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Investigating the Relationship Between an IT Project Manager's Emotional Intelligence and the Customer's Perception of Success

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INVESTIGATING THE RELATIONSHIP BETWEEN AN IT PROJECT MANAGER'S EMOTIONAL INTELLIGENCE AND THE CUSTOMER'S PERCEPTION OF SUCCESS

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ABSTRACT

INVESTIGATING THE RELATIONSHIP BETWEEN AN IT PROJECT MANAGER'S EMOTIONAL INTELLIGENCE AND THE CUSTOMER'S PERCEPTION OF SUCCESS

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This research focuses on the intersections of Project Management, Information Technology (IT), and Emotional Intelligence. The Project Management Institute (PMI) created the Project Management Professional (PMP) certification, which is one of the most highly regarded and sought after professional certifications (Project Management Institute 2005, p. 15-18). This certification acknowledges the holder as a knowledgeable practitioner in Project Management. The purpose behind Project Management is to obtain requirements, sometimes fluid at best, and develop solutions that are traceable by schedule and cost controls. This approach allows a Project Manager to monitor and control the project through successful completion. However, the PMI also notes that the main aspects of the Project Manager's job are team leadership and communication. These aspects provide the *art* of Project Management. The Standish Group published an article noting that less than 20 percent of IT projects are successful. Some of this failure is due to the dynamic nature of IT projects. This research focuses on the question of whether or not an IT Project Manager's Emotional Intelligence influences the customer's perception of project success.

In this research, ninety-two IT projects were evaluated. The evaluation included project demographics and the use of the Emotional Quotient Inventory (EQ-i) to assess the IT Project Manager's Emotional Quotient and the five subscales (Intra-Personal, Inter-Personal, Stress Management, Adaptability, and General Mood). A separate customer satisfaction survey was sent to the projects' customers. A total of fifty-six complete datasets were used in this research.

The results showed no statistical correlation between the EQ-i scales Interpersonal, Intrapersonal, Stress Management, and Adaptability scores and the customer's perception of project success. A marginal negative statistical correlation, at the 0.1 level, was discovered between an IT Project Manager's Total EQ score and the customer's perception of project success. A strong negative statistical correlation, at the 0.01 level, was discovered between the EQ-i scale *General Mood* and the customer's perception of project success.

These findings are important to the practitioners of Project Management in the IT field because they help managers understand how customers' perceptions influence a project's success. Additional research opportunities are addressed in the final chapter.

This thesis is dedicated to my wife Margo and my daughters Elizabeth and Katherine. Without their support, hope, and love, this thesis would have never been completed. My love and affection go out to these very special and wonderful people in my life. My hope is that this journey has demonstrated if you set your sights high, you can reach the unreachable.

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There are many people to thank when one takes on a journey like this. I express my gratitude to my committee first and foremost; including Dr. Rafael E. Landaeta, my advisor and chair of my committee, who was instrumental in providing his support and giving me feedback on my ideas. I thank Dr. Pilar Pazos for taking part in my project and sharing with me her social networks and for finding additional IT Project Managers for my research. Dr. Vickie Parsons was very instrumental in finding IT Project Managers and challenging me with my statistical processes. Dr. Denise Trudeau provided me with unending and tireless support in researching Emotional Intelligence. In many ways Dr. Trudeau's passion for Emotional Intelligence motivated me towards this research area.

I thank my good friend and neighbor William Diehl for his support in developing and "red lining" my document. He constantly provided encouragement to stay on track. Now that this adventure is over, he and I can pursue a more philosophical adventure – fishing. Mr. Diehl's faith was unwavering and his support will always be appreciated. I would be remiss to forget my friends who kept me in their thoughts and prayers, especially my house church members who knew when to give me an encouraging nudge, a thoughtful card, or a well-aimed kick. The power of their prayers and support helped incredibly.

I thank my parents, Bill and Marianne LaMarsh for their constant love, parental guidance, and support throughout my life. I know there were times when they thought I would never make it through my undergraduate studies, let alone continue through my graduate programs. The shock in their voices when they found out I was going back for a

Ph.D. was memorable. Though engineering is not their area of expertise, they always asked how my project was going and displayed an interest.

Last, but not least, I am grateful to my wife Margo and my daughters Elizabeth and Katherine. These wonderful ladies put up with a lot during this journey and they kept on pushing me to finish this project. Their support is incredible and words cannot express how much I love them. These ladies were also my "sounding board" as I discussed ideas or topics around the dinner table. The inspiration and attention they demonstrated through all of the topics I chose **not** to pursue is touching.

