EVALUATING EMOTIONAL INTELLIGENCE IN THE WORKPLACE: A SELECTED SAMPLE

By

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ABSTRACT

The purpose of this research was to analyze the relevance of emotional intelligence (EI) in the workplace in Puerto Rico, specifically in the Pharmaceutical and Medical Devices Industry of the western region of the Island. The sample obtained was composed of 82 managerial and non-managerial employees from four different companies. The instruments administered to the employees were the Work Profile Questionnaire-Emotional Intelligence Version and a demographic information sheet, in order to obtain their emotional quotient (EQ) and socio-economic characteristics. Correlations, regression analysis, *t*-Test, and ANOVA were applied to data. It was found that the participants have a high level of EI and got high scores in the seven EI components measured. Also, it was found that younger employees and those with lower educational level tend to have lower EQ scores. It was concluded that EI might impact the workplace and can be a useful criteria for business leaders and managers.

RESUMEN

El objetivo de esta investigación era analizar la influencia de la inteligencia emocional (IE) en el lugar de trabajo en Puerto Rico, específicamente en la Industria Farmacéutica y de Dispositivos Médicos de la región oeste de la Isla. El *Work Profile Questionnaire-Emotional Intelligence Version* y una hoja de información demográfica fueron administrados a una muestra de 82 empleados, gerenciales y no gerenciales, de cuatro compañías diferentes. Los análisis de correlación, regresión múltiple, pruebas *t* y varianza fueron utilizados para analizar los datos obtenidos. Los participantes resultaron tener un alto coeficiente de IE y altas puntuaciones en los siete componentes de IE evaluados. Resultó además que los empleados de menor edad y con menores niveles de educación, tienden a tener puntuaciones más bajas de IE. Se concluyó que la IE tiene impacto en el lugar de trabajo y puede ser un criterio útil para los gerentes y líderes de negocios.

To my family.

Thank you for not let me fight out and for always believe in me.

Here is the result of many sacrifices.

Dad, Mom, Grandma, Godmother and Godfather, you are the center of my life. Dad and Grandma, I know that, from heaven, you are always with me. You are part of my army of angels. Mom, without all your time, love, counsels, and support this would not be possible. Godmother, your words and support were always essentials in this long way. Recently you pass to be part of my angels and I know that, from heaven, you are proud of me. Godfather, your support was always very important for me. Thanks for all.

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LIST OF ABBREVIATIONS

ECI 360	Emotional Competence Inventory 360
ECI	Emotional Competence Inventory
EI	Emotional Intelligence
EIA	Emotional Intelligence Appraisal
EQ	Emotional Quotient
EQ-I	Emotional Quotient-Inventory
GAO	General Accounting Office
GPA	Grade Point Average
IQ	Intellectual Quotient
MSCEIT	Mayer-Salovey-Caruso Emotional Intelligence Test
PIAPR	Pharmaceutical Industry Association of Puerto Rico
PR	Puerto Rico
PRIDCO	Puerto Rico Industrial Development Company
SEI	Six Seconds Emotional Intelligence Test
SKA's	Skills, knowledge and abilities
US	United States
WPQ*ei*	Work Profile Questionnaire-Emotional Intelligence Version

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CHAPTER I: INTRODUCTION

1.1 Justification

In the past, researchers have used the grade point average (GPA), intellectual quotient (IQ), and other testing measures as predictors of academic and career success. In 1995, Daniel Goleman, an author, psychologist, and science journalist, proposed that these measures lack predictive ability, and that emotional intelligence (EI) is the "missing link" in academic and career success. He defined the term as the one used to explain how well an individual is able to relate to people and to the world around him or her.

Since the publication of Goleman's bestseller *Emotional Intelligence* (1995, Bantam Books), many individuals and organizations have assigned resources to research the impact of EI in many areas, including the workplace. EI is a comparatively new, but expanding area of research. Today many researchers agree that EI directly impacts an individual's performance and have presented many theories that propose a positive relationship between EI and workplace performance.

Some studies about the impact of EI in the workplace can be found, mainly in the United States (US). In Puerto Rico (PR), published research about EI has been found, but none has been conducted in the workplace. In the year 2000, Gloriana Domínguez Cruz, a doctoral student from Dowling College of New York, studied, as part of her dissertation, the relationship between leadership orientation of school principals in PR and EI. Crespo (2004), M. Pérez (2005), S. Pérez (2005), Santini (2006), and Salvá (2007) have written about EI, all based on documental research. Manuel Morales, president and CEO from Quality for Business Success, has dictated lectures and written articles on EI, also using documental research.

Due to the limited amount of information about EI in PR, this research aims to create a framework by studying the impact, if any, of EI in the workplace. This might help managers to build strategies to foster and develop an emotionally intelligent workforce.

1.2 Objective

The main objective of this research is to analyze the relevance of EI in the workplace in PR, specifically in the Pharmaceutical and Medical Devices Industry of the western region of the Island. This goal will be accomplished through the administration of the Work Profile Questionnaire-Emotional Intelligence Version (WPQ*ei*) and a demographic information sheet to managerial and non-managerial employees. Through its administration, the emotional quotient (EQ) and socio-economic characteristics will be obtained and EI will be analyzed within the workplace. Achievement of this objective will allow future continuous study of EI in workplaces in PR.

1.3 Limitations

This research exhibits three main limitations, particularly related to the availability of EI tests and the size of the sample. First, the use of specific tests designed to study EI in the workplace, such as the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) and the Emotional Competence Inventory 360 (ECI 360), is limited to some specific users. The MSCEIT requires specific courses in research to obtain and administer the test. The use of the ECI 360 is limited to accredited users who can demonstrate their ability to give accurate and comprehensive feedback to their clients.

Second, due to company policies, some organizations considered in the target sample did not authorize the administration of the test in their factories. For this reason, the size of the sample was limited. Third, recent closing of several pharmaceutical plants in PR and the downsizing process in others, also limited the size of the sample.

1.4 Summary of Following Chapters

The remains chapters of this research are organized as follows. The second chapter presents the literature review, including common definitions of concepts *intelligence* and *emotions*, a framework of emotional intelligence, and a description of the previous research on the area along with a description of the most common tests to measure EI.

The third chapter provides detailed information regarding the methodology and the instrument selected to conduct the research. A detailed description of the sample is also presented in this chapter.

A discussion of the results and the appropriate analysis are presented on the fourth chapter. Finally, the fifth chapter includes conclusions and recommendations that resulted from the research, as well as suggested areas for future research.

CHAPTER II: LITERATURE REVIEW

2.1 Introduction

This chapter reports the results of the review of information about the concepts of *intelligence* and *emotions*. The development of research on emotional intelligence (EI) over the years and the evidence of its impact in the workplace are also presented. Finally, the most recognized measures of EI are discussed.

2.2 Intelligence and Emotions

To address the concept of EI and its correlation to performance in the workplace, one must understand the concept of *intelligence* and *emotions*. Thorndike[1], as quoted by Landy in 2005, established that intelligence varies according to the life situations in which it works. Intelligence refers to the capacity to solve problems, meet challenges or create valued products (Goleman, 1998). It can be viewed as representing, primarily, the capacity to carry out abstract thought, as well as the general ability to learn and adapt to the environment (Mayer, Salovey & Caruso, 2004).

In 1997, psychologist David Wechsler established that different types of intelligence are often categorized according to the kind of information on which they operate. The verbal-propositional intelligence works with text in general (from vocabulary thru extended textual passages). The perceptual-organizational intelligence works with abstract things (patterns, recognize missing parts of pictures, puzzles) (Mayer, Salovey & Caruso, 2004). According to Mayer, Salovey and Caruso (2004), the concept of EI was influenced by the interest of broadening the study of intelligence by addressing to multiple specific intelligences, particularly

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[1] Edward Lee Thorndike (1874-1949), was an American psychologist named father of modern educational psychology for his contributions to the field.

what is known as hot intelligence. "Hot" intelligence is a type of intelligence that has to do with social, practical, and emotional information. This intelligence operates on "hot" cognitions, cognitions dealing with matters of personal, social, practical and emotional importance to the individual (Mayer, Salovey & Caruso, 2004).

According to the WPQei User's Guide (2006), emotion is a fundamental aspect of many of the things that people do at work. On his book, Antonio Damasio (1999) proposes that emotions are an adaptive response and part of the process of normal reasoning and decision making. Also, he suggests that emotional information helps the brain to make decisions and establish priorities, which is critical to the development of learning and memory. Bar-On and Parker (2000) defined the term *emotion* as an organized response system that coordinates physiological, perceptual, experiential, cognitive, and other changes into coherent experiences of moods. EI is conceived as operating on emotional information. The philosophical view is that emotions govern and motivate responses to situations, including work.

2.3 Development of Emotional Intelligence

An increasing number of executives and academics are attempting to investigate the concept of EI, while many researchers have attempted to define it. According to Barling, Slater, and Kelloway (2000), there is currently no consensus about the exact nature of EI. In Plato's time, the concept of EI was known as "maturity" or "wisdom". In 1872, Charles Darwin published a work discussing the idea of emotional-social intelligence expression as being important for survival and adaptation (Bar-On, 2006).

According to Daniel Goleman (1995), the concept of EI emerged from the discipline of psychology in the early 1920's. During this period, an aspect of EI called social intelligence was

first described by Thorndike as one of many different types of intelligence individuals possess (Cherniss & Goleman, 2001). Rozell, Pettijohn and Parker (2002) highlighted that in 1983 Howard Gardner, a psychologist at the Harvard School of Education, made reference to intrapersonal[2] and interpersonal[3] intelligence, terms that have been used as a foundation in more recent models on EI. The early definitions of social intelligence were a precursor for the way EI was later studied (Bar-On, 2006).

In 1990, Mayer and Salovey were the first to introduce the term EI, describing it as a way of processing emotional information that consists of an accurate judgment of one's own emotions and those of others; the appropriate expression of emotions, and the adaptive regulation of emotion. Their conceptualization included three mental processes: the appraisal and expression of emotions, the regulation or control of emotions, and the use of emotions to facilitate thought. These three processes were divided into subcomponents within the model. The first category was subdivided into those processes dealing with oneself and those pertaining to others, and into verbal and nonverbal expressions of emotions and judgment when dealing with others' emotions. The second mental process was subdivided into regulation of self and others. Finally, the third category includes the components of flexible planning, creative thinking, redirected attention, and motivation. (Salovey &Mayer, 1990)

Daniel Goleman (1995) defined EI as the capacity to recognize feelings and handle emotions, to motivate oneselves and to manage relationships. He described EI as having five elements: knowing emotions, managing emotions, motivating oneself, recognizing emotions in others, and handling relationships. In accordance, Goleman developed five types of abilities that

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[2] Intrapersonal intelligence is a correlative ability, turns inward. It is a capacity to form an accurate, veridical model of oneself and to be able to use that model to operate effectively in life (Goleman, 1995).
[3] Interpersonal intelligence is the ability to understand other people: what motives them, how they work, how to work cooperatively with them (Goleman, 1995).

demonstrate EI: self-awareness; self-regulation; self-motivation; social-awareness (empathy); and social skills (relationship management). In his writings, he provides anecdotal evidence of these components and their relationship to individual and organizational success. In the same year, he conducted a research that showed that an individual's intellectual intelligence contributes approximately 20% to the factors that determine life success, most of the remaining 80% are made up of factors relate to EI (Goleman, 1995).

In 1997, Bar-On and Parker defined EI as an umbrella concept of non-cognitive capabilities, competencies and skills, which help an individual to become more efficient in coping with environmental demands and pressures. Their model included five broad areas: intra-personal skills, inter-personal skills, adaptability, stress management, and general mood. In the same year, Mayer and Salovey described EI as a set of abilities that allow an individual to perceive, understand, and regulate emotions in oneself and in others, and to use emotions to facilitate performance (Paahao, 2007). According to Martínez (1997), EI is an array of non-cognitive skills, capabilities and competencies that influence a person's ability to cope with environmental demands and pressures.

In 1998, Daniel Goleman published a book called "Working with Emotional Intelligence", in which he applied the EI concept to the workplace environment. In his analysis, Goleman argued that an emotionally intelligent worker is personally and socially skilled, he knows how to manage himself and relationships (Goleman, 1998).

In the year 2000, Mayer and Salovey amended their definition of EI and conceptualized it as an ability to recognize the meanings of emotions, understand relationships and to reason and solve problems on their basis. In 2002, Mayer defined EI as the ability to perceive, understand, manage, and use emotions to facilitate thinking. In February 2004, David Caruso defined EI as

the ability to accurately identify emotions. Also, Caruso explains how to use emotions to help you think, how to understand what causes emotions, and manage to stay open to these emotions in order to capture the wisdom of our feelings (Caruso and Salovey, 2004).

In conclusion, EI relates to the capacity to perceive emotions, assimilate emotion-related feelings, understand the information of those emotions, and manage them. EI involves the ability to understand one's own emotions and feelings and to manage them to support activities such as thinking, decision making, and communication. Emotionally intelligent people know how to control their emotions and feelings for their own benefit and the benefit of others.

2.4 Impact of Emotional Intelligence in the Workplace

Fineman (1996) argue that good organizations are places where feelings are managed, developed or removed. He states that feelings are seen as irrelevant to work activity but emotions get in the way of effective performance. In 1998, Weisinger suggested the existence of a direct link between EI and success at work. In 1999, Catherine Cassell defined the workplace as a location where experiences, such as pleasure, sadness, jealousy, guilt and love, are displayed, but researchers in work psychology have been slow to incorporate emotions into their analysis.

EI has been studied since the early 1990's, but only in recent years become relevant to the workplace (McLean, 2007). According to Bridget Murray (1998), people who rise to the top of their field aren't just good at their jobs. In other words, it takes more than IQ (intelligence quotient) to be successful at work, it takes EI (Goleman, 1995). Not only bosses and corporate leaders need high doses of EI, every people-oriented job demands it too, because employees represent the organization to the public. Cherniss (2000) has established that today many

researchers proposed that the level of EI and workplace performance are directly and positively related, and have provided theoretical links to support their view.

There are several studies that have been made regarding the relationship between EI and the workplace. Emotions, properly managed, can help individuals to develop trust, loyalty and commitment, with themselves, their teams and their organizations (Cooper, 1997).

In 1993, Spencer and Spencer conducted an analysis at L'Oreal Company and found that sales agents who were selected based on their emotional competencies sold considerably more than agents who were selected using standard recruitment techniques. The research showed that on an annual basis, those selected based on emotional competence sold an average of $91,370 more than those in the control group. The study also revealed that salespeople selected on the basis of emotional competence had 63% less turnovers during the first year than those selected in a typical way.

