4.3 Other Cultural Effects

During this research, there were various other cultural effects that were found within a software development multicultural team. The participants discussed about these various effects during the interview which are given as the labels below. The effects of each label that were seen has been described in detail in the following subsections. Figure 2 presents a summary of the other cultural effects. The labels which were highly discussed by the participants and were the most concerning cultural effects have a higher value in the graph.

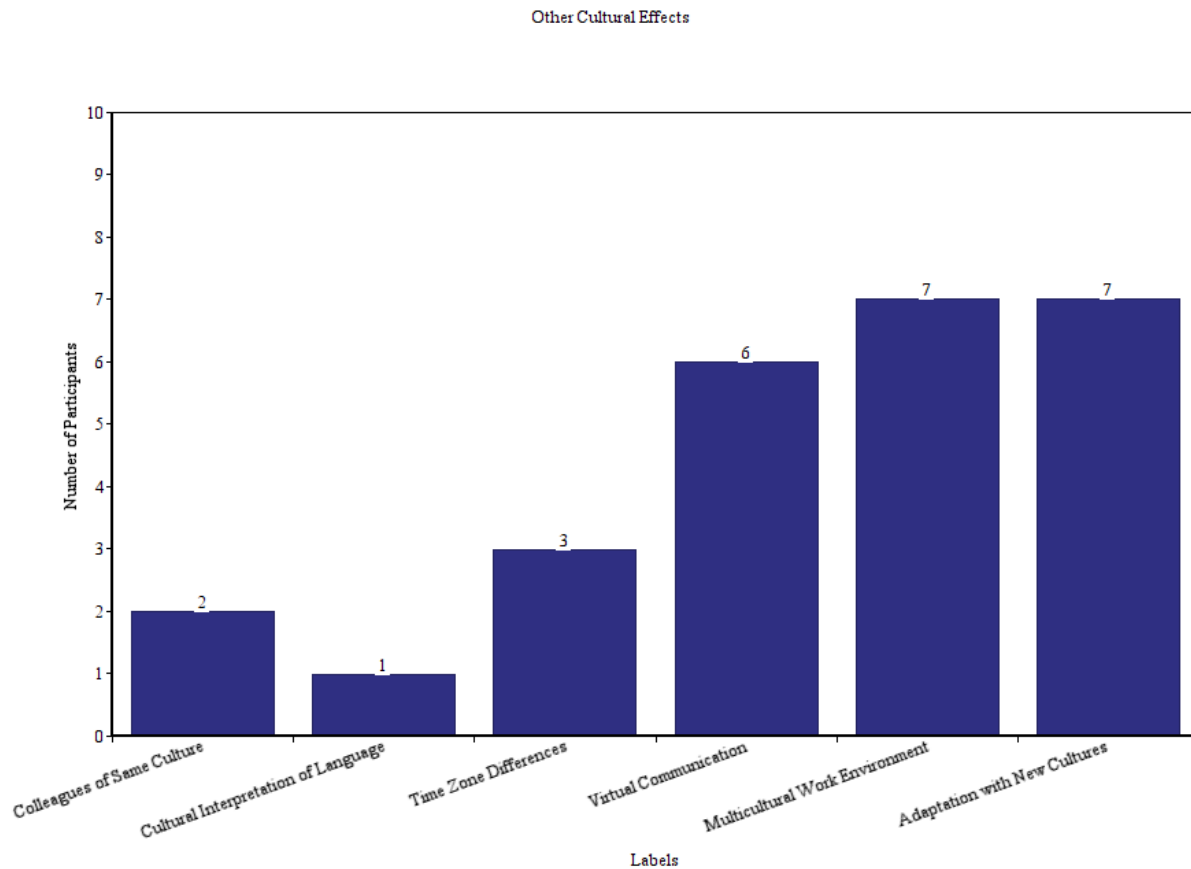


Figure 2: Summary showing number of participants per label

#### 4.3.1 Colleagues of Same Culture

Two participants discussed their opinions and experiences of having colleagues from the same culture. It was seen that if given a choice, people had a preference for a team constituted of all team members belonging to their own culture. P6 who is from Syria elaborated on the advantages of having colleagues from his culture within a multicultural work environment. He stated that the communication becomes more *“relaxed”* and open to discuss matters because its *“your same way of thinking”* rather than *“sharing it with people from other cultures”*.