The following poem is by Marianne Williamson, whose ability to touch the soul impresses me. The poem has left a lasting impression on me because she encourages everyone never to be afraid to do great things for it is our destiny:

Our deepest fear is not that we are inadequate.
Our deepest fear is that we are powerful beyond measure.
It is our light, not our darkness, that most frightens us.
We ask ourselves, "Who am I to be brilliant, gorgeous, talented, and fabulous?"
Actually, who are you not to be?
YOU ARE A CHILD OF GOD.
Your playing small does not serve the world.
There is nothing enlightened about shrinking so that other people won't feel insecure around you.
We were born to manifest the glory that is within us.
And as we let our light shine we unconsciously give other people permission to do the same.
As we are liberated from our own fear, our presence automatically liberates others.

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CHAPTER I

INTRODUCTION

In today's competitive Information Technology (IT) market, businesses are seeking ways to improve profit, productivity, and sustain growth. One obvious solution is to grow the business by increasing the customer base. So, how can businesses grow the customer base and improve business profitability? The answer to this question is especially important for modern IT organizations, given the fact that IT projects are successful less than 20 percent of the time (Standish Group International Inc. 1999). If researchers could help increase the success rate, profit would surely follow. In Bossidy's book *Execution*, he notes that the most important thing a company can do is to fulfill their promises and commitments (Bossidy et al. 2002). He notes that in order to fulfill these goals, the manager or executive must rally the team to ensure all employees complete what they have agreed to accomplish. This includes open and honest communication when the unexpected happens. Bossidy also notes that good managers should spend more than 40% of their time working on the personal growth of the team members. In his perspective, the people are the assets. This should not be a company slogan, but a commitment of management.

In Katzenback and Smith's book *The Wisdom of Teams*, they discuss how important team dynamics are a project's outcome. They note the manager is responsible for both understanding this dynamic and working to overcome any potential issues (Katzenbach & Smith 1993). Maxwell, a well known author of many leadership books, explains how good relationships assist a team to overcome project obstacles and produce good products for a company (Maxwell 2003). Kouzes and Posner's book *The Leadership Challenge* points to a project's success and its

connection to the team as well as the team's ability to follow the vision set before them (Kouzes & Posner 2002). With so much being written about team success and team dynamics, one would think leading a team as the Project Manager is very simple or even prescriptive, however the opposite is true. Project Management is both an art and a science. The art aspect is working and dealing with people and the science aspect deals with the rigid processes associated with Project Management.

In this research, the author will investigate whether or not there is a correlation between the art and the perceived success of the project in the IT arena. This investigation focuses on whether an interaction exists between the Project Manager's Emotional Intelligence and the customer's opinion on whether or not a project's outcome is successful. Project success is key to business profitability and growth. Since profit is the underlying drive to corporations and practitioners, this research adds value to this body of knowledge. This project is important because it addresses an aspect that has not been addressed in current literature. This research can lead to new training techniques and opportunities while companies continue to invest their support in management training. This project helps to identify the factors that influence a project's success and hence, helps companies to improve IT project success rates. From an academic standpoint, this research contributes in areas where social sciences and hard sciences meet in the area of Project Management and Information Technology services. Furthermore, the information obtained in this research helps to define future areas of academic investigation and study.

One must be able to distinguish Project Management from Leadership. Though many researchers use these terms interchangeably, for this research, the Project Manager is the one responsible for the outcome of the project. Project Managers are responsible for fulfilling

requirements, monitoring project budgets, assigning work to team members, and creating and maintaining the project's schedule. It is their responsibility to ensure the project is completed on time and within cost and schedule constraints. Project Management is also short term based upon each project. Leadership usually sets long-term goals or vision for an organization or team.

This research focuses on the IT market because most service projects are short term in duration and represent a growing field of company revenue (Abduh et al. 2007; Koh et al. 2005; Spencer-Matthews & Lawley 2006). Additionally, the IT field is dynamic and emergent. Any advantage an IT Project Manager can quickly learn and implement gives his or her team an edge over the competition. The IT market is emerging from what it is today to resolutions and solutions for tomorrow's market or knowledge gaps. As an example, in the 1940s, the International Business Machines (IBM) President Thomas Watson stated that only five computers were needed worldwide (Carr 2008). With the transformation of the Internet in the late 1980s, many households today own more than one computer. The IT field is in a constant state of change with new products or ideas appearing daily. If a company could increase its IT services customer base, profits should also follow.