Steven Stein (1997) found gender differences in EI. He administered emotional quotient (EQ) assessments to 4,500 men and 3,200 women and found that women scored higher than men on measures of empathy and social responsibility, but men outperformed women on stress tolerance and self-confidence measures. He concluded that women and men are equally emotionally intelligent, but they are different in these areas. In another study, Stein (1997) administered the Emotional Quotient-Inventory to individuals between 16-50 years and found a consistent and significant relation between age and EI. He concluded that the total EQ score increased significantly with age and peaked in the late forties or earlier fifties. For Stein, this finding was dramatic, considering that cognitive intelligence [measured by intellectual quotient (IQ)] peaked in the late teens and level off until the late fifties (Stein, 1997).

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In 1998, David McClelland studied division heads of a global food and beverage company and found that 50% of division directors hired using standard methods left within two years, mostly because of poor performance. When the company started selecting based on emotional competencies such as initiative, self-confidence, and leadership, only 6% left in two years. McClelland also found that the divisions managed by leaders strong in EI competencies outperformed yearly revenue targets by a margin of 15-20% higher than divisions with leaders that did not show EI competencies (McClelland, 1998).

In 1998, Daniel Goleman reviewed studies of nearly 500 organizations worldwide and concluded that leaders have high levels of emotional intelligence. Goleman stated that it is because they represent the organization to the public, interact with the highest number of people within and outside the organization, and set the tone for employee morale.

In the same year, Goleman conducted a study which looked at competence models for 181 different job positions from 121 organizations. Management in each organization was asked to agree on a profile indicating which factors were needed for an individual to show excellence in a particular job. Goleman found that 67% of the abilities management outlined as determinants of excellence within a job were related to emotional competencies. A few years later, he hypothesized that emotional competence is a learned capability based on EI that results in outstanding performance at work.

Dulewicz and Higgs (2000) reported similar findings. They studied one thousand managers, over a seven-year period, focusing on their competencies and their progression through the organization. They found that EI factors contributed 36% to an individual's advancement through the organization, while intellectual intelligence contributed by 27%.

According to Cherniss (2000), the United States (US) Air Force used the EQ test to select recruiters, and found that the most successful recruiters had scored higher in the EI competencies. By using the EI tests with recruiters, officials increased their ability to predict successful recruiters by threefold (Cherniss, 2000). The immediate gain was a savings of $3 million annually. The US General Accounting Office (GAO) submitted a report of this practice to the US Congress and, as a result, the Secretary of Defense required all branches of the armed forces to use that type of testing in recruitment and selection.

Thi Lam and Kirby also conducted research in this field in 2002. They investigated the link between emotional intelligence and cognitive-based performance using US university graduates. Thi Lam and Kirby placed participants in stressful situations to replicate a modern work environment and measured EI with the Multifactor Emotional Intelligence Scale[4]. They found that overall EI, emotional perception, and emotional regulation uniquely explained individual cognitive-based performance over and beyond the level attributable to general intelligence (Thi Lam & Kirby, 2002).

Nikolaou and Tsaousis (2002) explored the relationship between EI and sources of occupational stress on a sample of 200 professionals in mental health institutions in Greece. Their results showed a negative relationship between EI and stress at work, indicating that high scorers in overall EI suffered less stress related to occupational environment. Also, they found a positive relation was found between EI and organizational commitment, which suggested that EI is a determinant of employee loyalty to organizations. As well, they investigated the relationship between EI and demographic variables. They did not found significant differences between

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[4] The Multifactor Emotional Intelligence Scale (MEIS) is a test of ability rather than a self-report measure. The test-taker performs a series of tasks that are designed to assess the person's ability to perceive, identify, understand, and work with emotion.

males and females in terms of the overall EI score. A significant relationship was found between age, education and EI. Their results also showed that job type affects overall EI score, but no effect was found between job type in EI subscales. (Nikolaou and Tsaousis, 2002)

Emily Cumming (2005) explored the relationship between EI and workplace performance with a sample of workers from New Zealand. In addition, she studied the relationship among demographic factors, EI and workplace performance. Cumming based her results on the Emotional Intelligence Questionnaire (Genos EI) and Performance Questionnaire (RBPS) results. The results of her study suggested that a significant relationship exists between EI and workplace performance. In the case of EI and demographic factors, no significant relationships were found between gender and EI, age and EI, occupational groups and EI, neither between education and EI.

Oginska-Bulik (2005) conducted a study in Poland with the objective to see if EI seems to play an important role in shaping the interaction between individuals and their work environment. The results confirmed an essential role of EI on perceiving occupational stress and preventing employees from negative health outcomes. Gender differences in all examined variables were also analyzed. The obtained data indicated a higher EI level in women than in men. They did not differ in the level of stress generally perceived at work.

Fariselli, Ghini and Freedman (2006) studied the EI and age relationship, in workplace context. The sample was composed of 405 American workers between 22-70 years and the study found that EQ score increases slightly with age. They concluded that while a slight majority of older people are higher in EQ, there are many young people with higher EQ scores than their older counterparts. Also, they argued that EI is a critical competence that leaders need to take into account in the current work context. (Fariselli, Ghini and Freedman, 2006).

EI has been hypothesized as affecting a myriad of workplace variables including performance, job satisfaction, absenteeism, organizational commitment and leadership (Rozell, Pettijohn & Parker, 2002). According to McLean (2007), employers pay close attention to the relationship between EI and workplace performance because researchers have estimated that EI accounts for more than 60% of performance ability and matters more than intelligence in some positions.

2.5 Measures of Emotional Intelligence

Through the years, several standardized tests have been developed to measure and test EI. The most well-known tests are: Six Seconds Emotional Intelligence Test (SEI), Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), Emotional Intelligence Appraisal (EIA), EQ MAP, Emotional Quotient-Inventory (EQ-I), Emotional Competence Inventory (ECI), Emotional Competence Inventory 360 (ECI 360), Genos Emotional Intelligence (Genos EI), and Work Profile Questionnaire-Emotional Intelligence Version (WPQ*ei*).

The SEI model focuses in developing key capacities for living and leading with EI. It predicts important life and workplace outcomes. The SEI was developed and researched in Europe, and has been validated in North America and Asia, and measures eight foundations of an individual's emotional coefficient, including emotional literacy, emotional management, and empathy. This model draws on the works of Peter Salovey and John Mayer. It also builds on the five components of emotional coefficient popularized by Daniel Goleman and it integrates leading thinking on this emerging science into a practical, usable, memorable structure.

The MSCEIT is an ability measure designed to yield an overall EI score, and the score of the four subscales (perceiving emotions, facilitating thought, understanding emotions, and

managing emotions) of the ability model of Mayer and Salovey. The MSCEIT consists of 141 items involving puzzles that require users to employ their EI (Mayer, Salovey, Caruso, and Sitarenios, 2003).

According to the EIA Technical Manual (Talent Smart, 2005), the EIA is a quick, highly focused tool that gives a measure of emotional coefficient using Daniel Goleman's four quadrant model (self-awareness, self-management, social awareness and social skills). There are two versions of this test. The Multi-Rater version allows an individual to see how her/his self-perception is in-line with and/or different from others' perceptions, which is excellent for the individual's development. The Team Edition creates a picture of how the group is functioning, which serves team development needs.

EQ Map reports strengths and vulnerabilities in a clear, graphical landscape. As a self-report measure, the EQ Map is particularly effective for coaching and team development. The unique features of this tool are the breadth of the 20 scales and the map results which may encourage more open discussion than a test (Cherniss & Goleman, 2001).

The EQ-I is one of the most widely used self-report assessments. It was designed to measure a number of elements related to EI. This test provides an understanding of behavior using Reuven Bar-On's 5-part model of EI. This tool can be used as a hiring screening, and is often used in research projects (Cherniss & Goleman, 2001).

The ECI is a multi-rater instrument that provides self, managers, direct report, and peer ratings on a series of behavioral indicators of EI. This test uses Goleman's four-quadrant model and measures a spectrum of critical competencies shown to affect workplace performance (Wolff, 2006).

The ECI 360 was developed by Richard Boyatzis and Daniel Goleman, and is distributed worldwide by The Hay Group. This measure is designed to assess the competencies in the model of EI competencies as described by Goleman, Boyatzis and McKee (2002). The use of the ECI 360 is limited to accredited users who can demonstrate their ability to give accurate, comprehensive feedback to their clients (Wolff, 2006).

The Genos EI is an inventory that indexes the way people typically think, feel and act with their emotions at work according to an empirically-based five-factor model of EI. It provides an overall score that indicates the individual's general workplace EI and five sub-scale scores that indicate individuals more specific capacities according to the five model dimensions (Cumming, 2005).

The WPQ*ei* is an 84 item instrument designed by Allan Cameron to measure the personal qualities and competencies that employees need to develop to effectively manage emotions at work. It is based on a conceptual model of EI that has seven components: innovation, self-awareness, intuition, emotions, motivation, empathy, and social skills (Chastukhina, 2003). WPQ*ei* scale interpretation for EQ components scores is as follows: 1 is very low score, 2-3 is a low score, 4 is a low average score, 5-6 is average score, 7 is a high average score, 8-9 is a high score, and 10 is a very high score (WPQ*ei* User's Guide, 2006).

2.6 Summary

This chapter defined the terms *intelligence* and *emotions*, and presented the development of the EI concept. Also, it identified the importance of EI, especially regarding its influence in the workplace environment, and summarizes several well known measures of EI.

According to existing research, EI involves the ability to understand one's own emotions and feelings and to manage them in support of activities such as thinking, decision making, and communication. Emotionally intelligent people know how to control their emotions and feelings for their own benefit and the benefit of others.

EI in the workplace has been used as a central aspect of work life. Contemporary researchers are beginning to examine emotions as an integral and inseparable part of any organization. After many investigations about the term EI and their influence in the individuals' behavior, researchers believe that it has great impact in the success or failure of people in the workplace.

CHAPTER III: METHODOLOGY

3.1 Introduction

The design of this study was descriptive in its nature, due to the lack of previous research on the impact of emotional intelligence (EI) in the workplace in Puerto Rico (PR). This research was divided in two stages. First, individuals from the selected sample were required to complete the Work Profile Questionnaire-Emotional Intelligence Version (WPQ*ei*) and a demographic information sheet, to obtain their emotional quotient (EQ) and to identify their socio-economic characteristics, respectively. Second, the results of the questionnaire were analyzed to describe and evaluate the impact of EI in the workplace.

3.2 The Instrument

The instrument selected to work out this research was the WPQ*ei* (Appendix 1). The WPQ*ei* is a valid and reliable assessment instrument of EI developed by Allan Cameron, a chartered psychologist and former research associate of the Creativity Unit of Manchester Business School. This instrument is distributed and commercialized by The Test Agency Limited.

The WPQ*ei* instrument assesses a person's EI and measures personality and competencies within the context of work. It is composed of positive and negative items which have links to EI dimensions. This instrument was designed for use with staff in managerial, professional, service and clerical occupations. According to the WPQei User's Guide (2006), the instrument can be used in the following functions: selection, assessment and development, training and development, leadership assessment, team building and counseling.

The WPQ*ei* was designed with the competencies identified by researchers John Mayer, Peter Salovey and Daniel Goleman. The instrument was based on a model that has seven components: innovation, self-awareness, intuition, emotions, motivation, empathy, and social skills.

This instrument was selected because of its validity, reliability and accessibility. Also, it is suitable to assess employees EI and measures their personality and competencies within the context of work. To be able to use the WPQ*ei* instrument, The Test Agency Limited provided and authorized the use of the instrument for purposes of this research (Appendix 2) and the Committee of Protection of Human Research Subjects (CPSHI/IRB) from the University of Puerto Rico at Mayagüez, revised and approved the use of the instrument (Appendix 3).

3.3 The Sample

The sample for this research was selected from Pharmaceutical and Medical Devices Industry in the western region of PR. Both groups were selected because of their relevance and economic contribution to the manufacturing sector of the Island. The target sample was composed by managerial and non-managerial employees from the selected companies.

3.3.1 Sample Selection

The Puerto Rico Industrial Development Company (PRIDCO), the agency in charge of assisting companies to set up operations on the island, has identified three major business units: Life Sciences; Information, Communications, Technology, Engineering and Aerospace; and Strategic Industries and Services. Pharmaceutical and Medical Devices industry groups are part of the Life Sciences unit. According to PRIDCO website, these groups are the most important

on the island. PR has a proven 40-year track record as a major pharmaceutical and medical devices center in the world. Twenty five percent of the world's biological manufacturing capacity is located in PR.

In PR, the manufacturing sector generates approximately 120,000 direct jobs, according to PRIDCO.   As of 2006, according to the Pharmaceutical Industry Association of Puerto Rico (PIAPR) web page, the Pharmaceutical Industry generated around 30,000 of these direct jobs in PR, which represents over 26% of the total workforce generated in the manufacturing sector. Also, this industry provides a major market for other island industries, small businesses and professional organizations that provide an ample range of goods and services, generating approximately 100,000 indirect jobs on the Island.

The Pharmaceutical Industry represents 24% of Puerto Rico's Island Gross Domestic Product, according to PIAPR. Its impact is also evident through its payroll. The average wage among production workers is along the highest salaries paid in the Island. In 2006, PR exports in the Pharmaceutical Industry reached 60% of all island exports.

The Medical Devices Industry has a sizable presence in PR, making the Island one of the largest high-tech manufacturing centers in the Unites States (US), according to PRIDCO web page. Fifty percent of all pacemakers and defibrillators sold in the US are manufactured in PR. In 2003, PR shipped over $2 billion in medical, scientific and scientific devices, placing it 8th in the world in the total shipments. According to PRIDCO, there are more than 65 plants and 17,000 jobs created by this industry on the island.

The companies chosen for this research were identified as follows. First, the Life Sciences Companies Map of PRIDCO (Figure 3.1) was evaluated to obtain the pharmaceutical and medical devices companies established on the island. Second, companies, from PRIDCO

database, located in towns from the western region, known as "Porta del Sol[5]" (Figure 3.2), were finally selected as the sample for this research.

The towns located in the western region of PR are: Aguada, Aguadilla, Añasco, Cabo Rojo, Guánica, Hormigueros, Isabela, Lajas, Las Marías, Maricao, Mayagüez, Moca, Quebradillas, Rincón, Sábana Grande, San Germán, and San Sebastián. The companies selected were: Advanced Medical Optics (Añasco), Angiotech (Rincón), Bristol-Myers Squibb (Mayagüez), Cardinal Health (Añasco), Cordis (San Germán), Edwards Lifesciences (Añasco), Eli Lilly (Mayagüez), Fenwal (Maricao and San Germán), Integra Neuro Sciences (Añasco), and LifeScan (Aguadilla and Cabo Rojo).

