

# Impact of Cultural Diversity in Project Management

By

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## **ABSTRACT**

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The purpose of this research is to explore the impact of cultural diversity in project management, using an exploratory case study approach. The sample for this research was selected from the Electronic and Aerospace Industry. The companies selected operate in a multi-national environment integrating diversity and involving project management. The research relies on two major sources of evidence: a questionnaire and face to face interviews with project managers. Some questionnaire results were that 92% of the participants believe cultural diversity may exist when working in teams, 60% agree that cultural diversity impact project management and 83% believe that cultural diversity can initiate conflicts between team members. In the face to face interviews, managers from both companies expressed that technical knowledge and good communication skills are very important in project teams with cultural diversity. The Positive Behaviors Model is proposed to help project managers and team members to achieve expected outcomes.

## RESUMEN

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El propósito de esta investigación es explorar el impacto de la diversidad cultural en el manejo de proyectos, realizando un análisis exploratorio. La muestra fue seleccionada de la industria electrónica y aeroespacial. Las compañías seleccionadas operan en un ambiente multinacional, integran diversidad y manejan proyectos. Esta investigación se basó en dos fuentes principales: cuestionarios y entrevistas a gerentes de proyectos. Algunos resultados fueron: el 92% de los participantes concluyó que la diversidad cultural puede existir en los equipos, el 60% concluyó que la diversidad cultural impacta el manejo de proyectos y el 83% concluyó que la diversidad cultural puede iniciar conflictos entre los miembros del equipo. Los gerentes de ambas compañías expresaron que el conocimiento técnico y buenas destrezas de comunicación son elementos claves en equipos de proyectos con diversidad cultural. El Modelo de Comportamientos Positivos sugerido pretende ayudar a gerentes y miembros del equipo a obtener resultados esperados.

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## **To my Family**

Thank you for always being there, for all your support and always believing in me.

Mommy and Daddy

Thanks because your words have been my motivation to always fight and bring in the best.

Sisters and Brother

Thanks for being there and for always caring about me.

My husband

Thanks for your support, patience and your love.

My baby

You have been my inspiration to finish this long path. I love you!

God

Thanks for giving me this beautiful family, for carrying me in the moments of weakness and for giving me the best gift a woman can get, being a mom!

Thank you for giving me the strength to finish my master's degree.

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## LIST OF ABBREVIATIONS

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CD	Cultural Diversity
CPSHI/IRB	Committee of Protection of Human Research Subjects
L	Leader
M	Manager
PM	Project Management
PMI	Project Management Institute
PRIDCO	Puerto Rico Industrial Development Company

## **LIST OF APPENDIXES**

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Appendix I: Questionnaire

Appendix II: Interview Questions

Appendix III: Authorization from the Committee of Protection of Human Research Subjects

Appendix IV: Authorization from companies

# CHAPTER I

## INTRODUCTION

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### 1.1 Justification

“*Culture* comprises an entire set of social norms and responses that condition people’s behavior” (Rodrigues, 2001). It is the way that people from different groups interact, interpret experiences and behave. Cultural changes arise slowly and transcend from one generation to the next, unless impacting situations such as wars or technological advances occur. Technological advances, such as the internet, satellite television and video conferencing, along with the globalization of businesses, are spreading cultural traits across cultures at a very rapid rate (Rodrigues, 2001). Due to globalization the organizations have confronted diversity, a fact of life that no organization can afford to ignore. Organizations must learn to welcome and incorporate diversity.

Cultural diversity comprises a variety of human social structures, belief systems and strategies adapting to situations in different parts of the world. Some people tend to think that cultural diversity is only a representation of different countries, but it is more than nationality. Cultural diversity can be observed in any group made up of people from different educational background or work experiences (Lewis, 2006). Different factors such as gender, language, religion, nationality, race, education, organization and politics among others can interact in a culture (Miller, 2000). Furthermore, Nine-Curt (1992) expressed that factors that affect project execution in teams are: team structure (team oriented vs. individual oriented), verbal and non-verbal communication, space and touching differences and time zone differences. Understanding and embracing cultural differences among employees and customers, directly translates into economic prosperity and survival in a global economy. Effective management of cultural

diversity has become increasingly important for all organizations operating in both international and domestic markets.

As consequence of cultural diversity, organizations have been confronting structural changes. At the beginning, companies started to focus on functions where people with the same background and doing similar activities were grouped together in common functional departments. Just until a few years back, the organizations started to expand their focus into the management of projects. Global competition and technological advantages have led to the compression of the product's life cycle. The rapid urgency for competitive advantage has increased the interest to implement projects.

Projects can be classified as domestic, overseas, foreign or global. In particular, global projects consist of teams formed from professionals spanning multiple countries, continents and cultures with their work integrated for the entire enterprise (Gray and Larson, 2003). Projects are no longer the exception, but are the center to the success of firms. The better a company adapts to the globalized economy and its trends, the more success they will enjoy against their competition (Lewis, 2006). Project Management is known as the new concept and “the wave of the future” (Stewart, 1995). It will need to evolve as the workforce continues to globalize. Project managers must work to develop a cohesive team committed to work together and complete projects effectively (Gray and Larson, 2003).

Diversity has the potential to bring new life, fresh thinking and new solutions to problems. Managers have to understand cultural diversity, in order to manage their team properly (Hossein, 1993). Developing sensitivity and the skill set to manage diverse teams effectively is becoming more and more important; project managers who can effectively work with diverse teams and leverage the new ideas will be on the forefront of global business (Lewis, 2006).

Various specialists and authors have developed research about the importance of culture, diversity and project management. There is a reasonable amount of theoretical studies that discuss the importance of managing multicultural projects and how culture influences project management, particularly in international projects. However, empirical evidence related to how cultural diversity impacts project management is notably absent from the literature. According to Henrie and Sousa-Poza (2005), culture is not a widely reported or discussed topic in project management literature. They expressed that project team and culture is a research area where little empirical data and information are available.

The purpose of this research is to explore the impact and influence of cultural diversity in project management using an exploratory case study approach. The research methodology includes a combination of questionnaires and face to face interviews, and statistical analysis. The literature review presents cultural diversity factors, the importance of managing cultural diversity and the advantages and disadvantages of cultural diversity. Furthermore, explore behavioral aspects when cultural diversity arise trying to successfully lead and complete projects. A model of positive behaviors is recommended to successfully manage cultural diversity in teams which will highly benefit the organizations.

This study was conducted using companies from two different industries: Electronic and Aerospace. The companies selected operate in a multi-national environment where most of their projects involve a team structure. Teams are comprised of members from different departments, educational and social backgrounds and nationalities. They are involved in the different project management phases including planning, development and completion.

## **1.2 Objectives**

The principal objective of this research is to conduct an exploratory study to analyze the impact of cultural diversity in project management. In order to achieve the purpose of the research the following detailed objectives are considered:

1. Identify factors of cultural diversity present in project management.
2. Determine areas of project management that may be the most impacted by cultural diversity.
3. Identify cultural barriers that impact project performance.
4. Develop a model of positive behaviors using established models in combination with the research results to facilitate project managers and team members understand each other and improve team effectiveness.

Fulfilling these objectives will allow project managers to understand and successfully manage project teams when cultural diversity is present.

## **1.3 Contribution**

As mentioned above, there are a reasonable amount of theoretical studies that discuss the importance of managing multicultural projects, how culture influences project management and cultural influences in international projects. However, empirical evidence related to how cultural diversity impacts project management is notably absent from the literature.

The contribution of this research is to study on how cultural diversity impacts project management providing:

- Empirical evidence.
- Comparison of two industries.



- A Model of Positive Behaviors – tool to effective project teams.

**1.4 Thesis Outline and Structure** – this document is divided into five chapters and four appendixes.

**Chapter I.** Introduction: presents the justification for the study. Also establishes the objectives and contribution.

**Chapter II.** Literature Review: reviews and presents secondary data and research studies in the areas of cultural diversity and project management.

**Chapter III.** Methodology: describes the instrument, the sample and the data analysis.

**Chapter IV.** Results and Discussion: explains the investigation results and compares it with the literature review and secondary data results.

**Chapter V.** Conclusions and Recommendations: summarizes the research presented and indicates the most important findings as well as the recommendations.

**Appendix.** This research includes 4 appendixes: Appendix I – Questionnaire, Appendix II - Interview Questions, Appendix III - Authorization from the Committee of Protection of Human Research Subjects, Appendix IV - Authorization from companies.

## CHAPTER II LITERATURE REVIEW

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### 2.1 Introduction

The literature review is based on information obtained from different journals, studies and Internet resources. The purpose was to collect enough information to understand the impact of cultural diversity. This investigation focuses on project management and how project teams perform when cultural diversity is present.

### 2.2 Cultural Diversity and Project Management

*Culture* is concerned with beliefs and values on the basis of which people interpret experiences and behave individually and in groups. Culture is the “lens” through which a person views the world (Bibikova, 2001). *Diversity* is all of the ways in which people differ, including innate characteristics and acquired characteristics (Morgan, 2007).

Cultural diversity is the variety of human social structures, belief systems and strategies adapting to situations in different parts of the world. It stands out when cultures from different nationalities interact and differentiate themselves from one another (Thomas, 2005). It is important to understand that *managing diversity* is intended to create and maintain a positive work environment where the similarities and differences of individuals are valued, so that all can reach their potential and maximize their contribution towards their team, as well as to their organization's strategic goals and objectives (Morgan, 2007).

A *project* is defined as a non-routine, one-time effort limited by time, resources and performance specifications designed to meet customer needs. Also, as per the Project

Management Institute (PMI), a project is a temporary endeavor undertaken to create a unique product, service, or result. A distinguishing characteristic of a project is that it has a beginning and an ending. Other characteristics of a project are: has a defined objective, has a live cycle, follows an itinerary and is restricted by budget, resources and risk. Project management has emerged because the characteristics of our contemporary society demand the development of new methods of management (Meredith and Mantel, 2009). There are powerful environmental forces contributing to the rapid expansion of project management. Of the many forces involved, three are paramount: the exponential expansion of human knowledge, the growing demand for a broad range of complex, sophisticated, customized goods and services, and the evolution of worldwide competitive markets for the production and consumption of goods and services. All three forces combine to mandate the use of teams to solve problems that used to be solvable by individuals (Meredith and Mantel, 2009).

Project management needs to evolve as the workforce continues to globalize, since cultural diversity has appeared as an important issue in all aspects of project management. Project managers must work to develop a cohesive team committed to working together and complete the project effectively (Gray and Larson, 2003). Managers have to understand cultural diversity, in order to manage their team properly (Hossein, 1993). Diversity has the potential to bring new life, fresh thinking and new solutions to problems. Developing sensitivity and the skill set to manage diverse teams effectively is becoming more and more important. Project managers who can effectively work with diverse teams and leverage the new ideas will be on the forefront of global business (Lewis, 2006).

### **2.2.1 Examples of Cultural Diversity**

Examples of cultural diversity can be observed between Puerto Rican and North American cultures. Languages such as English and Spanish are opposite or reversed one from the other in many fundamental aspects. Vowel sounds are crucial in Spanish while consonant sounds are centric in English. Reversals appear in the areas of movement, space, touch and on how eyes are used in cultures (Nine-Curt, 1991a).

While interacting, North Americans of the same sex stand farther apart than Puerto Ricans do, but when people of opposite sex in the Anglo-Saxon culture interact, the space becomes shorter while in Latin-Americans the space tends to widen. Puerto Ricans, as well as many other Latin Americans of the same sex, touch each other a lot while Anglo North Americans hardly do so. As per Nine-Curt, a British researcher in the field of touching made observations in four different cities of the world: San Juan - Puerto Rico (P.R.), Paris – France, Gainesville – Florida and London – England. This researcher counted the following instances of touching, in a public place in a period of one hour: in Puerto Rico he counted one hundred and eighty (180) instances; in France he counted one hundred and ten (110) instances, in Florida he counted two (2) instances that he says was probably made by Cubans and in England he counted zero (0) instances. This dramatic instance of cultural reversal often creates serious problems among members of different cultures, when they interact with each other. Most Latin Americans focus their eyes on the face of the person they are talking to, while North Americans focus on the eyeballs. Focusing on the eyeballs means confrontation or seduction in most Latin American communities (Nine-Curt, 1991b).