Project Management

A significant amount of research has been done on improving Project Management, but a minimal amount has been done in the IT Services arena. As noted in this research, the Project Manager is the responsible party for the project's success or failure. Project Management is a field of study where people assume that the process dictates the project's success. The process is usually very defined and rigid. Many training courses exist on how the Project Manager improves the management of the project. The Project Management Professional (PMP)

certification offered by the Project Management Institute (PMI) is one such training opportunity (Project Management Institute 2005). The United Kingdom's Central Computer and Telecommunications Agency (CCTA) was so concerned about the practice of IT Project Management that the CCTA created their own certification program called Projects in Controlled Environments (PRINCE) in the 1980s with an updated PRINCE2 in 1996 (Al-Zoabi 2008; Elkington & Smallman 2002; Gist & Langley 2007; Harej & Horvat 2007; Newman 1997; Thompson 2004). PRINCE2 is becoming known as a valued certification in the field of IT Project Management. Both certifications provide a rigid methodology to ensure Project Managers are well educated with regards to cost, schedule, and requirements. Also, both certifications note that the human interaction is the most critical function to project success. It is this human interaction that links the science of Project Management and the art of Emotional Intelligence as a solution set.

In Mersino's book *Emotional Intelligence for Project Managers*, he discusses how important Emotional Intelligence is for the Project Manager (Mersino 2007). In a PMI survey conducted in February of 2008, Project Managers were asked "How important is Emotional Intelligence to the overall success of a project?" The responses demonstrated that 90% of the Project Managers surveyed felt Emotional Intelligence was either very important or critically important (Project Management Institute 2008). But neither book nor survey note anything regarding the IT Project Manager specifically.

Emotional Intelligence (EI)

Researchers in project management have long ignored the relevance of emotions (Wolff et al. 2002). Some of this has been due to the lack of a proven empirical framework for conducting emotional measurements (Lopes et al. 2003; MacCann et al. 2004), while others

believe evaluations could be misleading without an algorithm to model, or the ability to capture emotions in the moment they occur. (MacCann et al. 2004). With so much Project Management training focused on human interactions (Clark et al. 2003), the question "What is Emotional Intelligence?" needs to be addressed. In 1995, Daniel Goleman introduced a new thought process pertaining to the workplace in his book *Emotional Intelligence*. He claims that Intellectual Quotient (IQ) is important for obtaining a job, but the way you control and use your human emotions is even more critical for sustaining the job and creating project success. This thought process has led to profound changes in the fields of psychology, organizational behavior, project management, and human behavior. Though Goleman was not the first one to make these claims, he is credited for making Emotional Intelligence (EI) an in-depth field of research. Goleman broke Emotional Intelligence into two key themes; personal competency and social competency (Clark et al. 2003; Goleman 1998; Graves 2000). Personal competency is composed of three subfactors or attributes. They are: a) self-awareness – the recognition of one's emotions; b) self-regulation – managing one's emotions; and c) motivation – understanding one's emotional tendencies that guide them in reaching their goals. Social competency is composed of two subfactors or attributes. They are: a) empathy – awareness and understanding of others' feelings; and b) social skills - the ability to interact with and manage others' emotions (Goleman 1998) (Figure 1).

Figure 1. Goleman's Emotional Intelligence Model

EI Model

Personal Competency	Social Competency
• Self-Awareness • Self-Regulation • Motivation	• Empathy • Social Skills

Goleman made the premise in his books (Goleman 1995, 1998; Goleman et al. 2002) that EI is the key to success, with no other single business characteristic as being more important. Though the research is split with regards to the impact of EI and measurable job success, many leaders and managers agree that the characteristics of EI: good communication skills; understanding people; team dynamics; providing an appropriate award and recognition system; and obtaining good project requirements are important to team/project success. This research uses an empirical approach to see if a correlation exists between the Project Manager's Emotional Intelligence and the customer's perspective of a successful IT project.

Information Technology (IT) Services

The IT market sends out constant advertisements for providing specific services or set of services to customers. The rationale behind this project's focus on the IT service domain is to emphasize the Project Manager's interactions with the customers. But what does this term "service" mean? Unfortunately, the term "services" as defined by businesses, does not have a standard definition or meaning (Bandy 2003; Svensson 2006), though it does have specific

expectation(s) or a vision to a customer (Koh et al. 2005; Quinn 1994; Seth et al. 2006). This is true in all service industries including the IT arena. One part of the company may produce the product or products, while another part of the organization provides support via a help desk or self-service web page. For this research, the author focuses on IT services that require knowledge of an IT domain or area. This does not imply a help desk, where service is predominately scripted or the primary task is to capture the information and then pass it on to a more experienced support person (Koh et al. 2005). This research focuses on projects where the IT Project Manager is dealing with customers for more than just a phone conversation. It will focus on services where knowledge of the IT domain and a relationship with the customer are relevant. This includes database support, application development, architectural solutions, IT Security, etc.