Figure 3.1 Life Sciences Companies in Puerto Rico
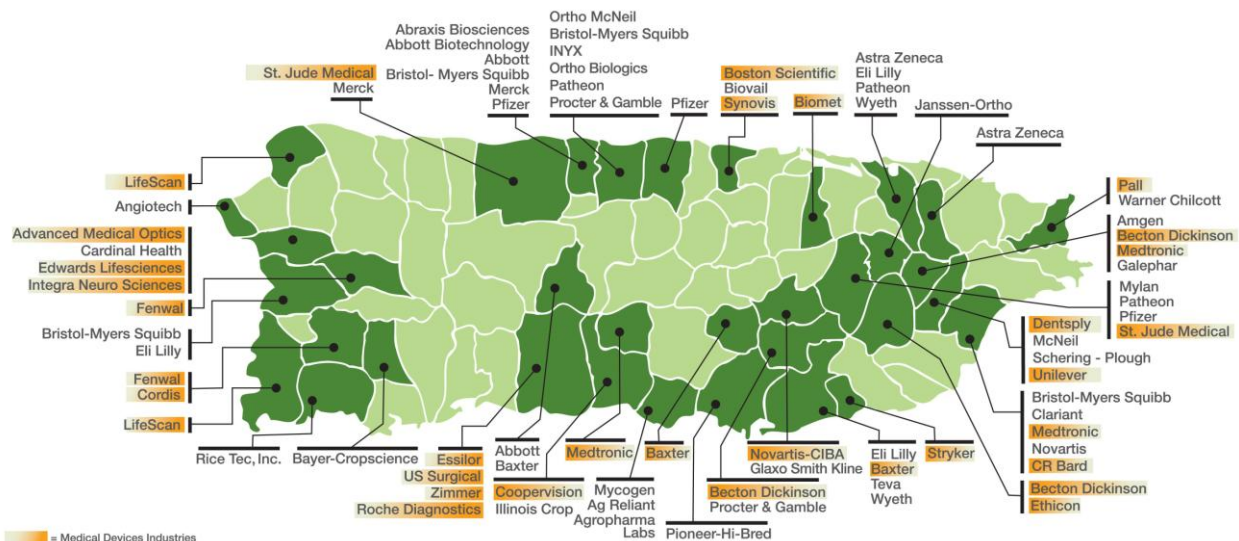
Source: PRIDCO Website http://www.pridco.org/portal/images/mapa_medical_devices.jpg

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[5] "Porta del Sol" is a trademark geographical division created on December 2005 to promote the Western Region as a touristic destination.

Figure 3.2 Western Region of Puerto Rico - "Porta del Sol" Official Map

FOR MORE INFORMATION CLICK ON
THE DESIRED MUNICIPALITY ABOVE.

Source: Porta del Sol Website http://www.gotoportadelsol.com/index_esp.php

3.3.2 Sample Size

Through several communications via electronic mail with Mr. Roy Acosta, an official from PRIDCO, it was identified that the total amount of employees for the selected industries within the western region of Puerto Rico were 15,895. After various attempts to obtain proper authorization from the identified companies, the final sample was selected from the four companies that accepted to collaborate with this research (Appendix 4). For confidentiality purposes, the participating companies were identified as Company A thru Company D. Accordingly, the total amount of employees of the final population was reduced to 1,679 employees, of these 71 work in Company A, 909 in Company B, 605 in Company C, and 94 in Company D.

The sample size was determined using the confidence interval approach. With this method we considered the amount of variability in the population, the accuracy, and the level of confidence.

The formula used to determine the sample size was the following:

(3.1)
$$n = \frac{pq}{\dfrac{e^2}{Z^2} + \dfrac{pq}{N}}$$

where,

       n= the sample size
       p= population proportion
       q= (1-P)
       e= error of estimation
       Z= standard error associated with the chosen level of confidence
       N= population

The level of confidence used in this research was 95%. (A 95% level of confidence allows to state that the researcher is 95% confident that the actual population percentage falls in the range $\pm\ x$ percent around the percentage find in the sample.) The Z value associated with 95% of confidence is 1.96. The actual value of p was not known prior to the study. Therefore, and following customary research practice, it was estimated a p value of 0.5, thus obtaining a q value of 0.5. The acceptable error establishes the desired level of accuracy, and explains how precise the sample estimate is in relation to the population. For the purpose of this research, the error of estimation was established as 10%. With a population of 1, 679 employees, the sample size determined for this research was 91 or more individuals, calculated as follows:

$$91 = \frac{(0.5)(0.5)}{\dfrac{0.10^2}{1.96^2} + \dfrac{(0.5)(0.5)}{1,679}}$$

The sample was obtained in proportion to the size of each company. When proportions were used to stratify the amount of the sample for each company, the estimated sample for Company A was 4 or more individuals because it constituted 4% of the sample (71/1,679). The

estimated samples for the remaining companies were: 49 or more individuals for Company B, 33 or more individuals for Company C, and 5 or more individuals for Company D. Table 3.1 shows the computations for the estimated samples.

Table 3.1 Sample Size

	Proportion		Sample
Company A	71/1679 =	4%	4
Company B	909/1679 =	54%	49
Company C	605/1679 =	36%	33
Company D	94/1679 =	6%	5
		100%	91

3.4 Data Collection

To gather the data, liaisons at the participant companies were contacted to coordinate the administration of the WPQ*ei* to their employees during the period between June and September 2008.   Liaisons were asked to include managerial and non-managerial employees.   The individuals that participated in the research were identified randomly by the companies liaisons on a voluntary basis. The final sample obtained was composed of 82 individuals: 8 from Company A, 15 from Company B, 49 from Company C, and 10 from Company D. The overall response rate was 90%. Once the data was collected, responses were transferred to the WPQ*ei* Scoring Key (Appendix 5), and then a Profile Chart (Appendix 6) was created for each individual in the sample.

3.5 Data Analysis

To analyze the relevance of EI in the Pharmaceutical and Medical Devices Industry in PR, correlations, regression analysis, and mean comparison analysis were applied to the data. Correlations allowed to determine if the variables (EQ and socio-economic characteristics) are

associated with each other. A regression analysis was applied to the data to test if there is an association between EQ and socio-economic variables.

The information obtained from the data allowed to delineate mean comparisons between groups (gender and organizational position) and between companies. The *t*-test was used to determine if there are differences in the means of EQ or EQ component scores between two independent groups (males and females; managerial and non-managerial employees). An analysis of variance, mostly known as ANOVA, allowed to evaluate if the mean scores of EQ or EQ components differ among sampled companies.

The statistical analysis was performed using the Statistical Package for the Social Sciences, commonly known as SPSS. Specific results will be discussed in Chapter IV.

3.6 Summary

This chapter presented a description of the instrument used to gather data for this research along with the sample and data collection procedures and the statistical techniques selected to develop this research. Data from this research was collected with the WPQ*ei* instrument during the period between June and September 2008. The sample was gathered from four companies within the Pharmaceutical and Medical Devices Industry located in the western region of Puerto Rico. To achieve the main objective of this research correlation and regression analysis was performed. Furthermore, *t*-tests and analysis of variance (ANOVA) were used to analyze differences in EQ and EQ components scores between different groups.

CHAPTER IV: RESULTS AND ANALYSIS

4.1 Introduction

This chapter includes a description of the sample and of the participants' profile, as well as the statistical analysis and results obtained to evaluate the main objective of this research. Table 4.1 presents the studied variables.

Table 4.1 Definition of Variables

Variable
AGE = employee's age.
AGE1 = 1 if employee's age is between 21-30 years; 0 otherwise.
AGE2 = 1 if employee's age is between 31-40 years; 0 otherwise.
AGE3 = 1 if employee's age is between 41-50 years; 0 otherwise.
EDU = employee's educational level.
EDU1 = 1 if employee's educational level is at most high school; 0 otherwise.
EDU2 = 1 if employee's educational level is technical degree; 0 otherwise.
EDU3 = 1 if employee's educational level is associate degree; 0 otherwise.
EDU4 = 1 if employee's educational level is bachelor degree; 0 otherwise.
EQ = emotional quotient.
GEN = employee's gender.
GEN1 = 1 if male employee; 0 otherwise.
INCM = employee's average annual income.
INCM1 = 1 if employee's average annual income is between $0-25,000; 0
INCM2 = 1 if employee's average annual income is between $25,001-35,000;
INCM3 = 1 if employee's average annual income is between $35,001-45,000;
POS = employee's organizational position.
POS1 = 1 if employees holds a managerial position, 0 otherwise.
R1 = innovation component.
R2 = self-awareness component.
R3 = intuition component.
R4 = emotions component.
R5 = motivation component.
R6 = empathy component.
R7 = social skills component.
YCOM = years working in the company.
YPOS = years working in the organizational position.

4.2 Demographic Data

This section presents a demographic profile of participants. The socio-economic variables that were included in the questionnaire were gender, age, educational level, position in organization, and average annual income.

4.2.1 Gender

Figure 4.1 presents the proportion of participants by gender. From a total of eighty two employees, 35 (43%) were male and 47 (57%) were female.

Figure 4.1 Gender
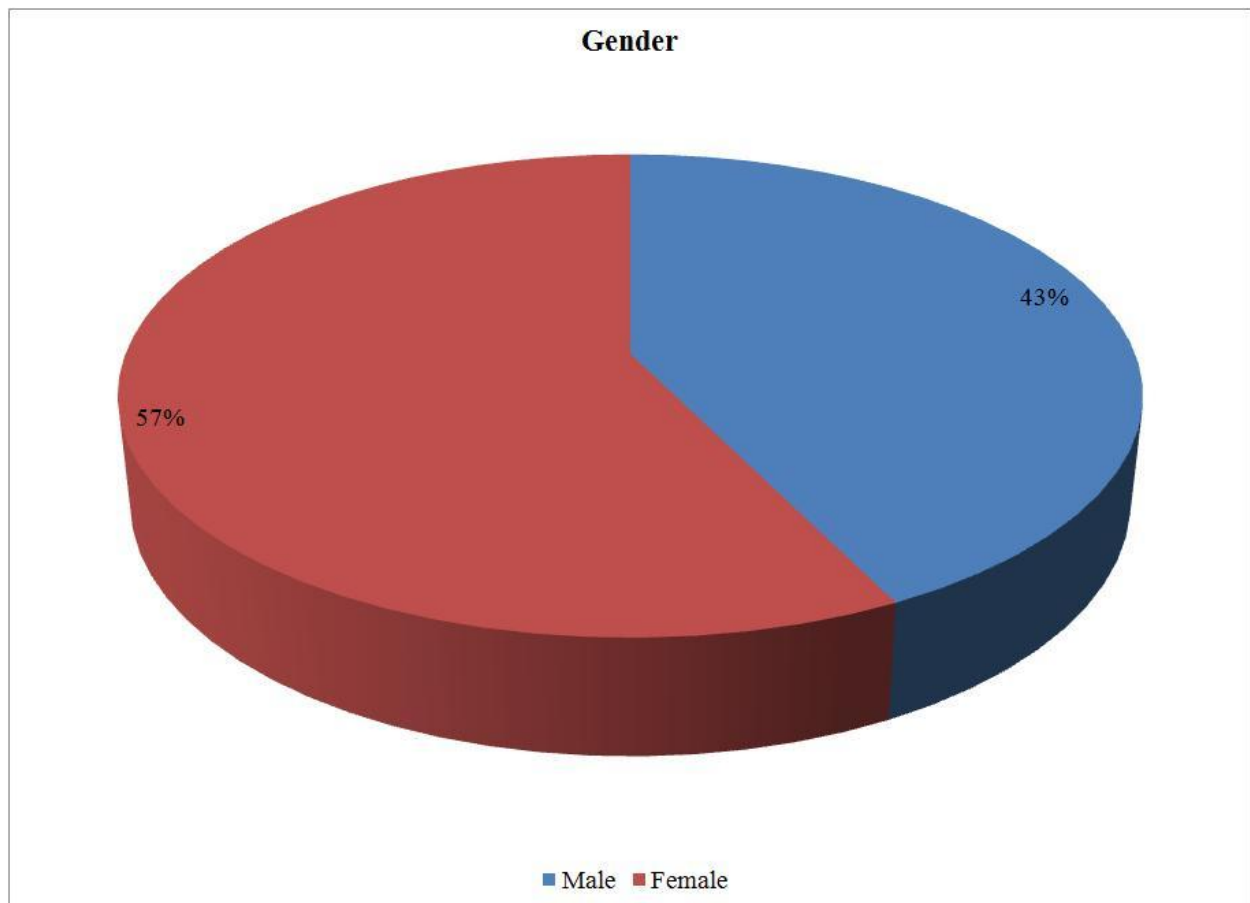
4.2.2 Age

Interval scales were used to measure the employees' age. The intervals run from between 21-30 years up to 51 years and over. Ten, or 12%, were younger participants from 30 years or less. The largest percent of the participants were between 41-50 years. Further details are presented in Figure 4.2.