When people from The Netherlands which is a low power distance index country work together in teams of same culture *“there is not much of a barrier”* (P9) among them and they can easily speak up their opinions to their managers. P9 also mentions about a team all consisting of people from Germany which is also a low power distance index country where the communication among them is more reserved and *“much more in writing instead of directly communicating”*.

#### 4.3.2 Cultural Interpretation of Language

One participant (P10) mentioned that the same language can have different connotations in different regions. Hence, the same words do not imply the same feeling or understanding when used in spoken language. P10 specifies this by saying *“if I speak in Indian English with someone and if I speak in British English with someone, some words don't have like the same level of understanding. Some things are taken in a negative way. Some things are taken in a positive.”*

### 4.3.3 Time Zone Differences

Three participants mentioned that there is ineffective communication among team members due to time zone differences. The direct teams with which they were working were situated in different time zones sometimes where these differences were such that they stopped working and their direct team members started working.

P2, whose team is based in London, finds it difficult to discuss and bring to the attention of other team members issues that need to be resolved as they are situated in different time zones, which creates a knowledge silo.

P4 and P5 both mention that they have miscommunication when working with team members from different time zones. P5 who is from the Netherlands works with team members from France and China. She mentioned that the reason for this miscommunication is mostly due to the style of communication with the Chinese architect in her team and their communication were mostly *“through emails or through chat messages”*.

### 4.3.4 Virtual Communication

Six participants talked about the way in which virtual communication affects their day-to-day work while working in a multicultural software development environment. Due to remote work, where team members in multicultural software development teams are currently working from their home or different time zones, differences in knowledge can happen with teams situated in different places and due to having social interactions virtually one can lose sight of those differences and information sharing does not happen optimally in team projects. This was revealed by P2 as *“For example, in teams where you have more than one member in a certain country, more than one member in another country, it can become say yeah I don’t really know the best way to say it but it happens out of knowledge where people in London know about one thing and people in Amsterdam know about another due to not having so many social interactions you can lose sight of those”*. Also, with remote work, collaboration during meetings has become less productive as it is not always possible to voice one’s concerns or ideas immediately or even move the project in a different direction if needed.

Virtual communication has its advantages and disadvantages as highlighted by one participant (P9) when working in multicultural software engineering teams. Some of the advantages are there are fewer conversations, a person can focus more on their own work, and it makes them more productive. However, with virtual communication, a person is not able to understand the other person’s body language while talking and some nuances when working in multicultural teams, there is no opportunity to bond or to connect with colleagues on a human level because one can only see them through the camera and when reaching out a colleague for help on messaging platforms one might not hear back soon enough to get help as people are not obliged to respond immediately.

There are various methods that have been introduced by multicultural software development teams to overcome virtual communication problems by using good development methods and good technologies such as GitLab, Jira, Slack. Productivity can be boosted with the use of such technologies and also make a person more focused on work as indicated by P10.

#### 4.3.5 Multicultural Work Environment

The majority (7 out of 10) participants discussed their experiences while working in a multicultural software development team. There were a few impediments identified during this process of working in multicultural software development teams. First, when working in a multicultural software development team, one needs to be mindful of the way they communicate with their colleagues. This is because directness in communication is not positively taken in every culture as indicated by two participants. It can create tension within the team and have a negative impact on communication. P3 elaborated on this as *"We have some troubles with this because in my team the people were really direct to the Indian teams and the Indian teams felt really attacked by this but it was not the intention of the people of my team. You know what I mean? [...] I feel like if you are working here or if an old team knows already that this directness, this, you know this way of working, let's say is just to solve the problem that it is not a personal matter"*. Such situations can be mitigated by having meetings around this with open discussion among the team members and trying to cooperate with each other by understanding cultural backgrounds and differences.