Puerto Rico has a group-oriented culture while the United States has an individual-oriented one (polychronic vs. monochronic cultures) (Nine-Curt, 1991b). Monochronic cultures, like in the United States (U.S.), do one activity in one unit of time, which make them linear, sequential and clock-time oriented. They are also impersonal in their dealings with people. This culture has been classified as a low-context culture which is a one where they focus on objective facts such as attendance, output, words in message and clarification of task. The values of low-context groups are elitism, privacy, competition, individualism, science and materialism. Polychronic cultures, like in P.R., do many things in one unit of time, seem to order things circularly; they are repetitive in speech, noisy and very personal in their dealings with others. They are a high-context culture, when much attention is paid to the surrounding circumstances or context of an event. The values on high-context groups are egalitarianism, neighborliness, harmony consensus, art and spirituality. As per Nine-Curt (1992), these preferences on group activities are deeply embedded in the Puerto Rican culture.

What can be considered an acceptable behavior in one culture may be unacceptable in another, but no culture is better than another. Humanity is witnessing the greatest transformation since its beginnings. It looks as if new species were in the making; a new society is starting to develop in the world, in places such as the United States and Japan. It appears as if it is being already visible in P.R., where so many things are coming together, where the values of a work-oriented society (U.S.) and a family-oriented society (P.R. & Japan) are joining (Nine-Curt, 1991b).

People around the world can now work “real time”, assisting and serving from thousands of miles away, even though we may have different views of the world, various business practices

and languages (Totman, 2003). Becoming aware of cultural diversity is the beginning of a big challenge in the work place.

After the discussion of the difference between different cultural backgrounds it is important to clarify that cultural diversity is not explicitly a difference in race, ethnicity, nationality, religion or culture. Culturally diverse teams are any team that is made up of people from different backgrounds and experiences. In some organizations the projects are physically located in one place, and members meet one another on a daily basis. In other workplaces the project teams are virtual, which is when team members are not physically located in the same place. In the globalize economy, “the better a company adapts to these trends the more success they will enjoy against their competition.” (Lewis, 2006)

### **2.3 Importance of Managing Cultural Diversity in Teams**

The importance of cultural awareness, human behavior aspects and the effective management of cultural diversity has been emphasized in recent years. Cultural diversity impacts performance and may cause frequent changes in project management that can delay the completion of projects (Hossein, 1993).

Different factors such as language barriers, religion, different nationalities, race, education, organization and politics among others can interact in a culture or diverse cultures (Miller, 2000). As per Nine-Curt (1992), factors that can be present when working with diversity and can affect the execution of the teams are: team oriented vs. individual oriented, verbal and non-verbal communication, space and touching differences and time zone differences. For managers of multicultural teams, it is necessary to recognize that building trust between different

people is a complex process, but it is important to deal with performance problems (Bibikova, 2001).

The project manager's awareness of cultural differences among team members and some cultural diversity factors can become the difference between project success or project failure and for that reason informal meeting sessions should be scheduled to discuss the differences among cultures (Sohmen and Levin, 2001). Valuing the differences and learning as much as we can, will go a long way towards building a spirit of cooperation and enthusiasm (Miller, 2000).

Managers and team leaders need to learn how to interpret signs of troubled or stressed employees and develop awareness, communication skills and education (Melles, 2005). Managers should have a good understanding of the project and its goals to be able to communicate them clearly (Miller, 2000). It is clear that challenges and opportunities exist for those who lead or manage culturally diverse work teams. Some challenges are language barriers, time differences, socio-economic, political and religious diversity (Sohmen and Levin, 2001). According to Brett, Behfar and Kern (2006) the adaptation to multicultural teams consist in finding ways to work with or around the challenges. They explain that adaptation works when team members are willing to acknowledge and name their cultural differences and to assume responsibility.

An understanding of culture can help international corporations to be more effective and enhance their ability to manage adversities. The cross-cultural working experience of a project manager is important because having previously worked in the host country could be translated into better knowledge of its culture (Pheng, 2001).

As per Miller (2000) among the management techniques that can boost team performance and help managing cultural diversity in teams are the following:

- Utilizing the common bond of technical knowledge
- Applying fundamental human motivators
- Understanding team members personalities
- Understanding group identifications and affiliations
- Valuing the difference between people
- Understanding common elements
- Promoting communication
- Creating a flexible and accommodating system
- Bringing to bear the power of humor
- Avoiding stereotypes

Managers need to be familiar with experiences and technical qualifications; but also need to look for clues to group identification and cultural affiliation. Communication and understanding are of fundamental importance in effectively managing diverse teams. An open style of management increases trust, a good sense of humor can diffuse potential misunderstandings and a sincere interest by the project manager in his staff as individuals create good relations (Miller, 2000).

As per Fogel (1998) the secret of managing and operating internationally or cross-culturally is not being a stranger. Not being a stranger means learning enough of the language to show that you care, and at least enough of the local customs so as not to appear rude, crude, ignorant or abusive (Fogel, 1998). Managerial intervention to set norms early in the team's life can help start out with effective processes.

## **2.4 Cultural Diversity in Projects: Advantages & Disadvantages**



Organizations that manage project teams are very different from permanent organizations. Projects have stated goals, a beginning and an ending, and exist to complete its task. The types of people who succeed in permanent organizations are not always the type who makes it on project teams (Miller, 2000).

Both, effectiveness and efficiency can be affected by culturally diverse team members. Cross-cultural characteristics make it potentially more creative in problem solving than nationally homogeneous teams (Chevrier, 2003). Diversity increases ambiguity, complexity and confusion in group processes. The impact of national cultures on the functioning of international work teams depend on managing processes. Cross-cultural teams could not be effective without special personal qualities of their members as “openness”, “patience” and “self control”. Team members may leverage the new ideas (Chevrier, 2003).

Diversity on a project team can be an asset and can be more innovative and creative than teams in which everyone is alike. Multiple points of view can be brought to bear on any project (Miller, 2000). Members of groups that have been raised in the same culture believe certain things and expect certain types of behavior. Culturally homogeneous groups tend to speak the same language, which can be an advantage in terms of the use of the same words, expressions, meanings, and rely on the same verbal and non-verbal meanings. Also, it is easier to create cohesiveness among members of culturally homogeneous groups, but one of the dangers of homogeneous groups is that groups then become “group thinks”. A heterogeneous group, on the other hand, one with members of different cultures and backgrounds is more likely to come up with alternative solutions to a problem or situation (Miller, 2000).

After working together the project members may acquire “projectitis” or “group think”. The “projectitis” refers to a social phenomenon in which project members exhibit inappropriately

intense loyalty to the project. “Group think” is a tendency of members in highly cohesive groups to lose their critical evaluative capabilities (Gray and Larson 2003). These two tendencies may cause a conflict between team members when trying to obtain results as a group.

Even though, it is natural for members of project teams to have diverse assumptions causing dissonance in perceptions, a diverse group is also more flexible when adapting to change and enhances organizational flexibility (Sohmen and Levin, 2001).

## **2.5 Barriers when Managing a Project**

Business behavior does not transfer well from one culture to another due to their differences (Rodrigues, 2001). Some project managers have been facing serious problems leading, handling and carrying out their assignments due to cultural shocks (Miller, 2000). Cultural shocks refer to the anxiety and feelings of uncertainty or confusion felt when people have to operate within a different and unknown cultural or social environment. It grows out of the difficulties in assimilating the new culture, causing difficulty in knowing what is appropriate and what is not (Velazquez, 2009).

Culture impacts projects in many ways and while working with geographically dispersed teams, project professionals must deal with many new challenges such as language barriers, time differences, socio-economic, political and religious diversity (Sohmen, 2001). Failure to identify cultural issues and not taking action can lead to a cultural shock. It is important to use differences as a tool to challenge the assumptions about the “right” way of doing things and as a chance to learn new ways of problem solving (Bibikova, 2001).

Miscommunication is usually the main cause of cross-cultural problems in multinational projects (Laroche, 2005). Some sources for miscommunication include differences in body

language or gestures, meanings for the same word and contradictory assumptions made in the same situation or a lack of communication. Also, countries use their own exclusive standards and measurement systems that may be a conflict when working in project teams (Laroche, 2005).

Cross-cultural difference is not solely a function of geography or language. Religion, history, and economic status can create cultural differences within the same geographical area among people speaking the same language (Fogel, 1998).

Differences between individuals of different cultures can be many and complex. The cultural shock can appear when appointments are not met, when a delay of two hours is not unusual, when employees stop working twice a day for prayers and intertribal conflicts lead to inter-group confrontations on the work site. These problems result in wastage of valuable resources and delay of project completion (Hossein, 1993).

It is important to know that what is acceptable in certain parts of the world can lead to battle in others. Different cultures do not manage negotiations equally and it is necessary to know exactly what a negotiation connotes in the culture dealing (Fogel, 1998).

Cultural shocks, time differences, geographically disperse teams, language barriers, competition between team members, confrontation and miscommunication are some barriers that may be present in diverse teams and may cause delay on projects (Hossein, 1993). A broad understanding of the differences, in world view, between groups and avoiding stereotypes are essential elements to promote comprehension between team members (Miller, 2000).

## **2.6 Project Team Behaviors: Models**

Members of the project team must learn to work together to avoid conflict. Disagreements and conflicts naturally emerge within a project team during the life cycle of the

project. Project managers should recognize that conflict is as inevitable and even a desirable part of the project work. Cooperation, communication, information sharing, and patience are some behaviors that may exist when working in project teams. Behavior refers to actions or reactions usually related to the environment. The behavior can be conscious or unconscious, and voluntary or involuntary (Gray and Larson, 2003).

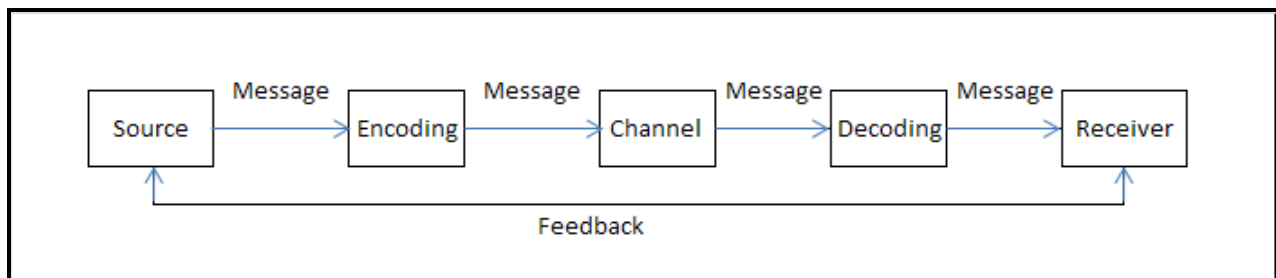
Initially, behavior problems may arise when the team members are unfamiliar or as a result of interaction in a new project. This is understood when we look at the forming, storming, norming and performing stages of teams (Henkin, 2006)

- The **forming phase** is when the team first comes together with high energy and expectation. There is limited knowledge of the detail of the team at this time.
- The **storming phase** is where questions arise regarding why and how decisions are made that affect 'me' as an individual.
- The **norming** is the phase of stabilization. Goals are established, plans are developed, roles and responsibilities are defined.
- **Performing** is the phase of application. The Plans are implemented, outputs are generated. The work gets done.

The storming phase is the phase that many project teams tend to minimize or skip entirely. The storming phase can be controversial, conflict ridden and absolutely painful. Team members will compete for position and recognition. This is where cliques form and power struggles arise. This phase is behaviorally centered. Teams that lean toward logic and analysis find the 'storming' phase the most uncomfortable and distasteful (Henkin, 2006).