Figure 4.2 Age
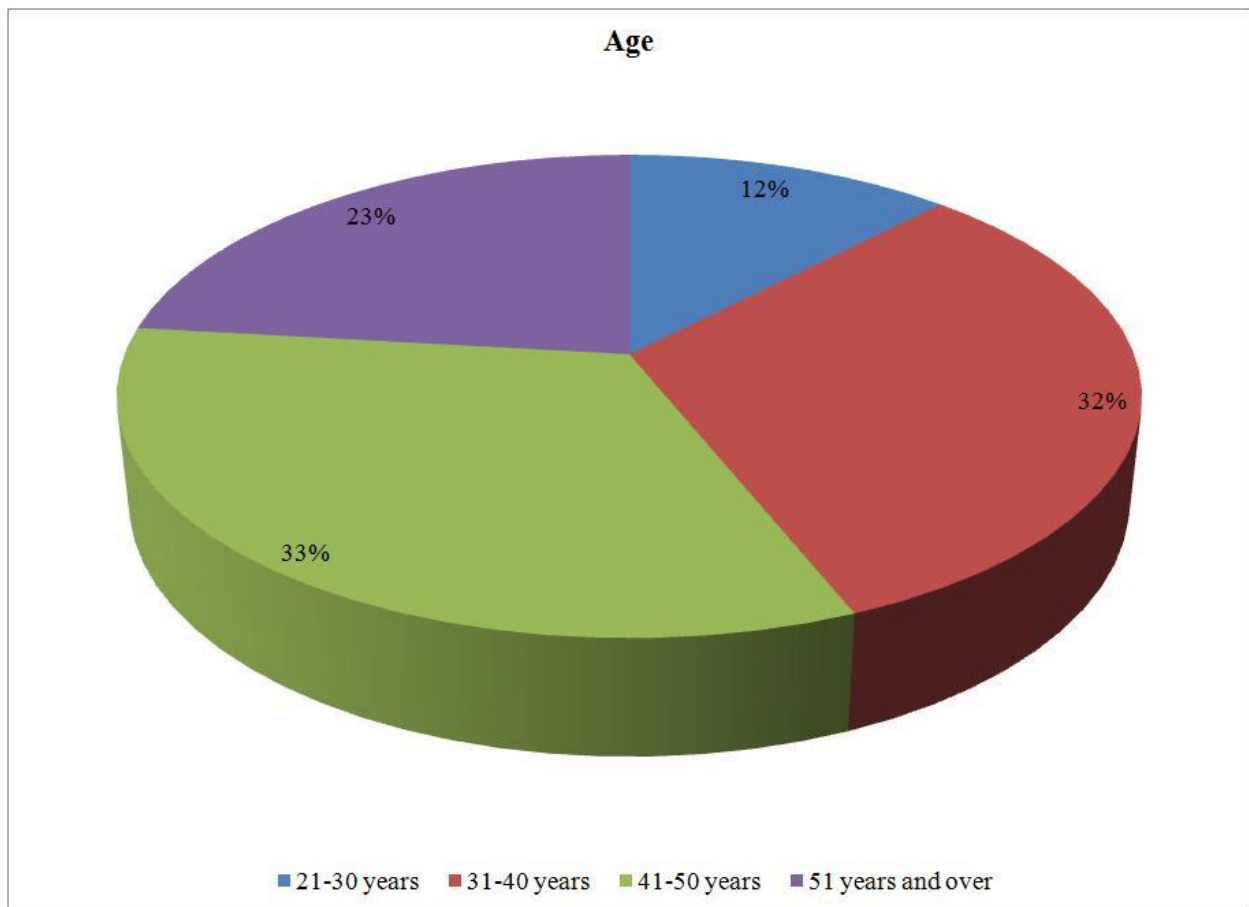
4.2.3 Educational Level

The descriptive statistics from the sample show that more than 70% of the employees held a bachelor or a higher degree. Close to 8% of the sample have at most high school

education and 19% have a technical or associate degree. Figure 4.3 shows a breakdown of the educational level of the sample.

Figure 4.3 Educational Level
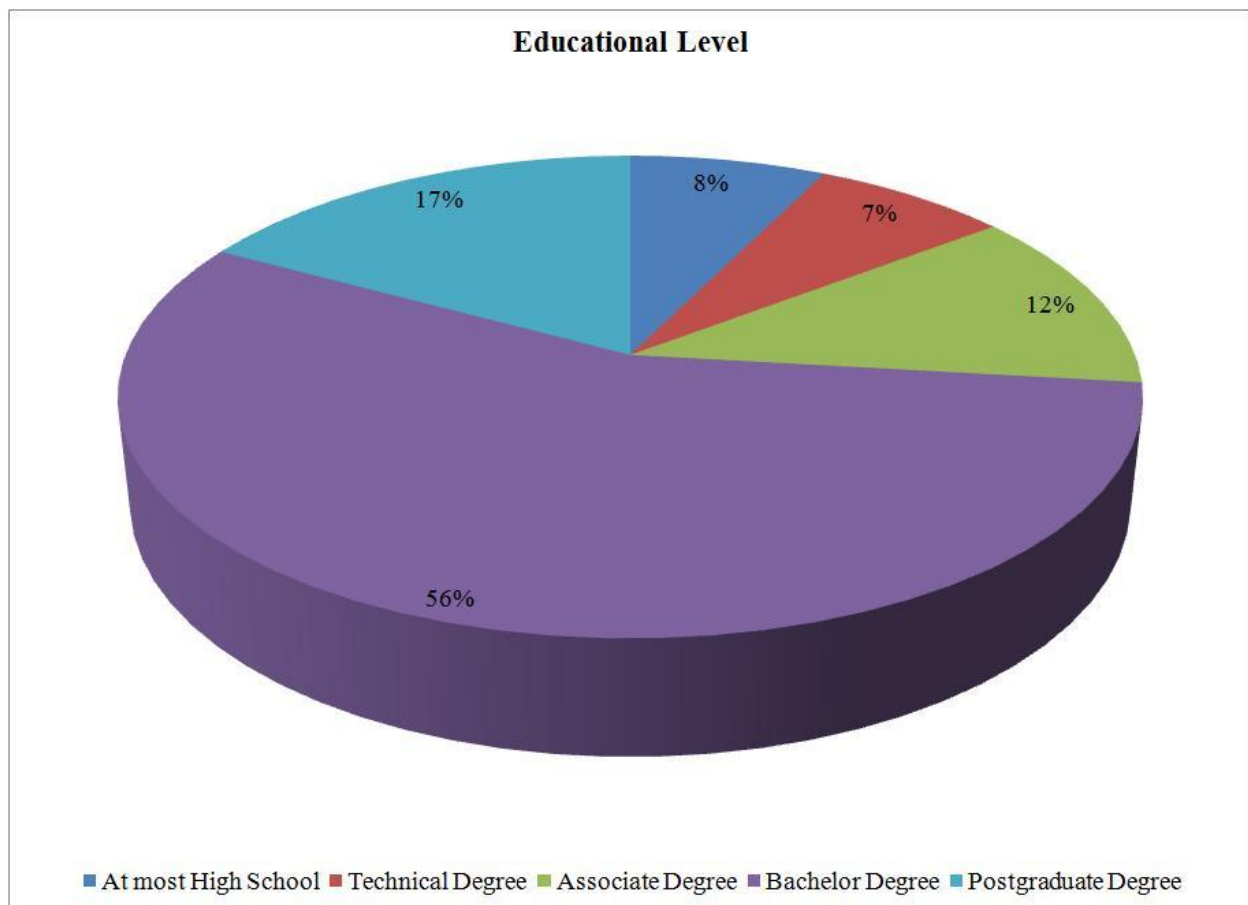
4.2.4 Organizational Position

Figure 4.4 presents the distribution of employees according the position held within the organization. Sixty, or 73%, of the employees hold a non-managerial position, while 22 (27%) were in managerial positions.

Figure 4.4 Organizational Position

Organizational Position

27%

73%

■ Managerial ■ Non-Managerial
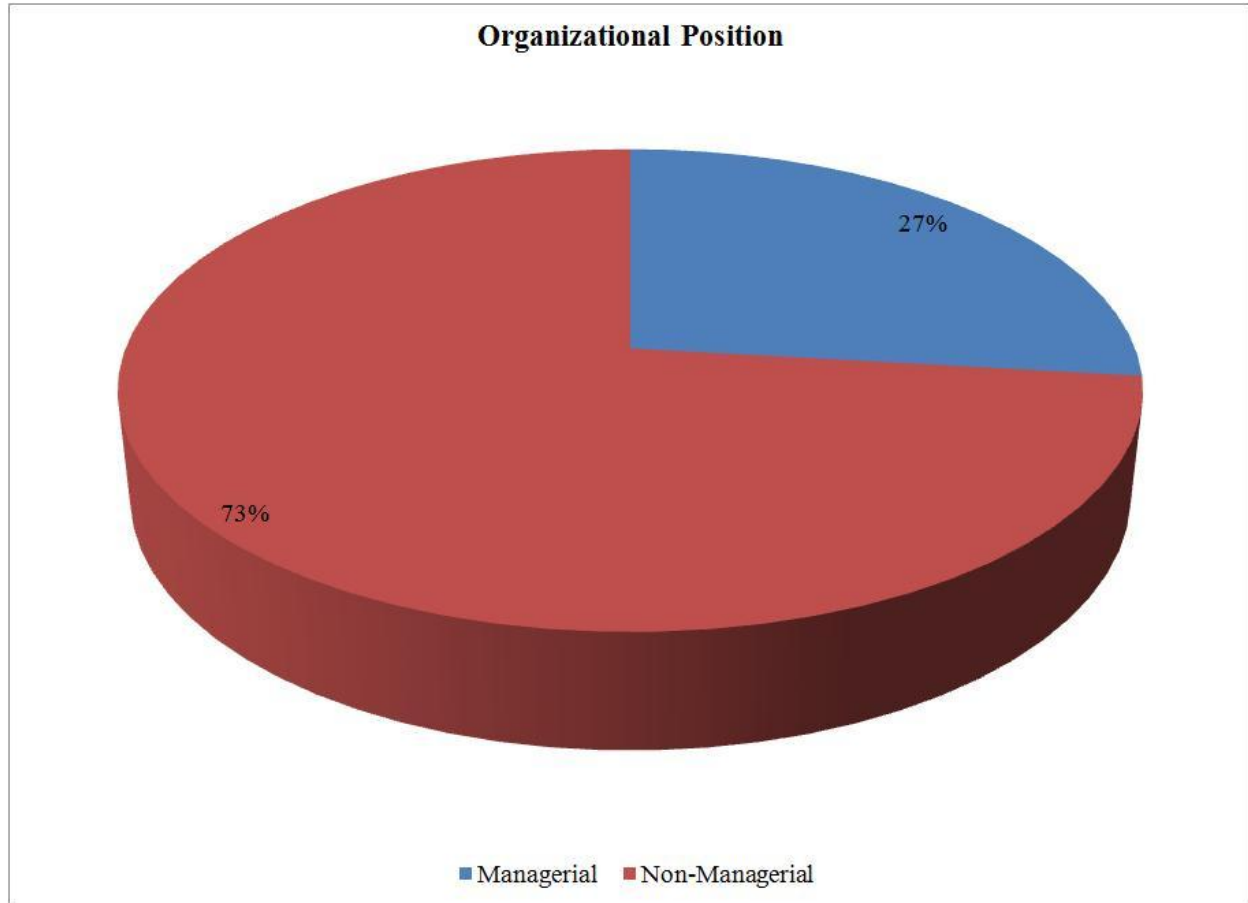
4.2.5 Average Annual Income

Regarding average annual income, close to forty eight percent of the employees have an annual income of $35,000 or less, while about fifty two percent of the employees received an annual income greater than $35,000. Further details regarding the average annual income scales are shown in Figure 4.5.

Figure 4.5 Average Annual Income
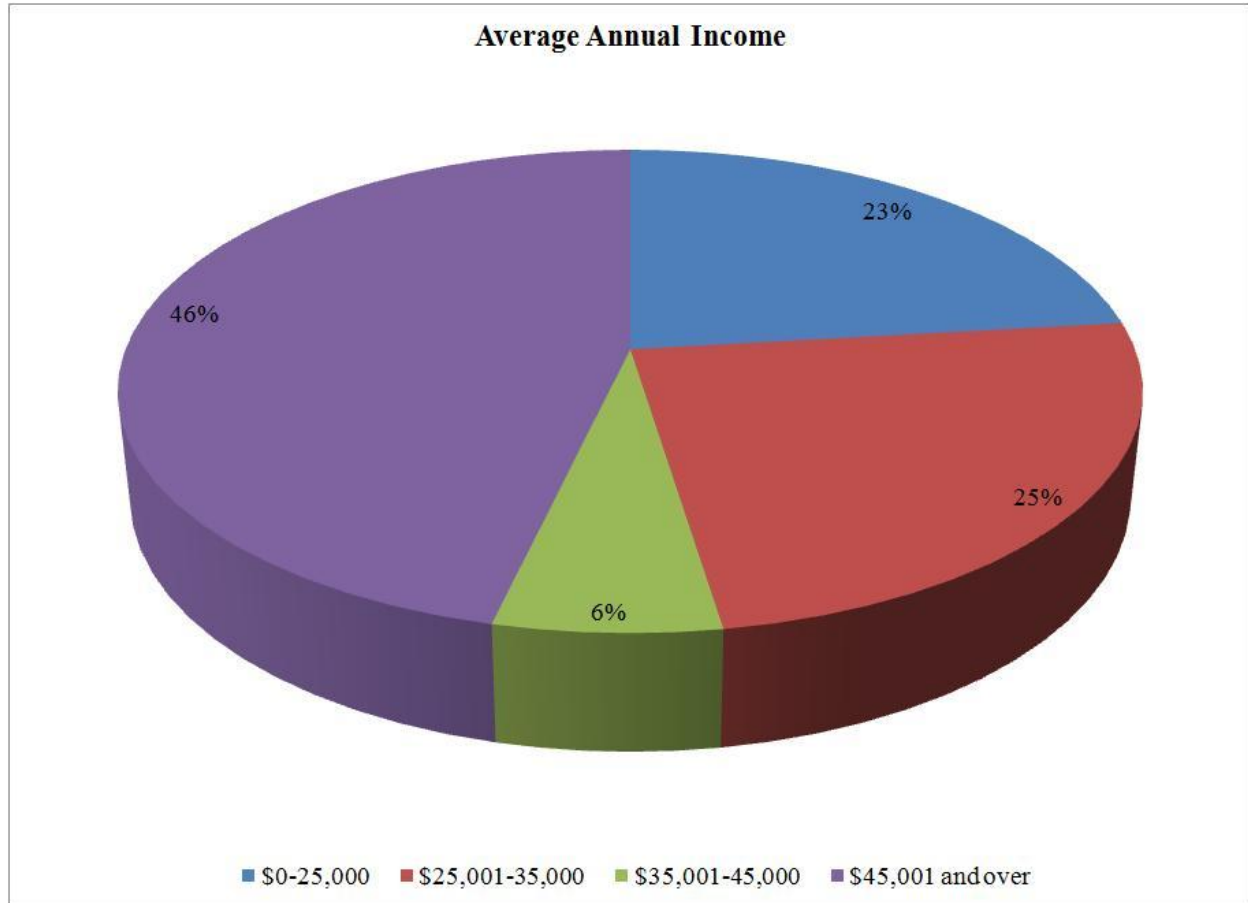
4.3 Emotional Intelligence Quotient and Components

This section presents participants' EQ and EQ component scores, as obtained from the Profile Chart. The seven components measured in the WPQ*ei* were innovation, self-awareness, intuition, emotions, motivation, empathy, and social skills. According to the results, the mean EQ score for the sample was 64.29 out of a possible 70. The scores for each of these components run in a scale from one to ten. As a whole, participants obtained a mean score of nine or higher in most of the components. Table 4.2 presents in detail the aforementioned statistics.