Second, due to cultural differences, there were some miscommunication and differences in understanding user stories during backlog refinement. This is because not everyone is experienced in English language for communication and are not comfortable enough to speak up and ask questions for further clarifications. The way in which team members understand user stories during backlog refinement and the number of story points they want to assign to the stories before starting the sprint has also been seen to be dependent on their cultural background. P5 explains this by saying *"So what I've what I've experienced is that during like Sprint Planning's where we actually create user stories, we think it's with epics and then we we do the refinement and description of user stories. [...] Usually when we actually want to close the user story, meaning that's the scrum master actually ask everyone OK how much user story points do you think this is worth? And do you commit the commit? You do you think that you're actually able to implement this in the coming Sprint and there you actually then you see that there's like a deviation between how the Polish people understood the user story and how Dutch people understood this"*.

Three participants suggested that such situations can have a negative impact on teamwork. This can cause disconnectedness from the team purpose and goal in multicultural teams if everyone is not aligned to it and understands them clearly. Understanding team expectations and working accordingly is very important in a multicultural work environment.

However, one participant (P10) also highlighted the benefit of working in a multicultural team. It can be seen sometimes that working in a multicultural team and gaining experience of working with colleagues from different cultures makes a person open to different ideas and opinions. This exposure makes a person more understanding towards different cultures. P10 elaborates on this by specifying *"I think like working with a multicultural team also makes you more open to other cultures and then you kind of tend to understand okay, this is something normal for this team or this culture"*.

#### 4.3.6 Adaptation with New Cultures

Seven participants who have moved from their home country to another country to work in software development companies have discussed about the importance of adaptation with new culture. This is considered necessary in order to be able to adjust when collaborating in multicultural teams. Due to globalization, people have been moving around the globe to work in different software development companies which has made them more tolerant to different backgrounds and cultures. This process of working in different multicultural teams is beneficial for adaptation with new and different cultures. If an employee has experience of working in different countries and organizations, he/she would be able to adapt better to a multicultural environment. P5 confirms this by saying *"I definitely think that it helps. Yeah, with globalization, definitely. I think that's also when I look back at my own experiences. You know, I've learned along the way that you know people are coming from different backgrounds and different cultures. I would first think the ways you know if someone is from a different culture and there we have like we're having like these miscommunication issues and you know you, you might tend to say like OK why is this person behaving so weirdly so strangely. The first thing that I tend to think is like OK, but what is he or she coming? [...] Anyway, so it definitely helped me at least open up to other cultures other ways of thinking and other ways of approaching."*

Three participants mentioned from their experiences that they have seen people easily tend to adapt to their new working environment and team culture no matter the cultural background they come from. However, one participant (P6) indicated that when moving to their new team they still had their old way of thinking and that affected their day-to-day work which took some time to get used to the new environment.

Another participant (P8) pointed out that designing and creating training programs about organization culture for new employees in software development teams would be beneficial for the team as well as the employee. This can help with faster integration of such employees within the organization and team culture which is sometimes influenced by the local (country) culture where the company is situated in. P8 elaborates on this by saying *"I think this should have done it a bit more, especially for younger graduates. [...] They adjust and I think they're all very smart people and they adjust, but I think it would make their life easier as well to know that ok this is how this is how I should the the mentality is this is what's expected. So yeah, this is my freedom to do whatever I want you know than just you know, expecting everything from the managers."*

## 5 Discussion

According to Hofstede [19], culture was defined as static and divided in terms of nation states based on which we can classify a person's cultural identity. However, due to globalization, people are continuously moving to other countries for working in different multicultural software development teams. There is a large opportunity for people to move around the globe to work and live in different countries and cultures. This process has led individuals to adapt more and more to new cultures. Individuals have sometimes embraced new cultural values and become more tolerant towards new cultures. This has become one of the main reason behind people adjusting well when collaborating in multicultural teams. This is in line with the research by Groeschl and Doherty [16] who had a similar finding on the effect of globalization on cultural adaptation by individuals.