Cultural diversity provides to the project team new ways of thinking and analysis. While team members must pay attention and have good communication skill in order to understand

each other, managers must be aware of how their team is performing to help them integrate and carefully manage any situation that may occur. Figure 2.1 presents a Communication Process Model (Robbins, 2003, p. 285).

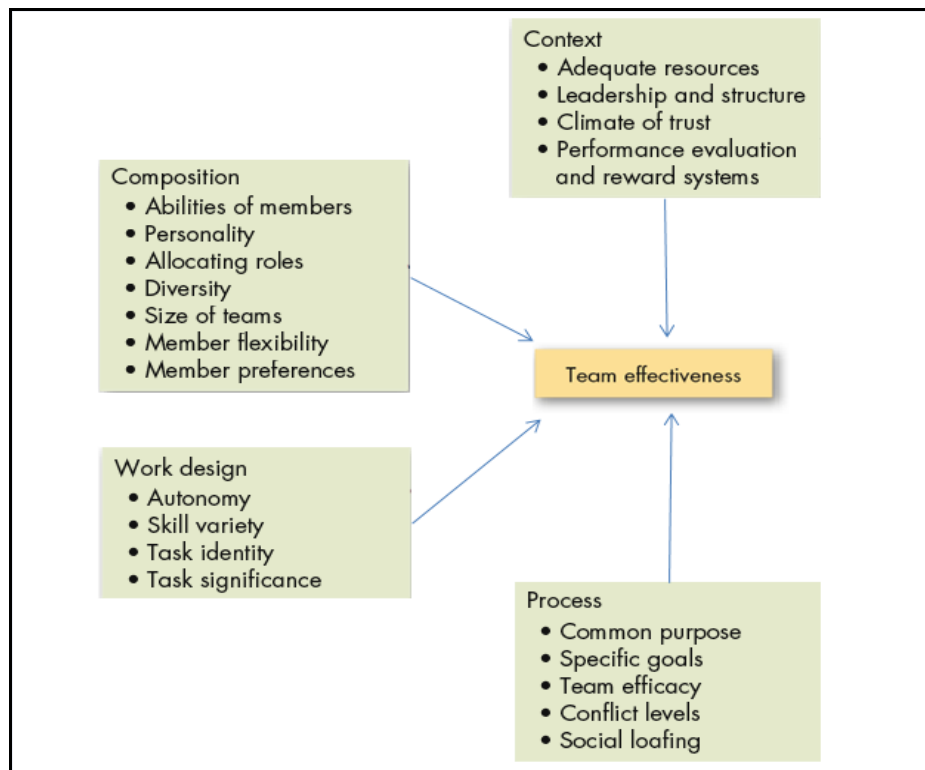


**Figure 2.1: Communication Process Model (Robbins, 2003, p. 285)**

This model shows the steps between a source and a receiver that result in transference and understanding of meaning. The process can flow vertically, from managers to team member or vice versa, and horizontal, among team members (Robbins, 2003). This communication process can be formal or informal and using different channels as: email, fax, phone or face to face communication. In projects, formal communication process includes: meetings or letters and informal communication include: face to face conversations, short letters or phone calls. The feedback is a very important part of this process in order to verify that communication has been clearly transmitted. Listen carefully and provide feedback of what it was said are positive behaviors that managers and team members should acquire. Understanding the communication process will allow project managers and team members to capture cultural diversity factors and avoid cultural barriers that may arise.

However, behavioral problems should be detected observing the interaction among team members. Project teams need to work together and take responsibility to complete the tasks.

Cultural diversity may interfere with team efficiency, at least at the beginning of projects. After certain amount of time, differences between diverse and non-diverse team performance may disappear (Robbins, 2003). Effective leadership, selection of members with correct skills and roles, adequate resources, climate of trust and appropriate reward and evaluation systems are some common characteristics in effective teams. Any conflicting situation must be resolved quickly in order to develop an effective and operational team. As stated by Robbins (2003) key components of effective teams are: context, composition, work design and process. Successful managers must learn to react to behavioral challenges in their teams. Figure 2.2 presents a Team Effectiveness Model (Robbins, 2003, p. 264).



**Figure 2.2: Team Effectiveness Model (Robbins, 2003, p. 264)**

Effective teams maintain positive behaviors toward any situations to understand cultural diversity when arise.

## 2.7 Summary

The concepts of *culture*, *diversity* and what a *project* is have been defined in this chapter in order to provide clear information when presenting the developed theme: Impact of Cultural Diversity on Project Management. This chapter identified examples of cultural diversity, the importance of managing cultural diversity in teams, advantages & disadvantages of cultural diversity, barriers when managing projects and project team behaviors.

Project teams composed by members with different cultural backgrounds can be significantly superior to culturally homogeneous teams if managed properly. A culturally diverse team is any team that is made up of people from different backgrounds and experiences. In the globalize economy, the better a company adapts to these trends the more success they will enjoy against their competition (Lewis, 2006).

Developing sensitivity to transmits communication and manage diverse teams effectively is becoming very important for the management of projects. Project managers who can effectively work with diverse teams will be on the forefront of global business.

## **CHAPTER III METHODOLOGY**

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### **3.1 Introduction**

Various specialists and authors have developed researches about the importance of culture, diversity and project management. Some studies discuss the importance of managing multicultural projects and discuss how culture influences project management and cultural influences in international projects. However, it has been difficult to find studies related to empirical evidence of how cultural diversity impacts project management. According to Henrie and Sousa-Poza (2005), culture is not a widely reported or discussed topic in project management literature. They expressed that project teams and culture are a research area where little data and information are available.

The intention of this investigation is to analyze the impact of cultural diversity in project management and conduct an exploratory study. This study was conducted using project members and leaders that have been involved in multicultural teams. This research relies in two major sources of evidence for collecting data: a questionnaire and face to face interviews. Furthermore, a model of positive behaviors is recommended to successfully manage cultural diversity in project teams which will highly benefit the organizations.

### **3.2 Questionnaire**

The survey instrument consists of a questionnaire that comprises eighteen items. Fifteen questions will allow us to analyze objectives of the research. The remaining three questions are for demographic purposes. A Likert-type scale was used in some questions in order to follow correct design.



The construction of the questionnaire was based on information obtained through the literature review focused to capture the participant’s reality when working in project teams in a cultural diverse environment. The questions tried to obtain the participants experience and opinion in the following points:

- **Cultural diversity factors** – researcher wanted to capture participants experience with cultural diversity factors when working in their teams. The literature review presented in Chapter Two includes research on cultural diversity factors. This research indicates factors may be present when working in teams and may impact the development of the project. Table 3.1 presents some of the studies and the cultural diversity factors mentioned.

**Table 3.1: Cultural Diversity Factors**

Miller (2000)	Nine-Curt (1992)
Language barrier	Different backgrounds (educational or experience)
Religion	Different nationalities
Different nationalities	Language barriers
Race	Time zone differences
Education	Space and touching differences
Organization	Team oriented vs. individual oriented
Politics	Verbal & non-verbal communication

The research question that addressed these cultural diversity factors was: Which of the following cultural diversity factors are present in your team?

- **Areas of a project most impacted by cultural diversity** – the five phases of a project presented in the questionnaire were: defining, planning, executing, monitoring and controlling or complete the project as identified by Gray and Larson (2003). Collectively, this five phases form the life cycle of the projects. Participants needed to

select the area of project most impacted by cultural diversity using a scale from one to three (one the most important).

- **Cultural barriers that impacts project performance** – the researcher wanted to capture participants’ experience with cultural barriers when working in teams. The literature review presents three authors that establish some cultural barriers that may delay the completion of projects. Table 3.2 presents the authors and the barriers they mention.

**Table 3.2: Cultural Barriers**

Sohmen and Levin (2001)	Laroche (2005)	Hossein (1993)
Language barriers Time differences Socio-economic Political Religion	Miscommunication	Cultural shocks Time differences Geographically disperse teams Language barriers Competition between team members Confrontation Miscommunication

Also, in the questionnaire fifteen closed ended questions were included in order to obtain specific answers from the participants. These questions were: whether or not cultural diversity may exist when working in teams, whether or not they think cultural diversity has an impact on project management and whether or not they believe cultural diversities initiate conflicts between team members. For more details, the questionnaire is included in the Appendix I.

A pilot group was used to validate the questionnaires. The pilot participants were a sample group selected from the target population and questionnaires were forwarded randomly. After a deadline, questionnaires were collected and responses were processed. Based on their feedback, some adjustments were made to the instrument.

The Graduate Committee and the Committee of Protection of Human Research Subjects (CPSHI/IRB) reviewed the questionnaire prior to its implementation. The approval letter is included in Appendix III.

### **3.3 Face to face interviews**

Project managers in the companies were interviewed using face to face interviews. The interviews were guided using a list of questions aimed at collecting specific information in each company. The main purpose of these interviews was to understand and compare the practice of multicultural project team within and across companies. The list of questions is included in Appendix II.

- ✓ In the electronic company, two (2) project managers and one (1) project leader were interviewed. Managers interviewed have more than twenty (20) years of experience in the areas of management, project management and multi-cultural teams and the project leader interviewed has 12 years of experience working in projects and multi-cultural teams.
- ✓ In the aerospace company, one (1) project manager and two (2) project leaders were interviewed. The manager interviewed has eighteen (18) years of experience in the areas of management, project management and multi-cultural teams and the project leaders interviewed has eight (8) years and ten (10) years of experience working in projects and multi-cultural teams.

### **3.4 The Sample**

The sample for this research was selected from the Electronic and Aerospace Industry. The companies selected operate in a multi-national environment integrating diversity and involving project management. As well, they incorporate team members from different departments, educational and social backgrounds and nationalities around the world into the planning, development and completion of projects. The target sample was composed of 530 project members from the selected companies.

#### **3.4.1 Sample Selection**

The Puerto Rico Industrial Development Company (PRIDCO), the agency in charge of assisting companies to set up operations on the island, mention in their website that many of the world's leading innovative corporations are investing in Puerto Rico due to: Talent + Citizenship + Location + Profit = A unique entrepreneurial environment. Also, mentioned that Puerto Rico's bilingual and available workforce is well prepared to meet the needs of companies operating on the Island as well as those considering expanding or establishing facilities. Puerto Rico's sound educational foundation provides a highly trained, young, bilingual workforce ready to meet tomorrow's technological challenges.

According to PRIDCO's website the Electronic industry is the second largest manufacturing group in Puerto Rico and its success is significantly due to the Island's high tech base and favorable business climate. In fact, 68% of the electronics companies in Puerto Rico are subsidiaries of major U.S.A. companies. On the other hand the Aerospace Industry is the most recent sector located in Puerto Rico, but current organizations are part of the many worlds' leading innovative corporations.

Both industries were selected due to their reputation, years of experience and physical proximity. Also, selected companies operate in a multi-national environment integrating diversity and involving project management.

To comply with the confidentiality, the names are kept anonymous and companies will be named as: A and B to aerospace companies and C to electronic company. Approval letters were submitted to the companies explaining the purpose of the study. The results were:

- ✓ In the Aerospace Industry, company A refused to participate in the research due to their company policy and strategy. Company B accepted to be part of the study. This company constitutes a population of 500 participants.
- ✓ In the Electronic Industry, the company selected accepted to be part of the study. This company constitutes a population of 30 participants.

### **3.4.2 Sample Size**

The formula used to determine the sample size was as follows:

$$n = Z^2_{\alpha/2} (PQ) / E^2$$

**Where:**

$n$  = the sample size

$Z$  = standard error associated with the chosen level of confidence

$P$  = population proportion

$Q$  = (1- $P$ )

$E$  = error of estimation

The level of confidence used in this study is 95%. A ninety-five (95) percent level of confidence allows to state that the researcher is 95% confident that the actual population

percentage falls in the range  $\pm e$  percent around the percentage found in the sample. The  $z$  value associated with 95% of confidence is 1.96. The actual value of  $P$  is not known prior to the study, if  $P$  is unknown, researchers use .5 as an estimated of  $P$  and then  $q=1-.5= .5$ . The acceptable error establishes the desired level of accuracy, and explains how precise our sample estimate (%) is in relation to the population. For the purpose of this study, the selected error of estimation is 10%.