Table 4.2 Descriptive Statistics for EQ and EQ Components Score

	Mean	Std. Deviation
Emotional Quotient	64.29	5.809
Innovation	8.26	1.386
Self-Awareness	9.39	1.163
Intuition	9.49	0.789
Emotions	9.56	1.032
Motivation	8.93	1.481
Empathy	9.45	0.996
Social Skills	9.22	1.122
N=82		

4.3.1 Emotional Intelligence Quotient

Emotional Intelligence (EI) is a general competency underlying effective performance, according to researchers Fineman (1996), Mayer and Salovey (1997), Daniel Goleman (1998), Thi Lam and Kirby (2002), and Emily Cumming (2005). EI involves the ability to understand feelings and emotions, and to manage them in support of daily activities such as thinking, decision making, and communication. EI gives people an overall positive attitude to life, and to work and belief in them.

A person rarely possesses all EI traits at a same degree. Individuals that get high scores are those that can understand and appreciate the personal qualities that they have, and know how to use them effectively. On the other hand, those with low scores are individuals who have not yet learned to fully understand and utilize their personal qualities (WPQei User's Guide, 2006). According to the average EI score obtained from the sample (64.29 out of 70), employees from the pharmaceutical and medical devices industry in the western region of Puerto Rico (PR) seem to be highly emotional intelligent and possess most of EI traits described above.

4.3.2. Components of Emotional Intelligence Quotient

4.3.2.1 Innovation

Innovation is the ability to respond creatively to business problems. There are two styles: adaptors and innovators. High scorers are innovators who tend to produce original ideas. They are willing to challenge status quo, bend the rules, and take risks in order to make things better. Low scorers are adaptors who tend to produce ideas to implement incremental change, drive rules and reduce risks. They are often wary of dramatic change unless there is a good reason for it.

The average innovation score obtained by participants was 8.26 out of 10. This implies that employees from the pharmaceutical and medical devices industry in the western region of PR demonstrated to be high scorers on the innovation component of EI. At the workplace, they have the ability to generate ideas by themselves and in groups. They can take a considerable amount of risks and have the ability to solve problems.

4.3.2.2 Self-Awareness

Self-awareness is a crucial component of EI. It is defined as knowing strengths and weaknesses and how to improve them. People who have high scores on this component are aware of their abilities, competencies and qualities. They are open to new perspectives and feedback. Lower scorers have a false view of their abilities, competencies and qualities. They do not like feedback because they find criticism hard to accept.

In this study, the average self-awareness score obtained by participants was 9.39 out of 10. Employees from the pharmaceutical and medical devices industry in the western region of PR report to be high scorers on the self-awareness component of EI. They understand their

strengths and weaknesses at the workplace. Also, they actively seek feedback on performance and take actions to improve.

4.3.2.3 Intuition

Intuition is the ability to access instincts and feelings to facilitate thinking and decision making. People with a high score in this component have a "sixth sense". They exhibit the ability to use their instinct and feelings to facilitate thinking and decision making, along with some facts and information. People who score low rely more on facts and analysis when making decisions. They do not use emotional knowledge when deciding what to do.

With an average of 9.49 out of 10, participants in the study appear to be high scorers on the intuition component of EI. They learn to develop their sixth sense and find it simple to use their feelings and emotions to guide their work and make decisions.

4.3.2.4 Emotions

The emotions component measures the ability to manage one's own feelings and emotions for the own and others benefit. High scorers in this component are able to recognize and manage their emotional responses to people and situations. People who score low are less aware of their emotional responses and how they can impact others.

Having obtained a score of 9.49 out of 10, individuals in the study report to have high scores on the innovation component of EI. They are usually aware of their feelings and emotions and are capable of managing their impact on others at the workplace.

4.3.2.5 Motivation

Motivation is the characteristic that arouses an individual to take action toward a desired goal. This is a desirable ability in most work situations. People with high scores in motivation are driven to achieve excellence and quality. They tend to be passionate about their work and have personal challenges, trying to improve themselves and realize their potential. People with low scores lack career commitment. They let things happen and are more liable to make mistakes and errors.

An average score of 8.93 out of 10 resulted in this component. This represent that the participating employees are high scorers on the motivation component of EI. In the workplace, they set personal challenges, get things done, and strive for quality service and excellence.

4.3.2.6 Empathy

Empathy means considering peoples view, feelings, problems and concerns alongside other factors when making decisions. People with high scores in this component show sensitivity and understand other people's perspectives. They make time for people and help out based on understanding other people's needs, feelings, concerns, and problems. People who score lower on this component are not interested in other people's views, needs and problems. They often find it hard to really listen to what other people have to say.

The average score obtained for this component was 9.45 out of 10. This describes that the participants are high scorers on the empathy component of EI. At the workplace, they make time for others, listening to their views and concerns. Also, they are sensitive to people's background, values and cultures, and help others to overcome obstacles.

4.3.2.7 Social Skills

Social Skills can be defined as the ability to build relationships and communicate effectively. These allow a person to put their EI to work. High scorers are sociable and spend time on developing relationships with others. They have excellent communication skills and work well in team, having the ability to inspire and guide people. Low scorers work better individually and have poor social skills.

The average social skills score obtained by participants was 9.22 out of 10. This implies that employees from pharmaceutical and medical devices industry in the western region of PR are high scorers on the social skills component of EI. In the workplace, they work in team effectively. Also, they are excellent communicators and build good relationships and networks.

4.4 Correlation Analysis

The correlation measures the direction and strength of the linear relationship between two quantitative variables (Moore, McCabe, Duckworth & Sclove, 2003). Correlation coefficient is usually written as *r*. The possible values of *r* range from -1.00 to 1.00. The closer the coefficient is to an absolute value of 1.00, the greater the degree of relatedness. Values near 0 indicate a very weak linear relationship. A positive value indicates that there is a positive association between variables, and a negative one indicates negative association. The extreme values -1.00 and 1.00 indicate perfect linear relationship.

The correlation coefficient is used specifically to describe relationships when the variables to be correlated are quantitative. This analysis also assumes that the correlated variables are normally distributed, and that the relationship between the two variables approximates a linear one. While there are no specific rules, here is a general rule of thumb: *r*

values greater than 0.50 indicate a strong correlation, values around 0.30 indicate a moderate correlation, and values less than 0.20 indicate a weak correlation. The correlation analysis allows identifying the variables that will be used in the multiple regression analysis.

For this analysis, the socio-economic variables were correlated against the EQ score. Table 4.3 presents the correlations between the independent (EQ) and dependent variables (socio-economic variables). The EQ score is negatively related with age (21-30 years), educational level (at most high school and associate degree), and average annual income (between $0-25,000). According to the correlation analysis, there is a positive relationship between EQ and organizational position (managerial).

Table 4.3 Correlation: Emotional Quotient and Socio-economic Variables

		GEN1	AGE1	AGE2	AGE3	EDU1	EDU2	EDU3	EDU4	POS1	YPOS	YCOM	INCM1	INCM2	INCM3	EQ
GEN1	Pearson Correlation	1	-0.020	0.101	-0.185	0.042	0.231	-0.171	-0.131	0.145	0.079	-0.049	-0.123	-0.146	-0.014	0.114
	Sig. (2-tailed)		0.857	0.368	0.096	0.711	0.037	0.125	0.241	0.193	0.481	0.661	0.270	0.192	0.902	0.307
AGE1	Pearson Correlation	-0.020	1	-0.254	-0.261	0.038	-0.105	-0.025	0.179	-0.142	-0.314	-0.325	0.149	0.135	0.061	-0.277
	Sig. (2-tailed)	0.857		0.021	0.018	0.732	0.349	0.824	0.107	0.205	0.004	0.003	0.183	0.225	0.588	0.012*
AGE2	Pearson Correlation	0.101	-0.254	1	-0.477	-0.091	0.211	0.066	-0.137	-0.117	-0.310	-0.371	0.185	-0.082	-0.174	0.083
	Sig. (2-tailed)	0.368	0.021		0.000	0.417	0.057	0.553	0.221	0.296	0.005	0.001	0.096	0.465	0.119	0.456
AGE3	Pearson Correlation	-0.185	-0.261	-0.477	1	-0.097	-0.197	0.056	0.045	0.220	0.085	0.130	-0.139	0.025	0.038	0.054
	Sig. (2-tailed)	0.096	0.018	0.000		0.385	0.076	0.617	0.690	0.047	0.445	0.244	0.214	0.823	0.732	0.628
EDU1	Pearson Correlation	0.042	0.038	-0.091	-0.097	1	-0.079	-0.105	-0.318	-0.170	0.225	0.102	0.290	-0.051	0.124	-0.322
	Sig. (2-tailed)	0.711	0.732	0.417	0.385		0.481	0.349	0.004	0.126	0.042	0.364	0.008	0.652	0.267	0.003*
EDU2	Pearson Correlation	0.231	-0.105	0.211	-0.197	-0.079	1	-0.105	-0.318	-0.170	0.082	-0.015	0.179	0.059	-0.072	0.124
	Sig. (2-tailed)	0.037	0.349	0.057	0.076	0.481		0.349	0.004	0.126	0.462	0.895	0.108	0.602	0.523	0.268
EDU3	Pearson Correlation	-0.171	-0.025	0.066	0.056	-0.105	-0.105	1	-0.421	-0.226	0.103	0.029	0.237	0.222	-0.095	-0.206
	Sig. (2-tailed)	0.125	0.824	0.553	0.617	0.349	0.349		0.000	0.041	0.358	0.797	0.032	0.045	0.396	0.063*
EDU4	Pearson Correlation	-0.131	0.179	-0.137	0.045	-0.318	-0.318	-0.421	1	0.147	-0.312	-0.052	-0.213	0.045	0.020	0.058
	Sig. (2-tailed)	0.241	0.107	0.221	0.690	0.004	0.004	0.000		0.186	0.004	0.643	0.055	0.690	0.858	0.607
POS1	Pearson Correlation	0.145	-0.142	-0.117	0.220	-0.170	-0.170	-0.226	0.147	1	-0.026	0.033	-0.333	-0.216	-0.039	0.251
	Sig. (2-tailed)	0.193	0.205	0.296	0.047	0.126	0.126	0.041	0.186		0.817	0.770	0.002	0.052	0.726	0.023*
YPOS	Pearson Correlation	0.079	-0.314	-0.310	0.085	0.225	0.082	0.103	-0.312	-0.026	1	0.635	-0.198	0.073	0.142	0.000
	Sig. (2-tailed)	0.481	0.004	0.005	0.445	0.042	0.462	0.358	0.004	0.817		0.000	0.074	0.513	0.202	0.995
YCOM	Pearson Correlation	-0.049	-0.325	-0.371	0.130	0.102	-0.015	0.029	-0.052	0.033	0.635	1	-0.140	-0.080	0.187	0.010
	Sig. (2-tailed)	0.661	0.003	0.001	0.244	0.364	0.895	0.797	0.643	0.770	0.000		0.210	0.473	0.093	0.929
INCM1	Pearson Correlation	-0.123	0.149	0.185	-0.139	0.290	0.179	0.237	-0.213	-0.333	-0.198	-0.140	1	-0.312	-0.140	-0.368
	Sig. (2-tailed)	0.270	0.183	0.096	0.214	0.008	0.108	0.032	0.055	0.002	0.074	0.210		0.004	0.210	0.001*
INCM2	Pearson Correlation	-0.146	0.135	-0.082	0.025	-0.051	0.059	0.222	0.045	-0.216	0.073	-0.080	-0.312	1	-0.145	0.020
	Sig. (2-tailed)	0.192	0.225	0.465	0.823	0.652	0.602	0.045	0.690	0.052	0.513	0.473	0.004		0.195	0.856
INCM3	Pearson Correlation	-0.014	0.061	-0.174	0.038	0.124	-0.072	-0.095	0.020	-0.039	0.142	0.187	-0.140	-0.145	1	0.005
	Sig. (2-tailed)	0.902	0.588	0.119	0.732	0.267	0.523	0.396	0.858	0.726	0.202	0.093	0.210	0.195		0.966
EQ	Pearson Correlation	0.114	-0.277	0.083	0.054	-0.322	0.124	-0.206	0.058	0.251	0.000	0.010	-0.368	0.020	0.005	1
	Sig. (2-tailed)	0.307	0.012	0.456	0.628	0.003	0.268	0.063	0.607	0.023	0.995	0.929	0.001	0.856	0.966	

Note: *Correlation is significant at the 0.10 level.

4.5 Regression Analysis

Multiple regression was chosen as one of the most viable testing methods, as it is ideal to test the association existing in a dependence relationship. The multiple regression equation predicts behavior of a dependent variable that has a linear relationship with a series of independent variables. The statistical model for multiple linear regression is as follows:

$$Y = \beta_0 + \sum \beta_i X_i + \varepsilon$$

where,

Y= dependent variable
β_0= constant coefficient
β_i= coefficients of X_i
X_i= independent variables (i= 1 to n).

ε=standard error

To make inferences in a multiple regression setting, it is needed to make some assumptions about the data (Moore, McCabe, Duckworth & Sclove, 2003). Multiple regression relies upon certain assumptions about the variables used in the analysis: linearity, constant variance (homoscedasticity), and normality. Linearity assumes that the relationship between variables is linear. Accurate estimates of the relationship between dependent and independent variables can be solely achieved with standard multiple regression if the relationships are linear in nature. Homoscedasticity means that the variance of errors is the same across all levels. When the variance of errors differs at different values, heteroscedasticity is indicated. Slight heteroscedasticity has little effect on significance tests, however, when heteroscedasticity is marked it can lead to serious distortion of findings and seriously weaken the analysis thus increasing the possibility of errors. In multiple regression, it is assumed that the residuals (predicted minus observed values) follow the normal distribution. Regression assumes that

variables have normal distributions because non-normally distributed variables can distort relationships and significance tests. It is not required that the model be precisely correct, it is only required that it is approximately true and that the data does not severely violate the assumptions (Moore, McCabe, Duckworth & Sclove, 2003).

In this analysis, EQ was considered as the dependent variable and the socio-economic variables were considered as independent variables. The variables were tested and they did not violate the assumptions of multiple regression. EQ was regressed against the socio-economic variables using the "enter" and "stepwise" method[6]. The model provided by the enter method was selected because it produced the largest coefficient of determination (R^2). The statistical model for multiple linear regression developed for this research follows:

$$
\begin{aligned}
\hat{EQ} = \ & 68.034 & + & \ 0.244(GEN1) & - & \ 4.976(AGE1) \\
& - \ 0.635(AGE2) & - & \ 0.998(AGE3) & - & \ 6.884(EDU1) \\
& + \ 0.809(EDU2) & - & \ 4.197(EDU3) & - & \ 1.906(EDU4) \\
& + \ 1.337(POS1) & - & \ 0.053(YPOS) & - & \ 0.023(YCOM) \\
& - \ 2.417(INCM1) & + & \ 1.056(INCM2) & + & \ 1.145(INCM3)
\end{aligned}
$$

In this research, a significant relationship was found between EQ and the socio-economic variables. The F-test established that there is sufficient evidence to sustain the usefulness of this model in predicting EQ. The R^2 (coefficient of determination) of the regression model is 0.308, indicating that 30.8% of variance in EQ is explained by socio-economic variables. Thus, it can be concluded that these socio-economic variables, as a whole, can predict EQ. Table 4.4 shows the coefficients for the regression model.