It was seen from this research that the majority of the participants (8 out of 10) followed agile methodology, more specifically scrum, for their software development lifecycle. As we know from literature, scrum teams have a very flat hierarchy constituted of a scrum master, product owner and developers. Hierarchy is more commonplace in the organization at large but less so directly within software development teams. This is because most software engineering teams are following agile scrum methodology these days which in itself is flat hierarchy and low power distance development methodology as we saw multiple times in this research. Employees coming from low power distance index countries tend to fit in very well within this software development framework. However, employees coming from high power distance index countries who move to work in companies where scrum methodology is followed still tend to have the hierarchy mindset initially as was seen in Section 4.2.3. With some initial training and guidance, these employees gradually adjust within this low power distance culture and become comfortable in putting forth their ideas in front of their other team members. Based on the findings in this research, the human resources department of software development companies can create tailored training materials for new joiners to get them accustomed with the software development team culture thereby removing any cultural barriers which can hinder employee performance.

Similarly, for employees moving to work in high power distance index countries from low power distance index countries, it would be beneficial for them to have an orientation program so that they can easily get adjusted to this new working culture. This way they can get accustomed to ways of working in software development teams in such cultures as well as recognize the right people to contact when needed. This will also help new joiners understand the accepted modes and hierarchy in communication within their teams. The teams working in high power distance countries should also be made familiar with low power distance cultures whereby independent thought and raising concerns are quite commonplace. This will lead to less friction and more team productivity when both parties understand each other better.

Another interesting aspect that was revealed during this research was that cultural background and power distance tend to affect the understanding of user stories in sprints. Most software development teams' communication is done in English and user stories and epics created during sprints are also written in English. The way developers in software development teams understand the description of user stories and epics in sprints is highly influenced by their cultural interpretation of language or in some situations that not everyone is fluent in English.

Also, when some team members come from a high power distance background in such multicultural teams, they are not comfortable enough to raise their questions in refinement meeting for clarifying these differences in understanding. This has led to situations where every team member is not on the same page regarding the project thereby decreasing team productivity and more lead time to deliver the projects.

Generally, there has been a clear distinction between high power distance and low power distance countries when it comes to addressing seniors. In high power distance countries, seniors are usually addressed formally as Sir or Madam whereas in low power distance countries seniors are addressed directly by their first names irrespective of career progression and age difference. However, it was seen during this research that even though Germany is a low power distance country but still colleagues needed to address each other in a formal manner instead of first names. Therefore, there can be certain exceptions in addressing seniors based on historical context as opposed to being solely based on power distance.

The work distribution within team members was not affected by power distance within a team. Experience with tech stack and skill level of a person mattered more when it comes to distribution of work. The work was always distributed based on their strengths and weaknesses of certain aspects of software engineering that are related to the task at hand. This is also a great opportunity for new joiners to get assigned a variety of work despite their cultural background. New joiners can also work with more experienced members of the team to get a first hand experience of working with tools used within the team and get a better picture of the team culture. Pair programming can be of great help in such situations.

According to participants, top-down hierarchical structure was mostly followed in the company at large where the size of such companies was substantial. This was done possibly for the high growth and fast paced working culture where there were yearly objective key results (OKRs) planned by the upper management. However, their immediate teams mostly had a flat hierarchy where the work was passed on from the upper management by the product owner or product manager of the team. The team, as a whole, discussed ideas among themselves openly and had the freedom to complete the tasks using their own methods without any interference from upper management as long as the yearly OKRs are achieved.

Within a software development team, each team member is assigned a job title based on their tasks and responsibilities within the team such as junior software engineer or senior software engineer irrespective of whether the team is classified as low power distance or high power distance. In low power distance teams, the job titles signify more of a career progress within the organization rather than power associated with that position. In low power distance teams, despite these job titles as senior or junior, there is informal communication between team members and everyone can discuss their ideas and raise concerns without hesitation. On the contrary, in high power distance teams, job titles indicate both career progress and the strict position within a team and company in general. These job titles decide the level of influence and power one has in steering the decision making process. This unequal power distribution leads to formal communication and respect for authority in high power distance teams.