The sample size for this study is **ninety-six (96)** individuals calculated based on  $n= 1.96^2(.5 \times .5) / (.10)^2 = 96$ . According to Burns & Bush (1999), a small population is one in which the sample exceeds five percent (5%) of the finite population size. After knowing that population (potential participants) is five hundred participants (500) on the Aerospace Industry and thirty (30) participants on the Electronic Industry, the sample represents 18.1% of the participant's population. This was calculated as follows: 96 sample size / 530 population = 18.11%. This sample exceeds the 5% rule.

To ensure that the sampling method is appropriate, the questionnaires were randomly conducted in the companies. A random number was used to select the participants that filled out the questionnaire.

- ✓ On the Aerospace Industry – from one hundred (100) questionnaires a total of ninety-five (95) answered questionnaires were received. The response rate was 95% percentage.
- ✓ On the Electronic Industry - from thirty (30) questionnaires a total of five (5) answered questionnaires were received. The response rate was 17% percentage.

We can conclude that an appropriate sample size was reach. Even though the sample size in the electronic industry was not significantly large to be statistically significant the results were

included in the analysis for comparison purpose. The reason of the electronic company for their small response rate was the lack of time due to their job.

### **3.5 Data Analysis**

The Statistical Package for Social Science (SPSS), version 17.0 and Minitab statistical program release 12, were used to analyze the data. In addition, Microsoft's Excel was used to develop tables and graphs. The statistical procedure includes: frequencies analysis and confidence intervals using a 95% of confidence. After analyzing the data, a model of positive behavior is suggested.

The suggested model is an adaptation of the Communication Process Model and the Team Effectiveness Model. In order to develop the model of positive behaviors, the researcher used the information obtained throughout the study. The intention is to provide a guide to project managers and team members when working in the development of projects. Specific results information will be discussed in Chapter IV.

## CHAPTER IV RESULTS

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### 4.1 Introduction

This chapter includes three main areas: *Face to face Interviews*, *Questionnaires and a Model of Positive Behaviors*. The face to face interviews section explores how each company manages projects through some of their leaders and how they think cultural diversity impacts projects development. The questionnaire section presents demographic data, analyzes the research objectives and confidence intervals are use to analyze and conclude results. The Model of Positive Behaviors suggested is intended to help managers and team members to achieve expected outcomes.

### 4.2 Face to Face Interviews Results

As part of the exploratory study in the Electronic and Aerospace Industries, the face to face interviews were intended to evaluate managers' attitude toward the involvement of cultural diversity when managing project teams. Using the interview responses, in both companies, the researcher presents how the projects are manage in the company, how teams are put together and if the managers and leaders believe there are any challenges or think cultural diversity impacts the management of projects.

#### 4.2.1 Electronic Company Case

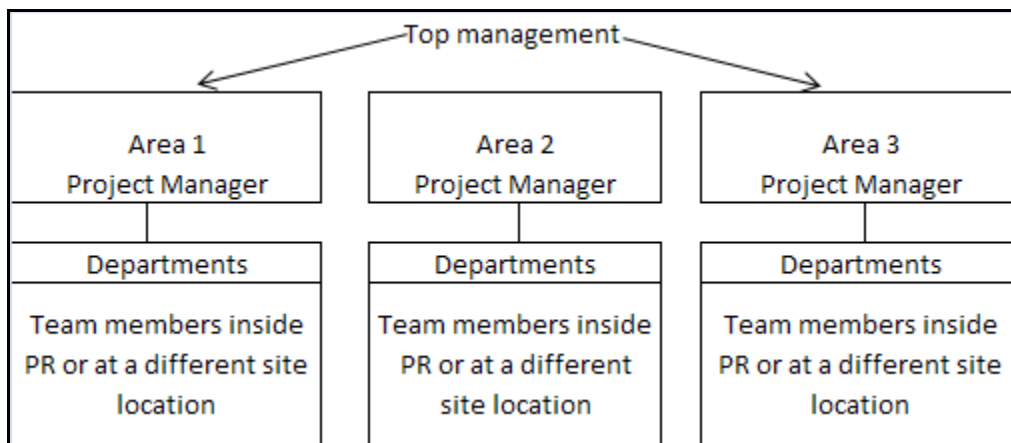
The Electronic Technology Company used for this research focuses on Manufacture and Service of Electronic and Software Applications. The interviews were conducted individually with two project managers and one project leader. These were selected based on their years of



experience and their involvement with multicultural project teams. The project managers are the top authority of the project and can be managing more than one project team at the same time. The leader is assigned by the project manager to maintain direct communication with the project team.

The types of projects managed in this company are for government or commercial entities. Managers expressed that users could be external or internal. The internal clients and users are the production line in order to complete a product or the different company sites around the world. The external clients and users are every entity outside the company including government or any commercial company. The projects duration can be *short term*, typically three month or less, or *long term* usually one year or more.

The management structure is as follows: the company's top management approves the different projects to be developed and transfer them to the different company areas and their respective project managers. These managers have the task to study the project needs and assign them to different members inside the company or at a different site location. Figure 4.1 shows the structure of the flow chart of the projects in the Electronic Company.



**Figure 4.1: Flow Chart of the Projects in the Electronic Company.**

The team members are selected depending of the scope and requirements of the projects. Technical knowledge and skills, previous experience, teamwork player, organized and good communicators are some of the characteristics identified by managers as most important for the development of project teams. Team members could be located in the same department, among different departments or different sites around the world. Sites locations include: Puerto Rico, Germany, Scotia, India, Singapore, United States and different locations in Latin America. Spanish and English are both used, but the main language used is English.

After all members are assigned, the managers select the team leader who will be the focal point of the project. The team leader needs to be aware of the schedule and has the responsibility to make the team members aware of it. Time and money are essential in order to complete the tasks.

The communication methods used are: e-mail, phone, net meeting and virtual rooms (type of video conference). From all of these methods the most commonly used and preferred is the e-mail. Both project managers interviewed expressed that it is important to maintain documentation of the communication between members. Also they mentioned that some meetings are schedule at the beginning or ending of important milestones throughout the development of projects. Managers may be present during these meetings. The team needs to maintain a record of the discussion in order to document possible changes. The company has specific guidelines and procedures already established, but also use the PMI (Project Management Institute) guidelines for the development of projects. All members need to follow these guidelines.

The interviewed managers and leader were asked if they believe there are any challenges when managing the projects and if they believe cultural diversity has an impact in the

development of projects. Specific answers were provided and in order to maintain the confidentiality of the participants, the answers will be mentioned as M-1, M-2 and L (M=Manager, L=Leader).

a. Are there any challenges when managing the project?

- M-1: “Yes, time, money and availability of resources are a challenge”.
- M-2: “The meeting time is a challenge, depends on the culture, meetings take more time or go directly to the point. Latin Americans take more time in the meetings, they are not too formal, and Europeans are faster and go directly to the point”.
- L: “It is a challenge to deal with different points of view and attain consensus”.

b. Do you believe cultural diversity has an impact in the development of projects?

- M-1: “Helps more in a long term to look at new and potential ideas and pressures in a short term. New ideas and new methods are discovered, that is good”.
- M-2: “Impacts positively, helps to understand different cultures adding value to the project. Managers need to establish rules and norms. If it turns into a problem, the team member involved needs to be removed. The cultural diversity is good because promotes different points of view”.
- L: “Impacts positively, each diversity brings new ways. If everyone thinks alike the project does not work. The most important aspect is the interaction between members”.

The comments of the three participants suggest that it is a challenge to manage diverse project teams and all believe, in one way or another, that cultural diversity impacts the development of projects. Technical knowledge and skills, previous experience, team players, structured workers and good communicators were discussed as to being very important characteristics for the development of projects.

#### **4.2.2 Aerospace Company Case**

The Aerospace Company used for this research focuses on delivering Top Engineering Solutions at low cost. The types of projects managed in this company are mainly government funded, but are also for commercial entities. The clients and users are external.

The company is divided by departments. The interviews were conducted individually with one project supervisor and two project leaders. These were selected based on their years of experience and their involvement with multicultural project teams. In this company the role of the project supervisor is to be the top authority of the project and can be managing more than one project team at the same time. The leader is assigned by the project supervisor to maintain direct communication with the project team.

Since the selected company is a service company, the typical business structure is as follows: each client submits a request with a statement of work which contains deliverables, start and end dates. The supervisor evaluates the statement of work and communicate with the clients the cost and availability of resources. If the client agrees, a meeting is set to discuss the ground rules and the deliverables are explained in detail with the members who will be performing the project. The project's duration can be *short term* or *long term* usually one year or more.

The team members are selected based on the skills needed to develop the tasks and must be able to perform the tasks during the established period. As identified by the interviewed supervisor and leaders, the most important characteristics for the development of project teams are: technical knowledge, proactive attitude, good communication skills and teamwork players.

The project leaders are assigned to integrate the team members. They need to be aware of the schedule and should have the skills and knowledge to audit the tasks. They have responsibility to work with the team members in order to meet the expected deliverables. Each accomplished milestone is revised by the project leader and approved by the supervisor.

Members could be located in the same department or among different departments and most of the clients are located around United States and India. The communication methods used are: e-mail, phone and net meeting. From all of these methods the most commonly use is the e-mail in order to document the communication between team members and the client. Different meetings are schedule throughout the development of the projects. Project leaders must maintain good communication with team members and clients.

Interviewees were asked if they believe there are any challenges when managing the projects and if they believe cultural diversity has an impact in the development of projects. Specific answers were provided and in order to maintain their confidentiality, the responses will be mentioned as M, L-1 and L-2 (M=Manager, L=Leader).

a. Are there any challenges when managing the project?

- M: “Yes, Client restrictions as time and budget available”.
- L-1: “The challenge is to complete projects under budget, on time and with good quality. Sometimes, the language and the communication is a challenge”.

- L-2: “Time is money and the integration of the team members may take time”.
- b. Do you believe cultural diversity has an impact in the development of projects?
- M: “Yes, it has an impact, good communication is needed. Without a good communication the completion of the projects could be affected.
  - L-1: “Language and verbal & written communication may impact the development of the projects”.
  - L-2: “Yes, the impact is positive due to the new ideas. Team members just need to maintain a good communication and try to understand the different point of views”.

The comments of the three participants suggest that as well as in the electronic company it is a challenge to manage diverse project teams. Furthermore, interviewed supervisor and leaders believe that cultural diversity impacts the management of projects and good communication skills are require for the management of projects.

#### **4.2.3 Summary of Face to Face Interviews**

The face to face interviews indicate that both companies are aware of cultural diversity and that it is an impact in project management. As part of the cultural diversity both companies integrate members from different departments and nationalities into the management of projects. Both companies use the e-mail as the main communication method in order to maintain documentation. Also, for both companies technical knowledge is one of the most important characteristics for the development of project teams. Table 4.1 shows a comparison across companies.

**Table 4.1: Comparison across Companies**

Comparison Across Companies		
Elements	Electronic Company	Aerospace Company
Company Type	Manufacturing and Service company Government & Commercial Projects Users & Clients - Internal and external Short and long term Projects	Service company Government & Commercial Projects Users & Clients - externals Short and long term Projects
Team Characteristics	Technical knowledge and skills, previous experience, teamwork player, organized and good communicators	Technical knowledge, proactive attitude, good communication skills and teamwork players
Team Formation	Top management select the projects and assign them to project managers Project managers assign team leader and members	Clients communicate their interests to the project supervisor Project supervisor assigns team leader and members
Team Composition (locations)	Puerto Rico (same department or among departments), Germany, Scotia, India, Singapore, United States and different locations in Latin America.	Puerto Rico (same department or among departments), United States and India
Communication	e-mail (most used), phone, net meeting and virtual rooms (type of video conference)	e-mail (most used), phone and net meeting

### 4.3 Questionnaires Results

The main instrument to gather primary information for this thesis was a questionnaire with a total of 18 questions. The questionnaire was administered among members of two industries: Electronic and Aerospace. Fifteen questions will allow us to analyze objectives of the research. The remaining three questions are for demographic purposes.