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[6] In the enter regression method all predictor variables entered in the model in a single step in order of decreasing tolerance. The stepwise regression method selects, from the predictor variables, a small number of variables that explain most of the variation in the dependent variable. In this procedure predictor variables enter or leave the regression equation one at a time.

Table 4.4 Multiple Regression: Emotional Quotient and Socio-economic Variables

Variables	Coefficients	Significance
EQ	68.034	0.000
	(2.895)	
GEN1	0.244	0.855
	(1.333)	
AGE1	-4.976	0.073
	(2.736)	
AGE2	-0.635	0.765
	(2.113)	
AGE3	-0.998	0.582
	(1.806)	
EDU1	-6.884	0.033
	(3.167)	
EDU2	0.809	0.795
	(3.093)	
EDU3	-4.197	0.129
	(2.733)	
EDU4	-1.906	0.296
	(1.810)	
POS1	1.337	0.401
	(1.582)	
YPOS	-0.053	0.609
	(0.104)	
YCOM	-0.023	0.800
	(0.091)	
INCM1	-2.417	0.275
	(2.194)	
INCM2	1.056	0.581
	(1.904)	
INCM3	1.145	0.672
	(2.691)	

$R^2 = 30.8\%$
Overall Test F=2.134
Significance level: 10%

Notes:

a. The regression coefficients are followed by the standards errors (in parentheses).

b. The reference gender is female; the reference age is 51 years and over; the reference educational level is postgraduate degree; the reference average income is $45,001 and over.

The coefficients for age (21-30 years) and educational level (at most high school) were found to be statistically significant, meaning that these socio-economic variables predict the EQ score in this model. In other words, with other variables being constant, younger employees will have lower EQ scores. The same relationship exists with the educational level: the lower the employee's educational level, the lower their EQ score.

These findings support the results from previous studies that suggest that EQ and age are related. For example, Steven Stein (1997) found a consistent and significant relationship between age and EI. Also, Nikolaou and Tsaousis (2002) found a significant relationship between age and EI. On the other hand, the results from this research are different than those from Cumming (2005). In her research, Cumming did not find a significant relationship between age and EI.

In addition, these results failed to support previous findings regarding the relationship between education and EI. Nikolaou and Tsaousis (2002) found a positive significant relation between education and EI. As with age, Emily Cumming (2005) did not find a significant relationship between education and EI. A relationship between education and EI was not expected because it is generally agreed that EI can be learned and developed with specific courses, no matter the level of general education.

4.6 *t*-Test Analysis

The *t*-test measures the significance of a difference of means. It can be used to compare the means of one or two groups. In this research the focus was to compare the mean of two different groups.

The two sample *t*-test is used to determine whether the difference between means of two groups is due to the independent variable. This test assumes normality and that the variances in the two groups are equal. It is an appropriate test when a between-subjects design is used. The hypotheses for two sample *t*-test are defined as follows:

$$H_0 : \mu_1 = \mu_2$$
$$H_1 : \mu_1 \neq \mu_2$$

To correctly interpret the *t* test results, first the homogeneity of variance is tested using the Levene's Test for Equality of Variances. It provides a test of one of the assumptions of the *t*-test, that the variances in the two groups are equal. If this assumption is violated in the data, a statistical adjustment needs to be made. The *F* statistic and its probability provide this test. The results of the *F* test determine whether to use the equal variances assumed rows or the equal variances not assumed rows in evaluating the *t* statistic.

There are some relations that will be tested as part of this research using the *t*-test. Differences in the mean EQ or EQ components scores by gender will be tested. Also, differences between mean EQ or EQ component scores by organizational position will be tested.

4.6.1 *t*-Test Analysis for Emotional Quotient Score by Gender

The hypothesis to test if there are differences between EQ score by gender was defined as follows. Table 4.5 presents the *t*-test results for EQ score by gender.

$$H_0 : \text{the mean EQ score is the same for males and females.}$$
$$H_1 : \text{the mean EQ score is not the same for males and females.}$$

According to the Levene's *F* test for equality of variances, the probability for the *F* value was statistically significant. Thus, it is assumed that the variances of the two groups are not

equal. The results indicate that there was no statistical significant difference in the mean EQ score between males and females. That is, the mean EQ score of males was not significantly different from females. This finding supports the research of Stein (1997), Nikolaou and Tsaousis (2002), and Cumming (2005). Neither one found statistical significant relationship between gender and EI. However, the findings of Oginska-Bulik (2005) were not supported, because she found higher EI level in women than in men.

Table 4.5 *t*-Test: Emotional Quotient Score by Gender

	Levene's Test for Equality of Variances		*t*-test for Equality of Means	
	F	Sig.	*T*	Sig.
EQ	4.226	0.043		
Equal variances assumed			1.029	0.307
Equal variances not assumed			1.082	0.283

4.6.2 *t*-Test Analysis for Emotional Quotient Components by Gender

To test if there are differences between EQ components (R1 thru R7) by gender the hypotheses were defined as follows:

H_0: *the mean score of EQ components is the same for males and females.*
H_1: *the mean score of EQ components is not the same for males and females.*

In the Levene's *F* test for equality of variances, the probability for the *F* value in innovation (R1), emotions (R4), motivation (R5), empathy (R6) and social skills (R7) components was not statistically significant, so it is assumed that the variance of the two groups are equal. In the self-awareness (R2) and intuition (R3) components, the probability for the *F*

value was statistically significant and it is assumed that the variance of the two groups is not equal.

The results indicate that there were not statistically significant mean differences in EQ components between males and females. In other words, the average EQ components scores of males were not significantly different from females. It was not expected to find differences in the mean score of EQ components between males and females because there was no significant differences in EQ score means between these groups. The results are shown on Table 4.6.

Table 4.6 *t*-Test: Emotional Quotient Components Score by Gender

	Levene's Test for Equality of Variances		*t*-test for Equality of Means	
	F	Sig.	*t*	Sig.
R1: Innovation	1.311	0.256		
Equal variances assumed			-1.123	0.265
Equal variances not assumed			-1.135	0.260
R2: Self-Awareness	5.245	0.025	1.221	0.226
Equal variances assumed				
Equal variances not assumed			1.285	0.203
R3: Intuition	4.054	0.047		
Equal variances assumed			1.112	0.269
Equal variances not assumed			1.161	0.249
R4: Emotions	2.556	0.114		
Equal variances assumed			0.944	0.348
Equal variances not assumed			0.998	0.321
R5: Motivation	2.205	0.141		
Equal variances assumed			1.296	0.199
Equal variances not assumed			1.332	0.187
R6: Empathy	1.366	0.246		
Equal variances assumed			0.717	0.475
Equal variances not assumed			0.744	0.459
R7: Social Skills	2.312	0.132		
Equal variances assumed			1.466	0.147
Equal variances not assumed			1.511	0.135

4.6.3 *t*-Test Analysis for Emotional Quotient Score by Organizational Position

The hypotheses to test if there are mean EQ score differences between organizational positions were defined as follows:

H_0 : *the mean EQ score is the same for managerial and non-managerial employees.*
H_1 : *the mean EQ score is not the same for managerial and non-managerial employees.*

The Levene's *F* test for equality of variances was statistically significant. Thus, it is assumed that the variance of the two groups is not equal. In the *t*-test, the results indicate that there were statistically highly significant differences in EQ score mean between managerial and non-managerial employees. That is, the mean EQ score of managerial employees was significantly different from non-managerial employees. Table 4.7 presents the results.

Table 4.7 *t*-Test: Emotional Quotient Score by Organizational Position

	Levene's Test for Equality of Variances		*t*-test for Equality of Means	
	F	Sig.	*t*	Sig.
EQ	10.197	0.002		
Equal variances assumed			2.315	0.023
Equal variances not assumed			3.188	0.002

This result supports several researchers' findings. Bridget Murray (1998) stated that people in high organizational levels tend to be emotionally intelligent. In 1998, Daniel Goleman reviewed studies of approximately 500 organizations worldwide and concluded that managers and leaders have high levels of emotional intelligence. Dulewicz and Higgs (2000) studied one thousand managers over a seven-year period and found that EI factors contributed 36% to an individual's advancement through an organization, while intellectual intelligence contributed only 27%. Nikolaou and Tsaousis (2002) found that job classification affects overall EI score.

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Oppositely, Emily Cumming (2005) did not found significant relationships between occupational groups and EI. Her finding was not supported in this occasion.

4.6.4 *t*-Test Analysis for Emotional Quotient Components by Organizational Position

To test if there are differences between the mean of EQ components (R1 thru R7) and organizational position, the hypothesis was defined as follows:

H_0: *the mean score of EQ components is the same for managerial and non-managerial employees.*
H_1: *the mean score of EQ components is not the same for managerial and non-managerial employees.*

The probability for the *F* value in innovation (R1) and self-awareness (R2) components was not statistically significant, so it is assumed that the variance of the two groups is equal. In intuition (R3), emotions (R4), motivation (R5), empathy (R6) and social skills (R7) components, the probability for the *F* value was statistically significant, so the variance of the two groups is not equal.

The results indicate that there were statistically significant mean differences between managerial and non-managerial employees for the components of intuition, emotions, motivation, empathy and social skills. That is, the mean score in these EQ components was significantly different between the groups. In contrast, Nikolaou and Tsaousis (2002) found no effect on job type occurred in EI subscales. Refer to Table 4.8 for detailed results.

Table 4.8 *t*-Test: Emotional Quotient Components Score by Organizational Position

	Levene's Test for Equality of Variances		*t*-test for Equality of Means	
	F	Sig.	*t*	Sig.
R1: Innovation	0.455	0.502		
Equal variances assumed			1.516	0.133
Equal variances not assumed			1.604	0.116

	Levene's Test for Equality of Variances		t-test for Equality of Means	
	F	Sig.	t	Sig.
R2: Self-Awareness	1.380	0.244		
Equal variances assumed			0.730	0.468
Equal variances not assumed			0.775	0.443
R3: Intuition	11.152	0.001		
Equal variances assumed			2.016	0.047
Equal variances not assumed			2.482	0.016
R4: Emotions	14.095	0.000		
Equal variances assumed			1.879	0.064
Equal variances not assumed			2.909	0.005
R5: Motivation	9.106	0.003		
Equal variances assumed			2.171	0.033
Equal variances not assumed			2.702	0.009
R6: Empathy	5.945	0.017		
Equal variances assumed			1.533	0.129
Equal variances not assumed			1.772	0.082
R7: Social Skills	7.557	0.007		
Equal variances assumed			1.841	0.069
Equal variances not assumed			2.211	0.031

4.7 ANOVA Analysis

The analysis of variance (ANOVA) also tests for significant differences between groups. This test considers two variations: one-way ANOVA, and two-way ANOVA. In a one-way ANOVA, populations are classified according to a single variable, called a factor. The two-way ANOVA classifies populations in more than one way. In this research the one-way ANOVA was used. The null and alternative hypotheses for one-way ANOVA are:

$$H_0 : \mu_1 = \mu_2 = ... = \mu_i$$
$$H_1 : \text{at least one mean is not equal}$$

ANOVA tests the null hypothesis that the population means are all equal. The alternative is that at least one mean is not equal. This alternative could be true because all of the means are different or simply because one of them differs from the rest.

4.7.1 ANOVA Analysis for Emotional Quotient Score by Companies

To test if there are differences in mean EQ score among companies, the hypotheses were defined as follows:

H_0: *the means EQ score are the same for Company A, Company B, Company C and Company D.*
H_1: *at least one of the mean EQ score is different.*

The one-way ANOVA revealed that there was not statistically significant differences in EQ score means among the participants companies (refer to Table 4.9). This result was expected because the companies where from the same industry, resulting in a similar organizational culture.

Table 4.9 ANOVA Analysis: Emotional Quotient Score by Companies

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	16.842	3	5.614	0.161	0.922
Within Groups	2716.133	78	34.822		
Total	2732.976	81			

4.7.2 ANOVA Analysis for Emotional Quotient Components by Companies

The hypothesis to test if there are differences between EQ components and companies was defined as follows:

H_0: *the means EQ components are the same for Company A, Company B, Company C and Company D.*
H_1: *at least one of the mean EQ component is different.*

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The one-way ANOVA (Table 4.10) revealed that there were not statistically significant mean differences in neither of the EQ components between the companies. This result was expected since there were no differences found in EQ score mean between companies, and the EQ score results from the components' score.

Table 4.10 ANOVA Analysis: Emotional Quotient Components Score by Companies

		Sum of Squares	df	Mean Square	F	Sig.
R1: Innovation	Between Groups	1.467	3	0.489	0.247	0.863
	Within Groups	154.155	78	1.976		
	Total	155.622	81			
R2: Self-Awareness	Between Groups	5.012	3	1.671	1.247	0.298
	Within Groups	104.500	78	1.340		
	Total	109.512	81			
R3: Intuition	Between Groups	0.368	3	0.123	0.191	0.902
	Within Groups	50.120	78	.643		
	Total	50.488	81			
R4: Emotions	Between Groups	0.917	3	0.306	0.280	0.840
	Within Groups	85.278	78	1.093		
	Total	86.195	81			
R5: Motivation	Between Groups	0.787	3	0.262	0.116	0.951
	Within Groups	176.774	78	2.266		
	Total	177.561	81			
R6: Empathy	Between Groups	0.939	3	0.313	0.308	0.820
	Within Groups	79.366	78	1.018		
	Total	80.305	81			
R7: Social Skills	Between Groups	0.689	3	0.230	0.177	0.912
	Within Groups	101.359	78	1.299		
	Total	102.049	81			

4.8 Summary

This chapter presented the participants' profile and results obtained from the data. It was found that the participants have a high level of emotional intelligence. Also, they have high

scores in the seven of the EQ components: innovation, self-awareness, intuition, emotions, motivation, empathy, and social skills.

The correlation analysis demonstrated that the variables, age (21-30 years), educational level (at most high school and associate degree), organizational position (managerial), and average annual income (between $0-25,000) are related to EQ. The multiple regression analysis showed that the variables that help predict EQ were age (21-30 years), and educational level (at most high school).