It was interesting to see that participants preferred to work in low power distance teams as compared to working in high power distance teams. There were four participants who moved

from high power distance countries to work in the Netherlands which is a low power distance country. All these four participants gave their positive review on working in teams situated in low power distance country. The possible reasons for this can be that team members felt empowered to participate in decision making, freedom to choose their own work by picking up stories in sprint, as well as be able to manage their work independently. It was seen that in low power distance teams there was transparency and clearer communication within team members. All members of the team were easily approachable as there is a flat hierarchy which led to high team cohesion and greater team productivity as compared to when working in high power distance teams. This also promoted the general and mental well-being of employees while working in such team culture.

## 5.1 Limitations

There were several limitations that were identified during this research. First, due to data privacy concerns and keeping in mind GDPR regulations, as suggested by the Data Protection Officer of Leiden University, all the interviews were transcribed manually. This was a time-consuming process which could have been avoided by the use of automatic transcription software. With the use of automatic transcription software, this process could have been sped up and more number of interviews could have been taken towards this research. However, due to time constraints and manual transcribing, the scope of this research's interviews was limited to 10 participants. Second, more number of people could have been interviewed to have a greater sample size and make outcomes from this research generalized by representing a larger population. Third, the only mode of data collection in this study was through interviews. It might be the case that participants could have felt hesitant to share viewpoints on their team members and daily work which might not have been the case if the data collection was done through more anonymous methods such as surveys or questionnaires. However, all participants seemed to be relaxed during the interview to share their truthful opinions. Fourth, participants were mostly from low power distance countries in Europe or working in low power distance countries (The Netherlands) therefore many comparisons could not be made with the working culture in high power distance countries. All the comparison in this research are based on the experiences of participants working with team members from low power distance and high power distance countries. Fifth, the gender distribution of this research was unequal with 80% male and 20% female which can be improved in future work by increasing the sample size. Lastly, the analysis was done by a single person under the guidance of the supervisor. However, doubts about the labels were discussed.

## 6 Conclusion

The goal of this research was to understand the effects of power distance index on multicultural software engineering teams. For this purpose, interviews were conducted with participants from different software development teams who volunteered to participate in this research. The participants had different job roles within such a team ranging from software developers to managers to product managers. Based on these interviews, major areas were identified where differences between employees coming from low and high-power distance countries could be identified within teams. These areas are the way seniors are addressed, communication that takes place between junior and senior members, the level of inclusiveness within a team, employee empowerment, preference for organization structure, team dynamics and structure and the way in which tasks are distributed within a team. There were some other cultural aspects within multicultural software development teams which were revealed during interviews. These cultural aspects were the manner in which team members behaved when they had colleagues of same culture, cultural interpretation of language, time zone differences, advantages and disadvantages of virtual communication and multicultural work environment, and adaptation in new cultures.

Thematic analysis was used for this research which is different from existing research that mostly used grounded theory. We found almost similar results from current literature and could therefore validate the previous results. In some cases, our findings agree with existing literature and Hofstede's research study on cultural dimensions with IBM employees. However, there was one difference highlighted during this research which was surprisingly new was that due to globalization and modernization, people have migrated to other countries and have eventually adapted to the working style of their country of migration. This has reduced the power distance conflicts and differences to some extent when working in multicultural software development teams. Also, the adaptation of Agile Scrum methodology by more and more teams has led to the dissolution of hierarchy within teams thereby signifying labels such as junior or senior as merely a career progress within the organization as a whole.