Previous to the discussion of the results, it is important to mention that from a total of 100 participants, eighty one percent (81%) of the participants belong to projects in which not all team members are present in the same physical location.

### 4.3.1 Demographics Data

This section presents a demographic profile of participants. The three variables included were gender, age and experience working in project teams or multicultural teams.

Table 4.2 presents the proportion of participants by gender. From a total of one hundred participants, seventy two percent (72%) were male and twenty eight percent (28%) were female. It is important to mention that the industries of this study represent a large amount of engineers and in Puerto Rico is typical to have more male representation than female as per the results in this study. The demographic data of the gender of the participants is representative of the sample.

**Table 4.2: Gender of Participants**

Gender	
Male	72%
Female	28%

Interval scales were used to measure the employees' age. Table 4.3 presents the intervals and the percentage of the participants in each interval. The largest percentage of the participants was between 25 to 39 years. The demographic data demonstrate that the participants of this study are relatively young. This is probably due because both industries are relatively new adaptations in Puerto Rico and companies are recruiting employees recently graduated.

**Table 4.3: Age of Participants**

Age	
24 years or less	4%
25 to 39 years	92%
40 to 50 years	4%
51 years or more	0%



To measure participant experience working in project teams or multicultural teams' interval scales were used. Table 4.4 presents the intervals and the percentage of the participants in each interval. The largest percentage of participants had experience: 5 or more times.

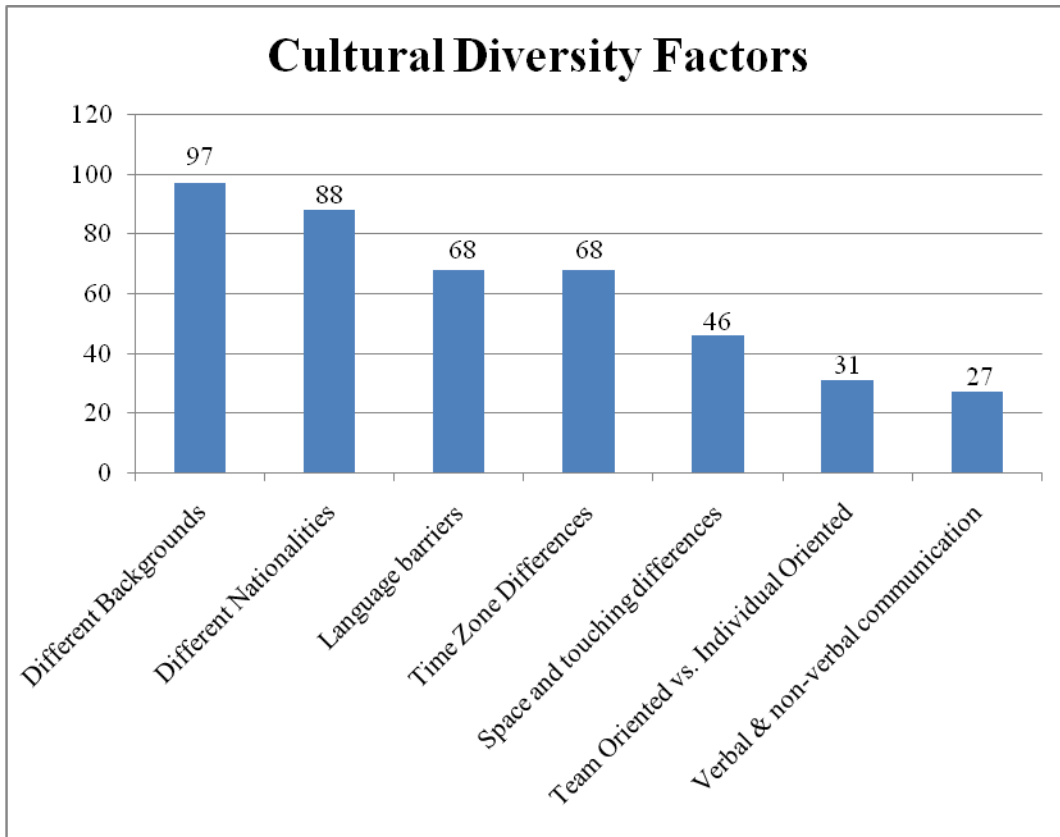
**Table 4.4: Experience working in project teams or multicultural teams**

Experience working in project teams or multicultural teams	
Once	0%
2 to 4 times	2%
5 or more times	98%

#### **4.3.2 Cultural Diversity Factors present in Project Teams.**

The questionnaire intended to identify if the team members recognize the cultural diversity factors, previously discussed in the literature review, as present in their project teams. Figure 4.2 shows those factors and the frequency of the responses using a bar chart.

Even though all factors were selected the most frequent selections were: different backgrounds (97) and different nationalities (88). The results support the researcher Lewis (2006) when he expressed that a culturally diverse team is any team made up of people from different backgrounds and experiences.



**Figure 4.2: Frequency of cultural diversity factors.**

As part of the different backgrounds, the participants mentioned having academic or professional experiences in: Business, Computer Science, Mechanical Engineering, Industrial Engineering, Electrical Engineering, Computer Engineering, Mathematics and Science. Some of the participants had more than one area of study or have graduate studies.

As stated previously, eighty one percent (81%) of the participants belong to projects in which not all team members are present in the same physical location. Most of the participants indicated that there is more than one nationality involved in their teams. Among these mentioned are: Puerto Rican, Mexican, North American, Indian, European, South American and Canadian. The nationalities present in the Electronic Industry are: Puerto Rican, Mexican, North American,

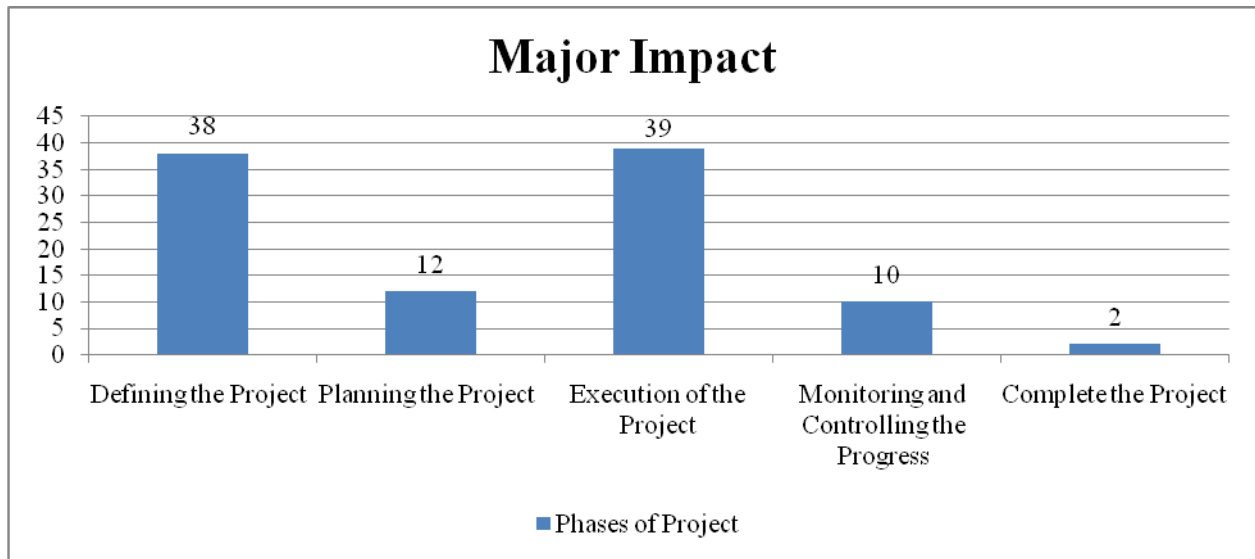
South American and European, while the nationalities present in the Aerospace Industry are: Puerto Rican, North American, Indian and European.

The five Point Likert-type scale, Very Good, Good, Barely Acceptable, Poor or Very Poor, was used to measure the participants' attitude to work with people from different nationalities and backgrounds. Sixty one percent (61%) of the participants agreed that it is *very good*, thirty eight percent (38%) agreed that it is *good* and one percent (1%) selected that it is *barely acceptable* working with people from different nationalities and backgrounds. None of the participants agreed to be poor or very poor.

#### **4.3.3 Phases of the project management that may be the most impacted by cultural diversity.**

In the study, the five major phases of the project management were presented as: Defining the Project, Planning the Project, Executing the Project, Monitoring and Controlling the Progress, and Complete the Project. Collectively, this five phases form the life cycle of the projects as identified by Gray and Larson (2003).

The largest percent of the participants agreed that the major impact of cultural diversity is present mostly when *executing the project* with 39 recurrences and *defining the project* with 38 recurrences. Details are presented in Figure 4.3.



**Figure 4.3: Major Impact of Cultural Diversity in the five stage of PM**

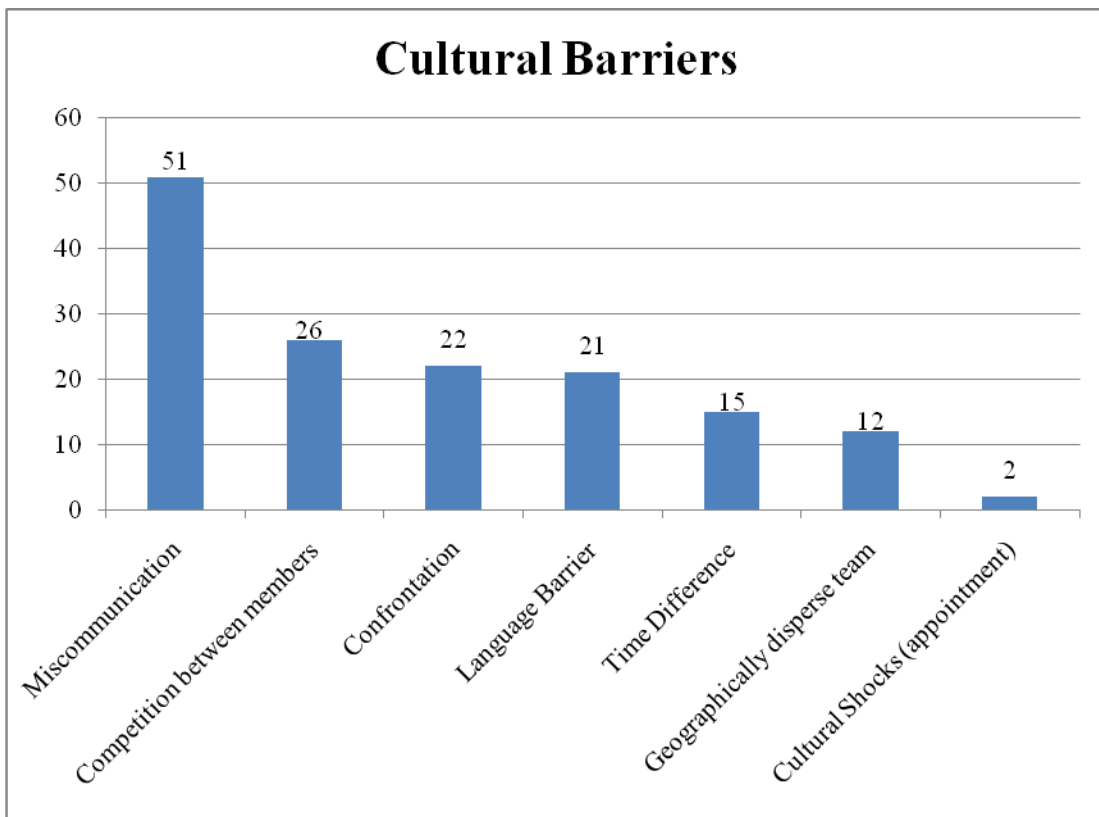
This result supports the findings of Vonsild (1996) which suggest that start-up phase of projects is the time for looking into the possible differences and their consequences. She expressed that typical activities needed are: understand each other’s cultural perspectives, define project goals and schedule and define the structure taking cultural differences into account. Furthermore, Vonsild mentioned that during project implementation or execution, it is very important to coordinate information exchange, understand the parties involved and deal with conflicts that might arise.