The *t*-test analyses revealed that there are not significant differences in the mean EQ scores and mean EQ components between males and females, but demonstrated a significant difference in mean EQ scores and its components between managerial and non-managerial employees. The one-way ANOVA analysis did not present significant differences in mean EQ scores and mean EQ components among the participating companies.

CHAPTER V: CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions and Recommendations

The main objective of this research was to analyze the relevance of emotional intelligence (EI) in the workplace in Puerto Rico (PR), specifically in the Pharmaceutical and Medical Devices Industry of the western region of the Island. Our findings demonstrated that EI does influence behavior in the workplace. Overall, this research showed that emotional intelligence can be a useful decisive factor for managers as it has the ability to contribute towards the effective selection and development of employees. Also, managers could predict how an employee will perform at work and how he/she could be guided and developed to obtain an excellent performance, according to their characteristics.

As has been reported, the participating employees have a high level of EI and are strong in most of the seven components of EI that were measured: innovation, self-awareness, intuition, emotions, motivation, empathy, and social skills. This implies that employees recognize and understand their skills, knowledge and abilities (SKA's), and know how to use them effectively in their work. In addition, they are aware of their strengths and weaknesses. It could also be argued that they have the ability to work under pressure, and are facilitators for decision making. Although this research did not measure the relationship between these results and the employees' performance, it has been found that these characteristics predispose people to be passionate about their work, trying to improve themselves and realize their potential. It can be argued that employees with these SKA's may exhibit good performance in their work.

When several socio-economic variables (gender, age, educational level, position in organization, years working in the company, years working in organizational position, and average annual income) were evaluated against the emotional quotient (EQ) score, it was found

that the younger the employees, and the lower their education level, the lower their EQ score. Also, significant differences were found between the EQ scores of managerial and non-managerial employees; managers tending to have higher EQ scores. The results from this research support what has been found in studies conducted by Steven Stein (1997), Dulewicz and Higgs (2000), (Nikolaou and Tsaousis (2002), Emily Cumming (2005), and Fariselli, Ghini and Freeman (2006).

This research found significant relationships that may benefit business leaders in their companies. Based on these results, managers can build strategies to improve the productivity and performance of their organization to help it remain competitive. In addition, companies may consider implementing the use of EI testing as part of their selection process particularly for managerial positions.

Measuring their employees' scores in each of the EI components might help managers identify important and specific characteristics that influence employees' behavior at work. For instance, they could identify innovative employees, with high self-awareness, that could turn out to be good problem solvers, motivated, and with strong organizational commitment. This may help managers to effectively match individuals and jobs, and form more productive workgroups.

5.2 Areas for Future Research

Limitations of the present research should be addressed and several areas for future research could be explored. The EI measure employed in this study was based on a self-assessment instrument. Further research could be conducted using another type of instrument, preferably a 360-degree measure, to see if there are differences in the results. Also, the range of the sample could be expanded to consider the Pharmaceutical and Medical Devices industry of

the entire island to identify if there are similar findings. Furthermore, other industry or sector could be studied.

In addition, further research with a more diverse population would add considerably insight to the understanding of the relationship between emotional intelligence and behavior in the workplace. The employees selected could be subdivided by their specific position in the company, not only in terms of being managerial or non-managerial.

Another area for future research is to study the effect that an individual's culture has on his/her level of emotional intelligence. Finally, new research could expand the studied socio-economic variables or could relate emotional intelligence and its components with work performance or job satisfaction.

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APPENDIXES

APPENDIX 1

WORK PROFILE QUESTIONNAIRE-EMOTIONAL INTELLIGENCE VERSION (WPQ*EI*)

WPQei Questionnaire
Cuestionario WPQei

The WPQei assesses a person's emotional intelligence and also measures personality and team role preferences. This is a questionnaire about how you have behaved, thought or felt in various situations. Consider each of the following statements and place a check mark (✓) in the appropriate column of the rating scale to indicate how far each statement applies to you. Try to answer the questions in terms of how you behave at work or approach work situation as it is your behavior at work that we are interested. Try to work through the questionnaire answering as honestly as you can. There is no time limit, but do not spend too long on each question, your first reaction will usually be the best response. Try to avoid using the middle answer, unless you think this is your best answer. If you need to change an answer, cross out your answer clearly and place a check mark (✓) in one of the other boxes.

La prueba WPQei evalúa la inteligencia emocional de un individuo y mide la personalidad y preferencias para trabajar en equipo. Esto es un cuestionario sobre cómo usted se ha comportado, piensa o siente ante varias situaciones. Considere cada una de las siguientes aseveraciones y haga una marca de cotejo (✓) en la columna que pertenezca a la escala que más le aplique. Trate de contestar cada pregunta en términos de cómo usted se comporta en el trabajo o enfrenta una situación de trabajo, ya que lo que nos interesa es su comportamiento en el trabajo. Trate de contestar lo más sincera y honestamente posible. No hay límite de tiempo, pero no se tarde mucho en cada pregunta, usualmente la primera reacción es su mejor respuesta. Evite utilizar la respuesta neutral, a menos que esa sea su mejor contestación. Si necesita cambiar una respuesta, tache su respuesta claramente y coloque una marca de cotejo (✓) en uno de los otros encasillados.

Please answer all the questions *Por favor conteste todas las preguntas*	Always or almost always *Siempre o Casi Siempre*	Very often *Muy a Menudo*	Fairly often *Bastante a Menudo*	From time to time *De Vez en Cuando*	Never or almost Never *Nunca o Casi Nunca*
1. I have been willing to take a gamble *He estado dispuesto a tomar riesgos*					
2. I have looked for evidence to support my hunches *He buscado evidencia para apoyar mis corazonadas*					
3. I have had a sense of humor about myself *He tenido sentido del humor sobre mi*					
4. I have confronted bias and intolerance *He enfrentado prejuicios e intolerancia*					
5. I have made personal sacrifices *He hecho sacrificios personales*					
6. I have understood people's needs and concerns *He entendido las necesidades e inquietudes de las personas*					
7. I have been extrovert and outgoing *He sido extrovertido*					
8. I have done things by the book *He hecho las cosas "por el libro"*					
9. I have been afraid of trusting my instincts *He sentido miedo de confiar en mis instintos*					
10. I have hesitated to ask for feedback *He dudado en pedir retroalimentación*					
11. I have gone ballistic when people have let me down *Me pongo furioso cuando las personas me fallan*					
12. I have done just enough work to get by *He hecho lo suficiente para completar el trabajo*					
13. I have been unable to find the time to listen *No he podido encontrar el tiempo para escuchar*					
14. I have preferred to do things by myself *He preferido hacer las cosas por mí mismo*					

Please answer all the questions *Por favor conteste todas las preguntas*	Always or almost always *Siempre o Casi Siempre*	Very often *Muy a Menudo*	Fairly often *Bastante a Menudo*	From time to time *De Vez en Cuando*	Never or almost Never *Nunca o Casi Nunca*
5. I have generated novel ideas about how to do things differently *He generado nuevas ideas sobre cómo hacer las cosas diferentes*					
16. I have sensed when something was wrong *He sentido cuando algo estaba mal*					
17. I have taken time to reflect and introspect *He tomado tiempo para reflexionar y hacer introspección*					
18. I have taken setbacks in my stride *He aprendido de mis errores*					
19. I have been an example to others *He sido un ejemplo para otros*					
20. I have let people know that I was available to help out *Le he hecho saber a la gente que estoy dispuesto a ayudar*					
21. I have encouraged debate and open discussion *He promovido el debate y las discusiones abiertas*					
22. I have left others to argue for change *He dejado que otros argumenten sobre cambio*					
23. I have tended to ignore my gut feelings *He tendido a ignorar mis instintos*					
24. I have been blind to my problem areas *He estado ciego ante mis áreas problemáticas*					
25. I have got irritated easily *Me he irritado fácilmente*					
26. I have felt that my life was a rat race *He sentido que mi vida va a la carrera*					
27. I have neglected other people's feelings *He ignorado los sentimientos de otras personas*					
28. I have avoided drawing attention to myself *He evitado llamar la atención hacia mi*					
29. I have adapted quickly to change *Me he adaptado rápidamente al cambio*					
30. I have relied on whether a decision felt right *He confiado al sentir que una decisión es correcta*					
31. I have worked with someone else whose strength I lacked *He trabajado con alguien con una fortaleza de la cual carezco*					
32. I have recovered quickly from stress *Me he recuperado rápidamente del estrés*					
33. I have tried to make work fun *He tratado de hacer el trabajo ameno*					
34. I have shared the credit for my successes *He compartido los créditos por mi éxito*					
35. I have been prepared to speak up and point out problems *He estado listo para argumentar y señalar problemas*					
36. I have shied away from taking risks *Me he mantenido lejos de tomar riesgos*					
37. I have been unaware of what was going on around me *No he estado consciente de lo que pasaba a mi alrededor*					
38. I have found it hard to admit personal failings *Se me ha hecho difícil admitir fracasos personales*					
39. I have experienced a lot of highs and lows *He experimentado muchas altas y bajas*					
40. I have felt that I was not making a difference *He sentido que no estoy haciendo una diferencia*					
41. I have wanted to be left alone *He querido que me dejen solo*					

Please answer all the questions *Por favor conteste todas las preguntas*	Always or almost always *Siempre o Casi Siempre*	Very often *Muy a Menudo*	Fairly often *Bastante a Menudo*	From time to time *De Vez en Cuando*	Never or almost Never *Nunca o Casi Nunca*
42. I have revealed little about myself *He revelado poco sobre mi persona*					
43. I have shown a flair for working on innovative projects *He mostrado facilidad para trabajar en proyectos innovadores*					
44. I have made quick decisions intuitively *He tomado decisiones rápidas intuitivamente*					
45. I have tried to be receptive to honest, direct messages *He tratado de mantenerme receptivo a mensajes honestos y directos*					
46. I have worked things out by talking *He trabajado las cosas hablando*					
47. I have set challenging goals for myself *Me he propuesto metas retantes*					
48. I have sensed people's feelings and perspectives *He percibido las perspectivas y sentimientos de las personas*					
49. I have developed close friendships among work associates *He desarrollado amistades cercanas entre los compañeros de trabajo*					
50. I have preferred stability and continuity to frequent change *He preferido la estabilidad y continuidad al cambio frecuente*					
51. I have been afraid of letting my emotions guide me *He sentido miedo de dejar que mis emociones me guíen*					
52. I have been reluctant to ask for advice *He sido reacio para pedir consejos*					
53. I have been oblivious to how my emotions were affecting me *He estado ajeno a cómo mis emociones me afectan*					
54. I have needed to be pushed to get started *He necesitado presión para comenzar*					
55. I have felt embarrassed when people expressed their feelings *Me he sentido avergonzado cuando las personas expresan sus sentimientos*					
56. I have avoided public speaking *He evitado hablar en público*					
57. I have looked for fresh ideas from a wide variety of sources *He buscado ideas nuevas de una extensa variedad de fuentes*					
58. I have sensed how other people felt *He percibido como otras personas se sienten*					
59. I have examined my strengths and weaknesses *He examinado mis fortalezas y debilidades*					
60. I have dealt with difficult situations calmly *He tratado con situaciones difíciles calmadamente*					
61. I have demanded a very high standard *He exigido un estándar muy alto*					
62. I have gone out of my way to help people *Me he salido de mi línea para ayudar a la gente*					
63. I have spent a good deal of time building relationships *He dedicado bastante tiempo para desarrollar relaciones*					
64. I have been reluctant to challenge the status quo *He estado reacio a desafiar el estatus quo*					
65. I have failed to spot potential trouble *He fallado en identificar problemas potenciales*					
66. I have been afraid of seeming inept *He tenido miedo de parecer inepto*					
67. I have been reluctant to acknowledge my feelings and emotions *He estado reacio a reconocer mis sentimientos y emociones*					
68. I have found it difficult to get down to work *He encontrado difícil comenzar un trabajo*					

Please answer all the questions *Por favor conteste todas las preguntas*	Always or almost always *Siempre o Casi Siempre*	Very often *Muy a Menudo*	Fairly often *Bastante a Menudo*	From time to time *De Vez en Cuando*	Never or almost Never *Nunca o Casi Nunca*
69. I have been insensitive to other people's problems *He sido insensible a los problemas de otros*					
70. I have tended to wait for others to lead the way *He tenido la tendencia de esperar que otros tomen la iniciativa*					
71. I have invented new ways of doing things *He inventado (creado) nuevas maneras de hacer las cosas*					
72. I have trusted my sixth sense *He confiado en mi sexto sentido*					
73. I have known what I needed to improve to increase my performance *He reconocido lo que necesito para mejorar mi desempeño*					
74. I have been prepared to stand out in disagreement to defend my views *Estoy preparado para expresar mi desacuerdo y defender mis puntos de vista*					
75. I have got things done *He conseguido hacer las cosas*					
76. I have shown a genuine interest in people *He demostrado genuino interés en las personas*					
77. I have tried to arouse enthusiasm in people *He tratado de despertar el entusiasmo en las personas*					
78. I have avoided challenging rules and procedures *He evitado reglas y procedimientos retantes*					
79. I have made decisions ignoring what my heart was telling me *He tomado decisiones ignorando mis corazonadas*					
80. I have lacked confidence in my abilities *He carecido de confianza en mis habilidades*					
81. I have taken out my frustrations on other people *He volcado mis frustraciones en otras personas*					
82. I have felt little control over what was happening to me *He sentido poco control sobre lo que me estaba pasando*					
83. I have been reluctant to get involved in other people's problems *He estado reacio a involucrarme en problemas de otras*					
84. I have found it a struggle to talk to people I don't know *Se me ha hecho difícil hablar con personas que no conozco*					

Demographic Information. *Información demográfica.*

85. What is your gender?
    ¿Cuál es su género?

    ☐ Male/*Masculino*
    ☐ Female/*Femenino*

86. What is your age range?
    Seleccione el intervalo que incluya su edad

    ☐ 21-25 years/21-25 *años*   ☐ 46-50 years/46-50 *años*
    ☐ 26-30 years/26-30 *años*   ☐ 51-55 years/51-55 *años*
    ☐ 31-35 years/31-35 *años*   ☐ 56-60 years/56-60 *años*
    ☐ 36-40 years/36-40 *años*   ☐ 61-65 years/61-65 *años*
    ☐ 41-45 years/41-45 *años*   ☐ 66 years and over/*66 años o más*

87. What is the highest level of education you achieve?
    ¿Cúal es el nivel de educación más alto que ha logrado?

    ☐ Elementary School Education (1st-6th grade)
       Escuela Elemental (1ro-6to grado)
    ☐ Junior High School Education (7th-9th grade)
       Escuela Intermedia (7mo-9^{no} grado)
    ☐ Senior High School Education (10th-12th grade)
       Escuela Superior (10mo-12mo grado)
    ☐ Junior, Vocational or Technical College
       Colegio Vocacional o Técnico
    ☐ Associate Degree
       Grado Asociado
    ☐ Bachelor Degree
       Bachillerato
    ☐ Postgraduate Degree (Master or Doctoral Level)
       Posgrado (Maestría o Doctorado)

88. What is your position?
    ¿Cuál es su posición?

    ☐ Managerial/*Gerencial*
    ☐ Non-Managerial/*No Gerencial*

    How many years do you have been working in this position?
    ¿Cuántos años lleva trabajando en esta posición?