The results from this research have risen several possible directions for future work. Since this research was only an exploratory study about the effects of power distance on software engineering teams, it could be further studied in more depth by using other qualitative and quantitative methods. As participants sometimes become hesitant to share their data via interviews due to privacy concerns, the data collection method can be modified in future work to some other methods which are more anonymous such as surveys or questionnaires. More number of participants could be reached in such ways. Moreover, due to time constraints, this research focussed on a limited number of participants but for further research the demographic sample size should be increased with a more uniform gender distribution and participants from different countries. In this way, this research on effects of power distance index on multicultural software engineering teams can be generalized by representing a larger population. Another interesting research to look into for future would be conducting a similar research on multicultural software engineering teams but this time instead of using Hofstede's cultural dimension, Hall's cultural factors or Trompaneer and Hampdeen-Turner cultural model could be used to understand cultural effects within such teams.

## 7 References

- [1] Virginia Braun and Victoria Clarke. “Using thematic analysis in psychology”. In: *Qualitative research in psychology* 3.2 (2006), pp. 77–101.
- [2] Erran Carmel. *Global software teams: collaborating across borders and time zones*. Prentice Hall PTR, 1999.
- [3] Juliet Corbin and Anselm Strauss. *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Sage publications, 2014.
- [4] Terry Costlow. “Globalization drives changes in software careers”. In: *IEEE Software* 20.6 (2003), pp. 14–16.
- [5] Taylor H Cox and Stacy Blake. “Managing cultural diversity: Implications for organizational competitiveness”. In: *Academy of Management Perspectives* 5.3 (1991), pp. 45–56.
- [6] John W Creswell and Cheryl N Poth. *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications, 2016.
- [7] Americo B Cunha, Alberto G Canen, and Miriam AM Capretz. “Personalities, cultures and software modeling: Questions, scenarios and research directions”. In: *2009 ICSE Workshop on Cooperative and Human Aspects on Software Engineering*. IEEE. 2009, pp. 23–31.
- [8] Daniela Damian and Deependra Moitra. “Guest editors’ introduction: Global software development: How far have we come?” In: *IEEE software* 23.5 (2006), pp. 17–19.
- [9] Daphne M Dekker, Christel G Rutte, and Peter T Van den Berg. “Cultural differences in the perception of critical interaction behaviors in global virtual teams”. In: *International Journal of Intercultural Relations* 32.5 (2008), pp. 441–452.
- [10] Sadhana Deshpande et al. “Culture in global software development-a weakness or strength?” In: *2010 5th IEEE International Conference on Global Software Engineering*. IEEE. 2010, pp. 67–76.
- [11] Siva Dorairaj, James Noble, and Petra Malik. “Effective communication in distributed Agile software development teams”. In: *International Conference on Agile Software Development*. Springer. 2011, pp. 102–116.
- [12] J Alberto Espinosa, William DeLone, and Gwanhoo Lee. “Global boundaries, task processes and IS project success: a field study”. In: *Information Technology & People* (2006).
- [13] Amitai Etzioni. *Comparative analysis of complex organizations*, rev. Simon and Schuster, 1975.
- [14] Fariba Fazli and Eva Alice Christiane Bittner. “Cultural influences on collaborative work in software engineering teams”. In: *Proceedings of the 50th Hawaii international conference on system sciences*. 2017.
- [15] Barney G Glaser and Anselm L Strauss. *Discovery of grounded theory: Strategies for qualitative research*. Routledge, 2017.
- [16] Stefan Groeschl and Liz Doherty. “Conceptualising culture”. In: *Cross cultural management: an international journal* (2000).