#### **4.3.4 Cultural barriers that impacts project performance**

The barriers of cultural diversity discussed previously in the literature review included cultural shocks, time differences, geographically disperse teams, language barriers, competition between team members, confrontation and miscommunication are some barriers that may be present in diverse teams and may cause delay on projects. The questionnaire intends to determine

whether the participants recognize those as barriers that in fact may delay the completion of a project.

After the analysis, the barriers perceived by the participants as the most probable to cause impact in the performance of projects are: miscommunication with fifty one (51) instances, followed by competition between members with twenty six (26), confrontation with twenty two (22), and language barrier with twenty one (21). Figure 4.4 shows the frequency of the responses using a Pareto diagram.



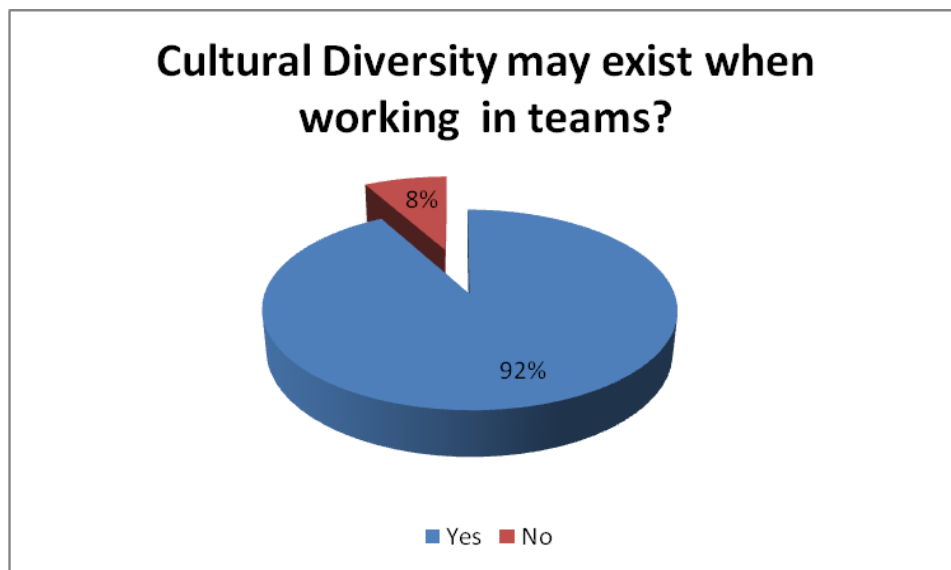
**Figure 4.4: Frequencies of Cultural Barriers.**

### 4.3.5 Specific Results.

This section presents three major issues. These are: if cultural diversity may exist when working in teams, if cultural diversity has an impact in the development of projects and if cultural diversity can initiate conflicts between team members. In order to statistically analyze the results of these three issues, a 95% of confidence level was used to construct confidence intervals. In statistics, a confidence interval is a particular kind of estimate a population parameter and indicates the reliability of an estimate.

#### 4.3.5.1 Cultural diversity may exist when working in teams?

After asked participants if they believe cultural diversity may exist when working in teams, ninety two percent (92%) of the participants answered affirmatively. Only eight percent (8%) of the participants think that cultural diversity may not exist in project teams in order to avoid different points of view. Figure 4.5 shows this percentage.



**Figure 4.5: Cultural diversity may exit when working in teams?**

With a 95% level of confidence, we can conclude that the percentage of project team members that consider that cultural diversity may exist when working in teams is between 87% and 97%. Table 4.5 shows the confidence interval.

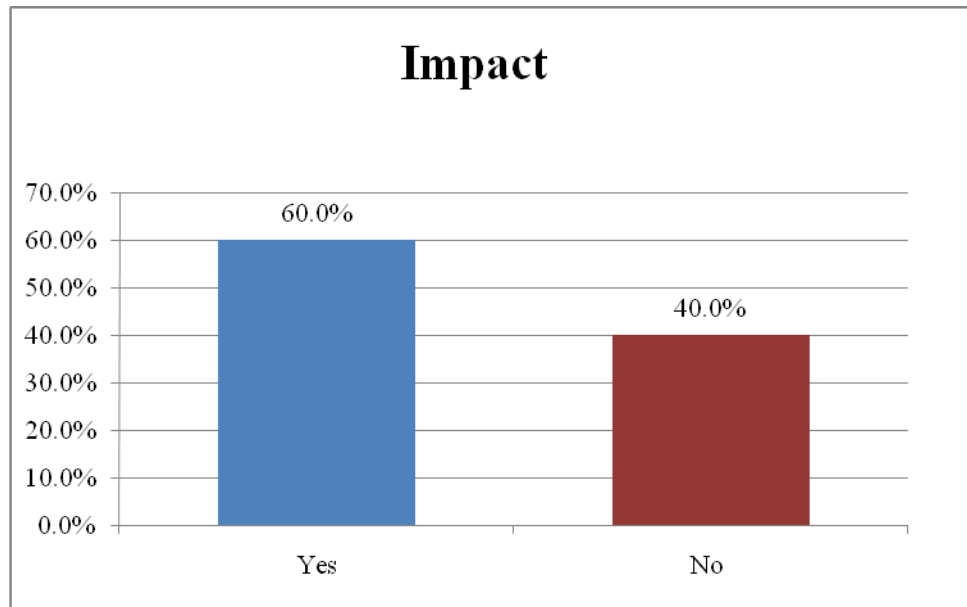
**Table 4.5: Confidence Interval – Cultural diversity may exist when working in teams?**

Variable	N	Mean	StDev	SE Mean	95.0 % CI
CDmExist	100	0.92	0.2727	0.0273	(0.8659, 0.9741)

The major contributions attributed to cultural diversity by the participants were: new ideas, followed by the contribution of different points of view. Ninety five percent (95%) of the participants strongly *agreed* or *agree* that cultural diversity promotes different points of view and new ideas that help team members on the successful completion of projects.

#### **4.3.5.2 Does cultural diversity have an impact in the development of projects?**

Some researchers indicate that cultural diversity may have an impact in the development of projects. This impact may be positive or negative depending on cultural diversity factors involved as: educational and experience background, different nationalities and language barriers. When asked if they believe cultural diversity has an impact on project management, sixty percent (60%) agreed and forty percent (40%) disagreed. Figure 4.6 presents the participant responses in percentage.



**Figure 4.6: Does cultural diversity have an impact in the development of projects?**

With a 95% level of confidence, we can conclude that the percentage of project team members that consider that cultural diversity has an impact in the development of projects is between 50% and 70%. Table 4.6 shows the confidence interval.

**Table 4.6: Confidence Interval – Does cultural diversity have an impact in the development of projects?**

Variable	N	Mean	StDev	SE Mean	95.0 % CI
CDImpact	100	0.60	0.4924	0.049	(0.5028, 0.6972)

New ideas or different points of view can affect negatively or positively in the development of projects. Team members can attain consensus knowing how to manage cultural diversity. According to Gray and Larson (2003), some behaviors that minimize the impact of cultural diversity when working in teams are: cooperation, empathy, communication, avoiding



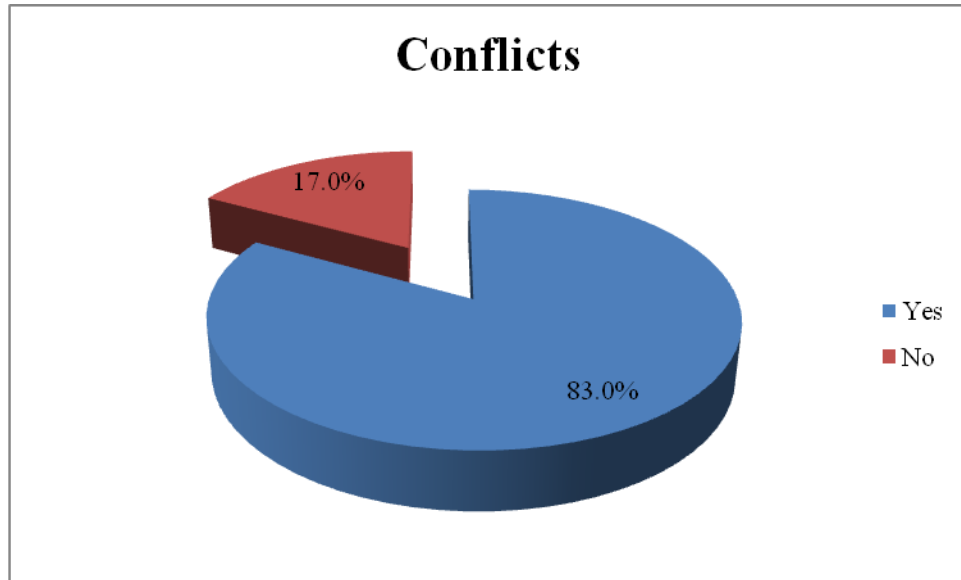
stereotypes, openness – patience and self control, and understanding the cultural diversity. These behaviors can provide the ability to achieve the desired impact level. After analyzing the data, these behaviors were selected as part of the ways to minimize the impact, but using a scale from one to seven, the top three behaviors were: *communication* in the first (1<sup>st</sup>) position, followed by *openness, patience and self control*, and *cooperation*.

Furthermore, a scale high impact, moderate impact, low impact and no impact was used to measure the level of impact that cultural diversity has in the development of projects. From the total of one hundred (100) participants a total of eighty five percent (85%) agreed that cultural diversity has high impact or moderate impact in the development of projects.

These results support the findings of Victor Sohmen and Ginger Levin (2001). They stated that culture impacts projects in many ways and while working with geographically dispersed teams, project professionals must deal with many new challenges such as language barriers and time differences.

#### **4.3.5.3 Can cultural diversity initiate conflicts between team members?**

Project managers tend to select their team members due to their background, performance, abilities, skills or availability among others. People who are not used to work together could incite positive or negative attitude toward the development of projects. When asked if they believe cultural diversities can initiate conflicts between team members, eighty three percent (83%) of the participants agreed and only seventeen percent (17%) of the participants think that cultural diversity does not initiate conflicts between team members. Figure 4.7 presents the percentages.



**Figure 4.7: Can cultural diversity initiate conflicts between team members?**

With a 95% of confidence, we can conclude that the percentage of project team members that consider that cultural diversity can initiate conflicts between team members is between 76% and 90%. Table 4.7 below shows the confidence interval.