    ☐

89. How many years do you have been working in this company?
    ¿Cuántos años lleva trabajando en esta compañía?

    ☐

90. What is your average annual income range?
    Seleccione el intervalo que incluya su ingreso promedio anual.

    ☐ $0-5,000   ☐ $25,001-30,000
    ☐ $5,001-10,000   ☐ $30,001-35,000
    ☐ $10,001-15,000   ☐ $35,001-40,000
    ☐ $15,001-20,000   ☐ $40,001-45,000
    ☐ $20,001-25,000   ☐ $45,000 and over/*ó más*

Thank you for completing the questionnaire.
Gracias por completar el cuestionario.

APPENDIX 2
AUTHORIZATION FROM THE TEST AGENCY LIMITED

Webmail

Subject: RE: Use/Acess of WPQei for Research Purposes (2nd email)
From: sales@myskillsprofile.com
To: yruiz@uprm.edu
Date: Sun, 9 Sep 2007 19:12:10 +0100

Hello

These are attached.

Customer Service
MySkillsProfile.com

-----Original Message-----
From: Yolanda Ruiz [mailto:yruiz@uprm.edu]
Sent: 05 September 2007 20:49
To: sales@myskillsprofile.com
Cc: support@myskillsprofile.com
Subject: Use/Acess of WPQei for Research Purposes (2nd email)

Regards,

I received the documents you sent to me (research questionnaire and the user guide).
Although I have some questions regarding this documentation:

- May my graduate student use this questionnaire for her thesis research?
- If so, how do we get the format for the "paper and pencil option"
- How do we get the profile chart to score the questionnaire?

Thanks for your attention to this matter.

Cordially,

Yolanda Ruiz-Vargas, PhD
Associate Dean for Research and Graduate Affairs
College of Business Administration
University of Puerto Rico - Mayagüez
PO Box 9009
Mayagüez, PR 00681-9009
Phone: 1-787-265-3887
Fax 1-787-832-5320

sales@myskillsprofile.com wrote:
I attach the research questionnaire and a copy of the user guide.

regards

Customer Service
MySkillsProfile.com

Regards,

I am the Associate Dean for Research and Graduate Affairs at the College of Business at
the University of Puerto Rico - Mayagüez, and one of my graduate students is working
on her thesis on emotional intelligence. Giving the experience you have on this area,
I will appreciate your advice regarding how to acquire/use the WPQei tool
for research purposes

I will be waiting for your prompt response,

Cordially,

Yolanda Ruiz-Vargas, PhD
Associate Dean for Research and Graduate Affairs
College of Business Administration
University of Puerto Rico - Mayagüez
PO Box 9009
Mayagüez, PR 00681-9009
Phone: 1-787-265-3887
Fax 1-787-832-5320

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University of Puerto Rico at Mayaguez
http://www.uprm.edu

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ATTACHMENTS:

WPQei_Profile_Chart.doc - (MS Word Document)   52 KB
WPQei_Questionnaire_and_Scoring_Key.doc - (MS Word Document)   149 KB

APPENDIX 3
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)

07-08 ZA 02

25 de febrero de 2008

Sra. Zuleima Ayala Pérez
PO Box 333
Mayagüez, P. R., 00681-0333

Estimada Sra. Ayala Pérez:

El CPSHI evaluó su carta del 20 de febrero de 2008 en la reunión ordinaria que se celebró el pasado 20 de febrero. El Comité entiende que usted ha atendido satisfactoriamente a las observaciones y reservas que se le habían planteado y concede gustosamente la aprobación de su estudio titulado: *Evaluating Emotional Intelligence in the Wokplace.*

La aprobación se extiende desde el 26 se febrero de 2008 hasta el 26 de febrero de 2009. Le recuerdo que si se introdujesen modificaciones sustanciales en el estudio, sería necesaria una nueva revisión por parte del CPSHI.

Deseándole éxito en su proyecto de investigación, me es grato quedar a sus órdenes.
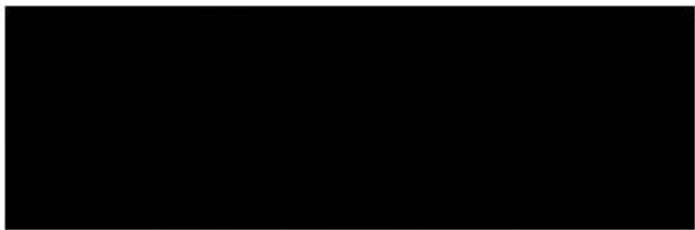
Atentamente,

Presidente CPSHI

Cc: Dra. Yolanda Ruiz

APPENDIX 4
AUTHORIZATION FROM COMPANIES

10 de junio de 2008

A QUIEN PUEDA INTERESAR:

La presente es para autorizar a Zuleima Ayala Pérez, estudiante de Administración de Empresas del Recinto Universitario de Mayaguez para que lleve a cabo la encuesta y repartir cuestionarios sobre "Evaluating Emotional Intelligence in the Workplace: A Selected Sample" en nuestra Compañía para propósitos de completar su tesis.

Atentamente,

Secretaria de Recursos Humanos

▮▮▮▮▮▮▮▮▮▮

11 de junio de 2008

A quien pueda interesar;

Por este medio confirmo que hemos autorizado a la estudiante Zuleima Ayala Pérez a administrar los cuestionarios correspondientes a su proyecto de investigación en nuestra Compañía.

Para información adicional, favor comunicarse con nosotros.

Atentamente,

▮▮▮▮▮▮▮▮▮▮

Gerente de Recursos Humanos

25 de junio de 2008

A quien pueda interesar:

Por la presente autorizo a la Srta. Zuleima Ayala Pérez, estudiante graduada del Colegio de Administración de Empresas del Recinto Universitario de Mayagüez, a administrar los cuestionarios WPQei en nuestra planta, con el propósito de recopilar la data necesaria para completar su tesis "Evaluating Emotional Intelligence in the Workplace: A Selected Sample".

De necesitar información adicional, puede comunicarse al (787) ████.

Atentamente,

██████████

Representante de Recursos Humanos

4 de diciembre del 2008

A QUIEN PUEDA INTERESAR

Por la presente autorizo a la Srta. Zuleima Ayala Pérez, estudiante graduada del Colegio de Administración de Empresas del Recinto Universitario e Mayagüez, a administrar los cuestionarios WPQei en nuestra planta, con el propósito de recopilar la data necesaria para completar su tesis "Evaluating Emotional Intelligence in the Workplace: A Selected Sample".

Si usted necesita información adicional, favor de comunicarse con esta servidora al teléfono ███████ extensión ██████

Cordialmente,

Representante de Recursos Humanos

APPENDIX 5
SCORING KEY

Scoring Key
(For researcher use only)

WPQei
emotional intelligence indicator

Code _____

Innovation	Self-Awareness	Intuition	Emotions	Motivation	Empathy	Social Skills
1 — 5 4 3 2 1 / 1 2 3 4 5	**2** — 5 4 3 2 1 / 1 2 3 4 5	**3** — 5 4 3 2 1 / 1 2 3 4 5	**4** — 5 4 3 2 1 / 1 2 3 4 5	**5** — 5 4 3 2 1 / 1 2 3 4 5	**6** — 5 4 3 2 1 / 1 2 3 4 5	**7** — 5 4 3 2 1 / 1 2 3 4 5
8 — 5 4 3 2 1 / 1 2 3 4 5	**9** — 5 4 3 2 1 / 1 2 3 4 5	**10** — 5 4 3 2 1 / 1 2 3 4 5	**11** — 5 4 3 2 1 / 1 2 3 4 5	**12** — 5 4 3 2 1 / 1 2 3 4 5	**13** — 5 4 3 2 1 / 1 2 3 4 5	**14** — 5 4 3 2 1 / 1 2 3 4 5
15 — 5 4 3 2 1 / 1 2 3 4 5	**16** — 5 4 3 2 1 / 1 2 3 4 5	**17** — 5 4 3 2 1 / 1 2 3 4 5	**18** — 5 4 3 2 1 / 1 2 3 4 5	**19** — 5 4 3 2 1 / 1 2 3 4 5	**20** — 5 4 3 2 1 / 1 2 3 4 5	**21** — 5 4 3 2 1 / 1 2 3 4 5
22 — 5 4 3 2 1 / 1 2 3 4 5	**23** — 5 4 3 2 1 / 1 2 3 4 5	**24** — 5 4 3 2 1 / 1 2 3 4 5	**25** — 5 4 3 2 1 / 1 2 3 4 5	**26** — 5 4 3 2 1 / 1 2 3 4 5	**27** — 5 4 3 2 1 / 1 2 3 4 5	**28** — 5 4 3 2 1 / 1 2 3 4 5
29 — 5 4 3 2 1 / 1 2 3 4 5	**30** — 5 4 3 2 1 / 1 2 3 4 5	**31** — 5 4 3 2 1 / 1 2 3 4 5	**32** — 5 4 3 2 1 / 1 2 3 4 5	**33** — 5 4 3 2 1 / 1 2 3 4 5	**34** — 5 4 3 2 1 / 1 2 3 4 5	**35** — 5 4 3 2 1 / 1 2 3 4 5
36 — 5 4 3 2 1 / 1 2 3 4 5	**37** — 5 4 3 2 1 / 1 2 3 4 5	**38** — 5 4 3 2 1 / 1 2 3 4 5	**39** — 5 4 3 2 1 / 1 2 3 4 5	**40** — 5 4 3 2 1 / 1 2 3 4 5	**41** — 5 4 3 2 1 / 1 2 3 4 5	**42** — 5 4 3 2 1 / 1 2 3 4 5
43 — 5 4 3 2 1 / 1 2 3 4 5	**44** — 5 4 3 2 1 / 1 2 3 4 5	**45** — 5 4 3 2 1 / 1 2 3 4 5	**46** — 5 4 3 2 1 / 1 2 3 4 5	**47** — 5 4 3 2 1 / 1 2 3 4 5	**48** — 5 4 3 2 1 / 1 2 3 4 5	**49** — 5 4 3 2 1 / 1 2 3 4 5
50 — 5 4 3 2 1 / 1 2 3 4 5	**51** — 5 4 3 2 1 / 1 2 3 4 5	**52** — 5 4 3 2 1 / 1 2 3 4 5	**53** — 5 4 3 2 1 / 1 2 3 4 5	**54** — 5 4 3 2 1 / 1 2 3 4 5	**55** — 5 4 3 2 1 / 1 2 3 4 5	**56** — 5 4 3 2 1 / 1 2 3 4 5
57 — 5 4 3 2 1 / 1 2 3 4 5	**58** — 5 4 3 2 1 / 1 2 3 4 5	**59** — 5 4 3 2 1 / 1 2 3 4 5	**60** — 5 4 3 2 1 / 1 2 3 4 5	**61** — 5 4 3 2 1 / 1 2 3 4 5	**62** — 5 4 3 2 1 / 1 2 3 4 5	**63** — 5 4 3 2 1 / 1 2 3 4 5
64 — 5 4 3 2 1 / 1 2 3 4 5	**65** — 5 4 3 2 1 / 1 2 3 4 5	**66** — 5 4 3 2 1 / 1 2 3 4 5	**67** — 5 4 3 2 1 / 1 2 3 4 5	**68** — 5 4 3 2 1 / 1 2 3 4 5	**69** — 5 4 3 2 1 / 1 2 3 4 5	**70** — 5 4 3 2 1 / 1 2 3 4 5
71 — 5 4 3 2 1 / 1 2 3 4 5	**72** — 5 4 3 2 1 / 1 2 3 4 5	**73** — 5 4 3 2 1 / 1 2 3 4 5	**74** — 5 4 3 2 1 / 1 2 3 4 5	**75** — 5 4 3 2 1 / 1 2 3 4 5	**76** — 5 4 3 2 1 / 1 2 3 4 5	**77** — 5 4 3 2 1 / 1 2 3 4 5
78 — 5 4 3 2 1 / 1 2 3 4 5	**79** — 5 4 3 2 1 / 1 2 3 4 5	**80** — 5 4 3 2 1 / 1 2 3 4 5	**81** — 5 4 3 2 1 / 1 2 3 4 5	**82** — 5 4 3 2 1 / 1 2 3 4 5	**83** — 5 4 3 2 1 / 1 2 3 4 5	**84** — 5 4 3 2 1 / 1 2 3 4 5
R1	**R2**	**R3**	**R4**	**R5**	**R6**	**R7**

APPENDIX 6
PROFILE CHART

WPQei Profile Chart

(For researcher use only)

Code _____

	1	2	3	4	5	6	7	8	9	10

Innovation

Adaptive style, produces ideas for incremental changes, sticks to rules, reduces risks

Innovative style, produces original ideas, challenges status quo, bends rules, takes risks

Self-Awareness

Unaware or false view of abilities, competencies and personal qualities, fails to see weaknesses

Aware of abilities, competencies and personal qualities, knows strengths and weaknesses, no blind spots

Intuition

Does not know how to read or use emotional knowledge and information when deciding what to do

Uses instincts, hunches and feelings together with facts and information when deciding what to do

Emotions

Does not recognize or understand own emotional responses, cannot control or moderate impact of emotions on others

Recognizes and manages own emotional responses to people and situations, moderates impact of emotions on others

Motivation

Lacks career commitment and drive, content to let things happen, liable to make mistakes and errors

Gets things done, strives for excellence and quality, sets personal challenges, tries to improve self and realize potential

Empathy

Tends to be rather self-absorbed, not basically interested in other people's views, needs and problems. Poor listener

Sensitive to other people's views, needs, concerns and problems, makes time for people and listens to them

Social Skills

Works better on own, lacks social skills, avoids and feels awkward in social situations

Skilled at communication, works well with other people, comes across positively to others, handles social situations well