- [17] Stuart Hall. “Cultural Identity and Diaspora, Colonial Discourse and Post-Colonial Theory”. In: *Eds. Patrick Williams and Laura Chrisman. New York: Colombia UP* (1994).
- [18] Charles M Hampden-Turner and Fons Trompenaars. *Building cross-cultural competence: How to create wealth from conflicting values*. Yale University Press, 2008.
- [19] G Hofstede, GJ Hofstede, and M Minkov. “Cultures and Organizations: The Software of the Mind, New York, London, McGraw-Hill.” In: (1991).
- [20] Geert Hofstede, Gert Jan Hofstede, and Michael Minkov. *Cultures and organizations: Software of the mind*. Vol. 2. Mcgraw-hill New York, 2005.
- [21] Hannu Jaakkola et al. “Collaboration, distribution and culture-challenges for communication”. In: *2015 38th International Convention on Information and Communication Technology, Electronics and Microelectronics (MIPRO)*. IEEE. 2015, pp. 657–664.
- [22] Mansour Javidan et al. “Conceptualizing and measuring cultures and their consequences: a comparative review of GLOBE’s and Hofstede’s approaches”. In: *Journal of international business studies* 37.6 (2006), pp. 897–914.
- [23] Bradley L Kirkman, Kevin B Lowe, and Cristina B Gibson. “A quarter century of culture’s consequences: A review of empirical research incorporating Hofstede’s cultural values framework”. In: *Journal of international business studies* 37.3 (2006), pp. 285–320.
- [24] Jakob Luring and Jan Selmer. “Multicultural organizations: common language, knowledge sharing and performance”. In: *Personnel Review* (2011).
- [25] Eleanor E Maccoby and Nathan Maccoby. “The interview: A tool of social science”. In: *Handbook of social psychology* 1.1 (1954), pp. 449–487.
- [26] Brendan McSweeney. “Hofstede’s model of national cultural differences and their consequences: A triumph of faith-a failure of analysis”. In: *Human relations* 55.1 (2002), pp. 89–118.
- [27] Michael D Myers and Felix B Tan. “Beyond models of national culture in information systems research”. In: *Human factors in information systems*. IGI Global, 2002, pp. 1–19.
- [28] Abraham Sagie and Zeynep Aycan. “A cross-cultural analysis of participative decision-making in organizations”. In: *Human relations* 56.4 (2003), pp. 453–473.
- [29] John R Schermerhorn and Michael Harris Bond. “Cross-cultural leadership dynamics in collectivism and high power distance settings”. In: *Leadership & Organization Development Journal* (1997).
- [30] Supriya Vasudeva Shrivastava et al. “Distributed agile software development: A review”. In: *arXiv preprint arXiv:1006.1955* (2010).
- [31] Darja Šmite et al. “Empirical evidence in global software engineering: a systematic review”. In: *Empirical software engineering* 15.1 (2010), pp. 91–118.
- [32] A.J. Wiebe and C.W. Chan. “Ontology driven software engineering”. In: *2012 25th IEEE Canadian Conference on Electrical and Computer Engineering (CCECE)*. 2012, pp. 1–4. DOI: [10.1109/CCECE.2012.6334938](https://doi.org/10.1109/CCECE.2012.6334938).

- [33] Dermot Williamson. “Forward from a critique of Hofstede’s model of national culture”. In: *Human relations* 55.11 (2002), pp. 1373–1395.
- [34] Marco Tulio Zanini and Carmen Migueles. “Building trust in a high Power Distance context: the role of the perception of integrity in shared leadership”. In: *Academy of Management Conference, Chicago, August*. 2018.
- [35] Yi Zhang and Thomas M Begley. “Power distance and its moderating impact on empowerment and team participation”. In: *The International Journal of Human Resource Management* 22.17 (2011), pp. 3601–3617.

# A Recruitment Form

## Culture effects in agile software development teams

I am Tanishq Likhi, currently working on my Master's thesis within the Computer Science program at Leiden University ([t.likhi@umail.leidenuniv.nl](mailto:t.likhi@umail.leidenuniv.nl)). I am researching how cultural differences affect collaboration between members of software development teams.

If you are working in an agile software development team and you are collaborating with people from various cultures, I am curious to hear about your experiences and insights. Kindly fill up this form to mark your availability in giving a short interview towards this research. I would be highly grateful if you share your experiences with us.