**Table 4.7: Confidence Interval – Can cultural diversities initiate conflicts between team members?**

Variable	N	Mean	StDev	SE Mean	95.0 % CI
Conflict	100	0.83	0.3775	0.0378	( 0.7551, 0.9049)

#### **4.3.6 Summary of Questionnaire Results.**

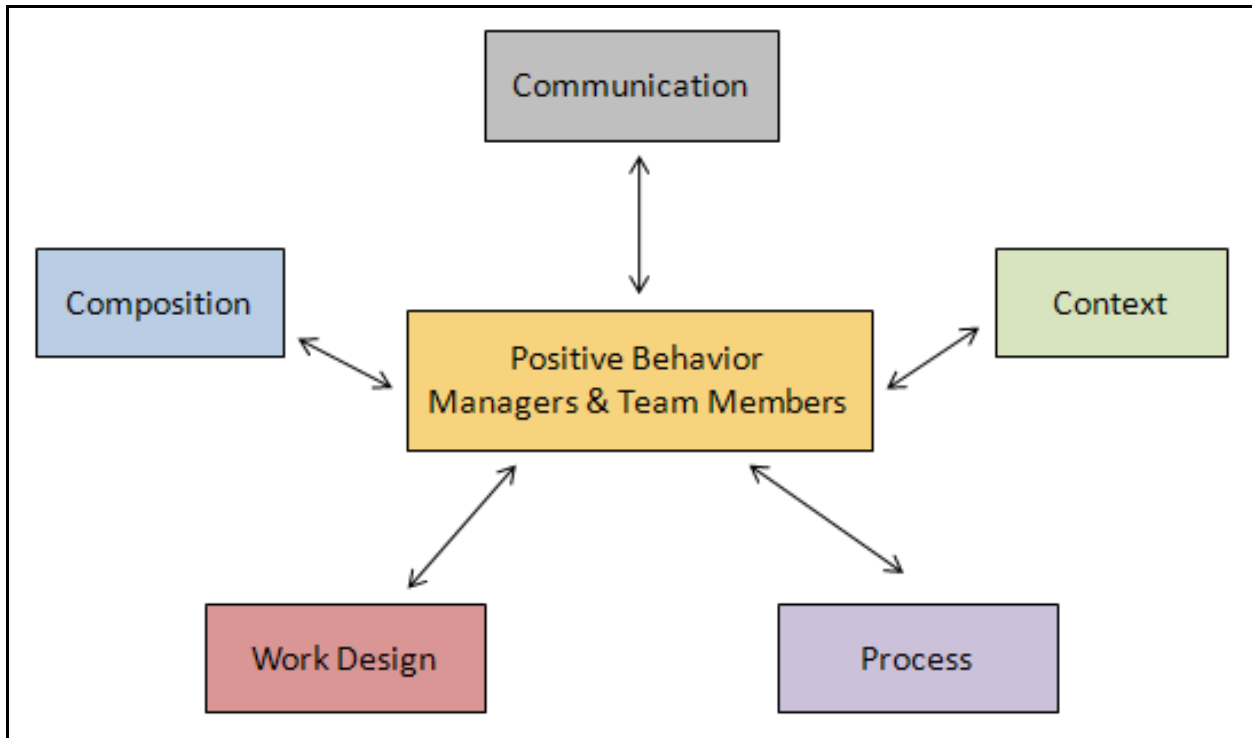
This chapter presented the participants' profile and results obtained from the data. During this discussion the researcher provided demographic data, results in response to the research objectives and confidence intervals used to evaluate and conclude.

#### **4.4 Model of Positive Behaviors.**

In order to develop the model the researcher used the information and results obtained throughout the study and the models of Communication Process and the Team Effectiveness both by Robbins (2003). Both models were selected due to their similarities to the study results. As part of the results in the face to face interviews it was found that in order to reach a successful project it is necessary to build an effective team. Managers mentioned that in order to maintain effective team good behaviors are need since the beginning to the end of the project team execution. Also, managers clearly state that good communication skill is essential among the team members and between team members and the manager. A team without a good communication process will not be able to meet the expected outcomes. Good communication skills and an effective team process are necessary to achieve cohesiveness, deal with cultural diversity and detect cultural barriers that may impact the management of projects.

As mentioned throughout the study results, cultural diversity is present when managing project teams. For that reason, managers and team members must adapt to transform cultural diversity into project success. As expressed in the face to face interviews, working with a diverse team is a challenge and good communication skills are very important for the development of projects. Cooperation, communication, information sharing, and patience are some behaviors that may exist when working in project teams (Gray and Larson 2003).

Maintaining correct behavior throughout the project execution is a key instrument to obtain desirable results. The model of positive behaviors intends to provide a guide to manage projects successfully. In order to manage cultural diversity in project teams it is necessary that team members and managers adapt positive attitudes and behaviors. The suggested Model of Positive Behaviors is presented in Figure 4.8.



Adapted from Communication and the Team Effectiveness Models (Robbins, 2003)

**Figure 4.8: Model of Positive Behaviors**

The center of this model is the *Positive Behavior*. All components are connected to the center. Project managers should be aware of behaviors that team members express and chase throughout the project team execution. This will help them to understand cultural diversity in their teams. Possible responses to certain behaviors may be address in order to minimize conflicts. The intention is to maintain positive behaviors during the performance of each element and throughout the project execution.

*Positive Behaviors* is the principal element of this model. Project managers and team members need to be aware of positive behaviors to obtain desirable results. As part of the model a list of positive behaviors is presented for project managers and team members.

### Project Managers:

In order to successfully lead projects, increase team performance and achieve expected outcomes, managers should:

- Use common bond of technical knowledge – past experiences or point of views in common
- Apply fundamental human motivators - provide support and motivation to obtain high performance.
- Understand team member's personalities – to integrate the team.
- Tolerate, be open negotiators and accept new ideas – provide all members the opportunity to participate.
- Understand group identifications and affiliations.
- Value the difference between people – difference brings new ideas and experiences.
- Promote communication – maintain interaction and provide feedback.
- Avoid stereotype – do not assume certain attitude due to visible characteristics.

### Team Members:

As part of behaviors to be successful, increase performance and achieve expected outcomes, team members:

- Must avoid stereotypes - do not assume certain attitude due to visible characteristics.
- Should cooperate.
- Must be open, patience & self control – open to new ideas, patience to understand the diversity and self control to maintain discipline.
- Must be empathic – understand other members' situations, feelings and motivations.

- Should be open communicators – express feelings to maintain good environment among the teams.
- Must work as a team player – help each other to meet the team expectations.

The components connected to the center: Positive behaviors were selected from the two models: the Communication Process and the Team Effectiveness both by Robbins (2003). The first component is communication that was selected considering the results of the study and using as a guideline the Communication Process Model by Robbins (2003). The other four components are: context, composition, work design and process. These components are part of the Team Effectiveness Model by Robbins (2003) and were selected because in order to get project results an effective team is need. Adding good behaviors to all this components will allow team members and managers the ability to work together, understand cultural diversity and get desirable results. Below, all components are presented in more detail.

### **Communication:**

- Good Communication Process – including feedback, to verify message was clearly transmitted. This allows team members to reduce ambiguity, avoid conflicts, understand cultural diversity, and improve performance.
- Vertical and Horizontal - communication should flow from project managers to team members or vice versa and team members must be able to communicate any idea, interest, suggestions or misunderstanding among them.
- Formal and Informal Communication - Formal communication methods in project teams include: the kick-off meeting, project status & review meetings and closure meeting.

Informal communications commonly used are: e-mail, phone conversations and daily face to face interaction.

**Context:**

- Adequate Resources – must be adequate staffing and team must receive the necessary tools to complete the tasks.
- Effective Leadership and Structure – good integration of individual skills requires team leadership. As part of the structure all members need to contribute equally in sharing the workload.
- Climate of Trust – members of effective teams trust each other and in their leaders. Good climate and trust facilitates cooperation.
- Performance and Rewards Systems – evaluations and rewards must reflect team performance and contribution.

**Composition:**

- Abilities of Members - Need technical expertise, problem-solving, decision-making, and good interpersonal skills.
- Personality of Members – team members must be conscientiousness and openness to experience. Conscientiousness describes someone who is responsible, dependable, persistent and organized. Openness to experience characterizes someone in terms of imaginativeness, artistic, sensitivity and intellectualism.
- Allocating Roles and Diversity – teams have different needs and people should be selected for a team to ensure that there is diversity and that all various roles are filled.

- Size of Team - the most effective teams have fewer than 10 members.
- Member flexibility – teams made up of flexible individuals will allow complete each other tasks and should lead to higher team performance.
- Member preferences – when selecting team members, individuals’ preferences should be considered as well as abilities, personalities and skills. High performing teams are composed of people who prefer working as part of a group.

### **Work Design**

- Effective teams need to work together and take collective responsibilities to complete significant tasks. The work design includes:
  - Freedom and Autonomy - ability to work independently.
  - Opportunity to use different skill and talent.
  - The ability to complete a whole and identifiable task or product.
  - Work on a task or project that has a substantial impact on others.

### **Process:**

- Commitment to a Common Purpose - create a common purpose that provides direction.
- Have flexibility: willing to adjust plan if necessary.
- Establishment of Specific Team Goals - must be specific, measurable, realistic, and challenging.
- Team Efficacy - team believes in its ability to succeed.
- Mental Models - have an accurate and common mental map of how the work gets done.
- A Managed Level of Conflict - task conflicts are helpful; interpersonal conflicts are not



Effective teams will be those who can communicate correctly, maintain positive behaviors toward any situations and can understand cultural diversity when arise. Understanding the communication process will allow project managers and team members to capture cultural diversity factors and avoid cultural barriers that may arise.

#### **4.5 Summary**

Project managers in the face to face interviews and team members in the survey responses expressed that understanding cultural diversity factors, try to avoid cultural barriers and good communication skills are key in order to avoid conflicts. Project managers and team members must understand cultural diversity and be aware of cultural barriers that may arise. Positive behaviors toward project team implementation and execution will allow successful completion of projects. The Model of Positive Behaviors intends to provide a guide to project managers and team members when working in their teams. This model suggests project managers and team members to maintain positive behaviors, good communication skills and use techniques for team effectiveness.

## CHAPTER V CONCLUSIONS AND RECOMMENDATIONS

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### 5.1 Conclusions and Recommendations

The main objective of this research was to analyze the impact of cultural diversity in project management and conduct an exploratory study in companies working under this modality. The companies selected operate in multi-national environments integrating diversity and involving project management. The sources of evidence for the collection of data were: face to face interviews and a questionnaire.

The face to face interviews with managers and leaders indicated that both companies are aware of cultural diversity and that it has an impact in project management. Both companies integrate members from different departments and nationalities into the creation of project teams. Managers expressed that good communication skills and technical knowledge are the key factors to successful projects.

Using the literature review and questionnaire results the researcher was able to demonstrate the objectives. First, the cultural diversity factors identified as present when managing projects were: language barriers, religion, different nationalities, race, education, organization, team oriented vs. individual oriented, verbal and non-verbal communication, space and touching differences and time zone differences. The questionnaire results showed that different backgrounds (educational and experiences) and different nationalities are the factor most present when managing projects. Second, the areas or phases of project management are: Defining, Planning, Executing, Monitoring and Controlling the Progress, and Completing the Project. Results demonstrated that executing and defining the projects are the area's most impacted by cultural diversity. Third, cultural barriers identified that impact project performance

were: cultural shocks, time differences, geographically disperse teams, language barriers, competition between team members, confrontation and miscommunication. Results indicated that miscommunication is the cultural barrier that impact project performance the most.

The fourth objective was to develop a model of positive behaviors. In order to develop the model the researcher used the Communication Process Model, the Team Effectiveness Model and the information obtained throughout the study. The Model of Positive Behaviors obtained pretend to provide a guide to project managers and team members when working in their teams. This model suggests project managers and team members must maintain positive behaviors, good communication skills and use techniques for team effectiveness. In order to comply with the proposed behavioral model, project managers should be aware of possible behaviors and be able to address them. Developing sensitivity and the skills to effectively manage diverse teams is the key to successful project teams.

The Model of Positive Behaviors is a contribution to the Project Management field. This model is a tool to managers and team members for the effective management of cultural diversity in projects. Project Managers who can effectively work with diverse teams will be on the forefront of global business.

## **5.2 Limitations of the Study**

The first limitation exhibited in this research was the difficulty to find studies related to empirical evidence of how cultural diversity impacts project management. The second limitation was particularly related to the accessibility to the size of the sample. Companies are starting to work with the management of projects incorporating cultural diversity, but not all companies

integrate project teams and cultural diversity. Some companies already manage multicultural teams and diversity, but not necessarily with the purpose to develop projects.

Other limitations of this study were: a) the wording of question #12 in the questionnaire “Diversity may exist when working in teams” may not capture the intent of the question, which was to measure whether participants think that diversity should exist when working in teams. This has possible effects for the validity of the responses to this question. However, because the follow-up questions refer to the contributions of diversity and/or why it should not exist, this provides context for the wording in question 12; b) the response rate of the electronic company was very low. The initial sample was 30 employees due to the restriction that participants needed to be working on project teams and involving cultural diversity. Even though the questionnaire was provided for the complete sample and two weeks’ time was provided to respond the questionnaire, the reason for the low response rate provided by the electronic company was they had lack of time and availability to respond the questionnaire due to their jobs demands at the time.

### **5.3 Recommendation for Future Research**

Limitations of the present research should be addressed and several areas for future research could be explored. Further empirical research could be conducted using hypotheses in order to statistically test the conclusions of this study. Other recommendations for future research are: study the role of project managers as key factor to effectively manage cultural diversity, expand the range of the sample to consider the electronic and aerospace industry of the entire island to identify if there are similar findings, test if cultural diversity impacts project teams

using hypothesis testing, study the impact of the organization in the effective management of projects and study other industries or sectors.

Another area for future research is to test the proposed model by selecting different project teams and analyzing the execution with the model and without the model. Finally, new research could expand the focus of multicultural teams impacting different types of projects, as manufacturing, construction and research and development projects (R&D).

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## **APPENDIXES**

**APPENDIX I**  
**QUESTIONNAIRE**



**UNIVERSITY OF PUERTO RICO**

Mayaguez Campus  
College of Business Administration  
Graduate Program

The following questionnaire is an essential part of my Master’s Thesis Research: “Impact of Cultural Diversity on Project Management: A Model of Positive Behaviors”. The purpose of this research is to investigate the impact and influences of the cultural diversity on project development.

**“Culturally diverse is not explicitly a difference in race, ethnicity, nationality, religion or culture. A culturally diverse team is any team made up of people from different backgrounds and experiences. Project Management will need to evolve as the workforce continues to globalize. In the globalized economy, the better a company adapts to these trends the more success they will enjoy against their competition.” (Lewis, Chad)**

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Based on your work experience, please answer the following questions:

1. How many times have you been involved in a project with a team?

- Once
- 2 to 4 times
- 5 or more times

2. At this moment, are all members of your team at the same physical location?

- Yes
- No

3. Which of the following cultural diversity factors are present in your team?

**Please, check all that apply.**

- Different nationalities
- Different backgrounds (studies, work experiences, etc.)
- Language barriers
- Verbal and non – verbal communication
- Space and touching differences
- Time zone differences
- Team oriented vs. Individual oriented (Me vs. Us)
- Other: \_\_\_\_\_

4. What nationalities are represented in your team? **Please, mention all that apply.**

- Puerto Rican
- Mexican
- North American
- Indian
- European
- Other \_\_\_\_\_

5. What is your academic or professional background?

- Business
- Computer
- Mechanical Engineering
- Industrial Engineering
- Electrical Engineering
- Computer Engineering
- Mathematics
- Science
- Work Experiences \_\_\_\_\_
- Other \_\_\_\_\_

6. How would you describe working with people from different nationalities and backgrounds?

- Very Good
- Good
- Barely Acceptable
- Poor
- Very Poor

7. Do you believe that cultural diversity has an impact in the development of projects?

- Yes
- No

If you answered **YES**, please go to question 8, otherwise go to question 9.

8. If yes, what would be the level of impact?

- High Impact
- Moderate Impact
- Low Impact
- No Impact

9. In which areas of the project do you think cultural diversity impacts the most?

**Please, select from 1 to 3 (1= most important)**

- Defining
- Planning the project
- Execution of the project
- Monitor and control the progress
- Complete the project

10. Which of the following you consider may minimize the impact of cultural diversity when working in teams? **Please, Select from 1 to 7 ( 1 = important)**

- Cooperation
- Empathy
- Communication
- Avoid Stereotypes
- Openness, patience & self control
- Understanding the cultural diversity
- Other \_\_\_\_\_

11. Do you think cultural diversity can initiate conflicts between team members?

- Yes
- No

12. Do you believe cultural diversity may exist when working in teams?

- Yes
- No

If you answered **YES**, please go to question 13, otherwise go to question 14.

13. If yes, what contribution brings cultural diversity to teams?

- New ways of problem solving
- Different point of view
- New ideas
- Eliminates "Group think"
- Other \_\_\_\_\_

14. If not, why do you think cultural diversity should not exist in project teams?

- Different point of view
- New ideas
- Miscommunication
- Contradictory assumptions
- Confrontation
- Frustration
- Other \_\_\_\_\_

15. Which of the following do you think may delay the completion of a project?

- Language Barriers
- Geographically disperse teams
- Time difference
- Cultural Shocks (appointment)
- Competition between members
- Confrontation
- Miscommunication
- Other \_\_\_\_\_

16. Do you believe that cultural diversity promotes different points of view and new ideas that help team members on the successful completion of projects?

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly Disagree

17. Gender: \_\_\_\_\_ Female \_\_\_\_\_ Male

18. Age

\_\_\_\_\_ 24 years or less

\_\_\_\_\_ 25 to 39 years

\_\_\_\_\_ 40 to 50 years

\_\_\_\_\_ 51 years or more

**Thanks for your participation.**

**APPENDIX II**  
**INTERVIEW QUESTIONS**





**UNIVERSITY OF PUERTO RICO**

Mayaguez Campus  
College of Business Administration  
Graduate Program

Personal Interview Question Guidelines

The following questions guidelines are part of my Master’s Thesis Research: “Impact of Cultural Diversity on Project Management: A Model of Positive Behaviors”. The purpose of this research is to investigate the impact and influences of the cultural diversity on project development.

**“Culturally diverse is not explicitly a difference in race, ethnicity, nationality, religion or culture. A culturally diverse team is any team made up of people from different backgrounds and experiences. Project Management will need to evolve as the workforce continues to globalize. In the globalized economy, the better a company adapts to these trends the more success they will enjoy against their competition.” (Lewis, Chad)**

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Based on your work experience, please answer the following questions:

1. What types of project does your company manage?

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2. Who are the project clients?

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3. Who are the project users?

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4. How are the projects managed? (Per program, departments, etc.)

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5. How is the project team members selected?

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6. Are there any desirable characteristics that team members need to have in order to be able to participate in exclusive projects?

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7. What are the abilities or skills needed to develop successful projects in your company?

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8. What are the communication methods between team members? Ex. Email, Video Conference.

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9. Are there any internal guidelines or procedures to manage the project?

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10. Is there any structure? How the authority is managed in the projects?

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11. Who chooses the project manager or supervisor?

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12. Are there any challenges when managing or supervising the projects?

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13. Do you believe cultural diversity has an impact in the development of projects? Explain.

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**APPENDIX III**  
AUTHORIZATION FROM THE COMMITTEE OF PROTECTION  
OF HUMAN RESEARCH SUBJECTS

**UNIVERSIDAD DE PUERTO RICO EN MAYAGÜEZ**  
**DECANATO DE ASUNTOS ACADÉMICOS**  
**COMITÉ PARA LA PROTECCIÓN DE LOS SERES HUMANOS EN LA**  
**INVESTIGACIÓN**  
**(CPSHI/IRB-- 00002053)**

09-08 ER- 02

23 de octubre del 2008

Srta. Edith Ramírez  
HC-04 Box 9169  
Quebradillas, P.R. 00678

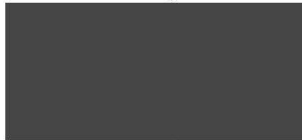
Estimada señorita Ramírez:

El comité revisó su propuesta de investigación: "Impact of cultural diversity on project management" y luego de que usted respondiera a los cambios sugeridos por el comité, se aprueba gustosamente su investigación.

La aprobación de su propuesta de investigación se extiende desde el 23 de octubre del 2008 hasta el 23 de octubre del 2009. Le recuerdo que cualquier modificación de su proyecto necesitaría pasar por una nueva revisión por parte de este Comité.

Le deseo mucho éxito en su trabajo de investigación y quedo a sus órdenes para cualquier pregunta o clarificación ulterior que estimase necesaria.


Cordialmente,



Presidenta CPSHI  
UPR, Mayagüez

c. Yolanda Ruiz  
Directora Escuela Graduada

**APPENDIX IV**  
**AUTHORIZATION FROM COMPANIES**




January 30, 2009

Edith Ramirez  
Graduate Student


Dear Edith:

Thank you very much for considering  for your graduate studies investigation survey: ***Impact of Cultural Diversity on Project Management: A Model of Positive Behaviors.***


 will support your investigation survey by distributing same to approximately 100 of our employees working with projects.

Would appreciate sharing with  results from your survey.

Cordially,



Human Resources Manager





Edith Ramirez <ramirez.edith@gmail.com>

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## Entrevista

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Mon, Aug 10, 2009 at 11:12 AM

To: Viviana I Cesani Vazquez <vivianai.cesani@upr.edu>

Cc: "miguel.segui@upr.edu" <miguel.segui@upr.edu>, "ramirez.edith@gmail.com" <ramirez.edith@gmail.com>

Saludos,

Pude coordinar para mañana, 11 de agosto.

Traten de estar aquí a eso de las 8:30am para comenzar puntual a las 9:00am.

Déjenme saber si necesitan instrucciones para llegar a HP.

Al llegar a la caseta del guardia procuran por mí, yo voy a enviar instrucciones hoy. Los van a enviar al lobby principal en donde deben anotarse y les entregaran un papel a firmar con preguntas medicas asociadas al virus AH1N1. Yo los recojo en el lobby y los llevo al Salón.

Los espero mañana.

██████████

████████████████████

(787) ██████████

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**From:** Viviana I Cesani Vazquez [mailto:vivianai.cesani@upr.edu]

**Sent:** Wednesday, August 05, 2009 4:08 PM

**To:** ██████████

**Cc:** miguel.segui@upr.edu; ramirez.edith@gmail.com





Edith Ramirez <ramirez.edith@gmail.com>

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## Estudio exploratorio: Impact of Cultural Diversity on Project Management: A Model of Positive Behaviors.

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Edith Ramirez <ramirez.edith@gmail.com>

Fri, May 29, 2009 at 9:32 AM

To: [REDACTED]

Buenos Días!

Saludos [REDACTED]

La profesora Vivian Cesani me dejó saber que podía comunicarme con usted acerca de mi estudio de Tesis.

Actualmente soy estudiante de Maestría del Departamento de Administración de Empresas de la UPR de Mayagüez y estoy llevando a cabo mi estudio exploratorio titulado: "Impact of Cultural Diversity on Project Management: A Model of Positive Behaviors". El propósito del mismo es estudiar el impacto de la diversidad cultural en el manejo de proyectos.

Le adjunto una carta formal para la autorización, el cuestionario y la carta de consentimiento que acompañará el cuestionario.


Gracias por su ayuda y tiempo brindado.


Edith J. Ramírez Pagán

Estudiante Graduada  
UPR Mayaguez

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### 3 attachments

 **Authorization Letter.doc**  
24K

 **Final Questionnaire.doc**  
69K

 **Letter of Consent.docx**  
37K



Edith Ramirez <ramirez.edith@gmail.com>

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## Fwd: FW: Resultado reunión con Decano Administración

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Viviana I Cesani Vazquez <vivianai.cesani@upr.edu>

Wed, May 27, 2009 at 11:37 AM

To: ramirez.edith@gmail.com

Cc: miguel.segui@upr.edu, [REDACTED], Viviana Cesani <vcesani@uprm.edu>

Edith,

Hola! Adjunto el correo electrónico que intercambiara con el [REDACTED] con respecto a tu investigación. Por favor comunícate con él y envíale el cuestionario.

Mucha suerte,  
VC

----- Forwarded message -----

From: [REDACTED]  
Date: 2009/5/17  
Subject: RE: FW: Resultado reunión con Decano Administración  
To: Viviana I Cesani Vazquez <vivianai.cesani@upr.edu>

Cuenta conmigo, dile a la estudiante que me envíe el cuestionario y una explicación del proyecto para hacerle la pregunta a HR.

[REDACTED]

[REDACTED]

(787) [REDACTED]