\* Required

### 1. Email \*

	<hr/>
	<div></div>
	<div></div>
Introduction	<div><p>What do you think about how culture differences affect productivity in your day-to-day work in distributed agile teams?</p><p>Teams are distributed globally, and these teams collaborate in an agile manner. However, communication and other factors are very important in collaboration in agile which is easier to be done when a team is situated in one single place. Also, due to globalization, people are migrating to different countries around the globe to work in multicultural teams. This has become one of the major reasons, we need to study and understand the effects of culture in these diverse software engineering teams.</p><p>With this research, I aim to understand the effects of culture and more specifically power distance index from Hofstede's cultural dimensions, in collaboration amongst global distributed agile software engineering teams. He indicates that even though people are working under the same organizational values, the collective mental programming is highly influenced by culture. His study led to the development of Hofstede's five cultural dimensions where a cultural dimension is an aspect of culture which can be measured relative to other cultures. More specifically, power distance index is a measure to understand the level at which a culture takes into account social inequality where a high power distance culture is characterized by a strong sense of hierarchy whereas low power distance considers every individual as equal, despite differences in power, status or wealth.</p></div>

### 2. First Name \*

	<hr/>
--	-------

3. Last Name \*

---

4. Phone Number

---

5. Age \*

---

6. Gender \*

*Mark only one oval.*

☐ Female

☐ Male

☐ Other: 

---

7. Current Job Role \*

---

8. Company \*

---

**Please select the date/time to mark your availability for interview via the link below:**

<https://datumprikker.nl/p7xqet3a3my8amzk>

9. I hereby volunteer to participate in this Master thesis research interview. \*

*Check all that apply.*

☐ Yes

☐ No

## B Interview Protocol

### Effects of power distance index on multicultural software engineering teams

#### Introduction

- Introduction about myself
- Introduction to research topic and walkthrough
- Duration of interview
- Explain about interview recording + anonymization
- Take consent from participant:

I would like to ask for your consent that you agree to participate in this interview. Please sign the consent form. Thank you for agreeing to participate in this interview for my thesis.

- Ask to read and sign consent form
- Interview recording

#### **Research aim: What are the effects of power distance index on collaboration within global distributed agile software engineering teams? (Explain to the participant)**

##### 1. Background

- (a) Can you tell me something about your personal background? Where are you from/how old are you/educational background?

Country of origin/age/education

- (b) What is your current role in the team?

Job description/role

- (c) How long have you been working in your current role?/How many years of experience do you have within this field?

Number of years

- (d) Where are you currently based in?

Country of work

##### 2. Cultural aspects in team

- (a) Have you ever collaborated with people from different cultures and which?
- (b) Is your team constituted of people working from different nationalities? Which countries?
- (c) How do you think culture influences the working style within your team members?
- (d) Have you ever faced any culture related problems in your team?
- (e) Do you think globalization is helping people adapt to new environments or do people tend to hold back to their roots in terms of working style?
- (f) Does your team have a hierarchical structure?
- (g) Have you ever experienced there has been a power distance hierarchy within your team? If so, how?

### **3. Relationships with co-workers**

- (a) To what extent did you participate/were you expected to participate in the planning of the team goals?
- (b) What do you think was the most important point of that communication?
- (c) Are you able to voice your concerns in important discussions within the team? If so, how?

### **4. Relationships with managers/higher management**

- (a) Have you ever worked with supervisors/managers from different culture/nationality than you and if so, which?
- (b) Is your current supervisor/manager from the same culture/nationality as you?
- (c) How do you communicate with project leaders?
- (d) To what extent, do you think your concerns are heard within your team and in front of senior management? (Do you think this is influenced by culture/cultural differences?, If they say no, what culture is your manager from?)
- (e) What are your views on the way leaders/managers exercised power around issues concerning your team and distribution of work within the team?

### **5. Relationships with juniors if they have managed/manage employees**

- (a) Have you ever supervised/managed employees? If so, which nationality were they from to name a few?
- (b) Have you seen people from different cultures communicate with you in a different manner? If so, what differences have you noticed?
- (c) Have you noticed any differences in the way people from different cultures communicate differently in terms of hierarchy? If so, how?

Is there anything else that you would like to add on what we have been talking about?

I will stop the recording now. Would you like us to keep you informed about the results of this research?