Contributions to the Body of Knowledge

This research should have a multidisciplinary impact on several bodies of knowledge. First, in the competitive and ever changing IT business, organizations and businesses are always looking for an edge over their rivals. Corporations have invested millions of dollars into project management training and experience. In 2006, the State of the Project Management survey conducted by the Center for Business Practices showed when using a trained Project Manager, a 20% overall increase in project success was obtained. This same survey also demonstrated that companies understood the importance of Project Management and were willing to support Project Management careers. In 2003, 22% of the responses noted there was no Project Management support for their projects. In 2006, this number decreased to 14.5% (pmsolutions 2006). Many organizations have created organizational Project Management Offices (PMO) to oversee and control the project management processes and support for companies.

The field of project management originated in the construction industry (Project Management Institute 2004). This profession gave training for and provided the *best practices* or shared solutions in the construction field. For example, the premise of the PMBOK®, which originated as a source for construction work, was to help teams work together to plan and resolve project issues, and thus, deliver a quality product to the customer. This approach leveraged the knowledge-base and experiences of those who had mastered the craft and who possessed decades of experience. Creating a book of knowledge that lays out the steps, identifies potential risks, and educates the user on different approaches and methods is extremely valuable for multiple business and trades.

Unlike construction, the IT field has evolved very quickly and very aggressively. For example, the Internet has emerged from a research sharing tool in the 1990s to the foundation of everyday life today. Companies cannot function at peak efficiency without the Internet, e-mail, or other forms of electronic technologies and applications. With the inception of the Internet, new scripting languages like JAVA, HTML, and others have become commonplace. Management of this quickly emergent industry has not necessarily abandoned the traditional process-oriented project-management mentality. If a *key* interaction between IT project management and emotional intelligence is uncovered, it will help the IT market immensely with regards to training, project outcome success, and corporate profitability.

Second, since Project Management is an interaction between art and science (Clark et al. 2003), this research helps to elucidate the attributes that influence project success. For example, Emotional Intelligence focuses on social sciences in terms of the project team; that is, it focuses on the individual emotions or team emotions and how they influence each other. Traditional Project Management training focuses on the stricter, more process-oriented side of the project.

Though both aspects seem like two separate competencies, the Project Manager must be able to deal equally with both in order to have a successful project. This research evaluates whether the social science aspect, the Emotional Intelligence of the Project Manager, influences the probability of project success as determined by the customer.

Third, in the dynamic IT services field, success can be measured by increasing the customer base, and therefore, increasing profit. Improving customer satisfaction will help increase this customer base. This research will help companies that have limited training budgets to determine where to spend training funds in order to obtain the largest degree of success.

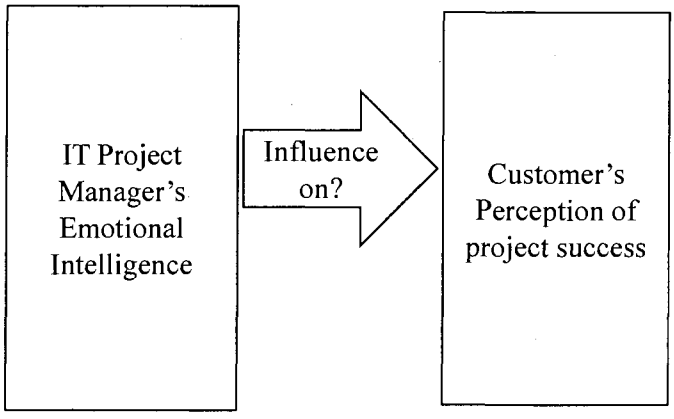
And finally, this research has an exploratory side as well. Questions regarding the interaction of rigid Project Management processes and Emotional Intelligence can be investigated. Both fields have ideas and solutions associated with improving a project's probability of success. However, does the Project Manager's Emotional Intelligence have an impact on project satisfaction? This research focuses on the empirical evaluation to determine if an IT Project Manager's Emotional Intelligence influences the customer's perception of project success.

CHAPTER II

LITERATURE REVIEW

The IT field is one of the fastest growing fields. It covers every aspect from creation of product (e.g. computer hardware, components, or chips), to services. With so much growth in the IT field, why do IT projects fail at such an alarming rate? The Standish Report, first published in 1994 and updated since, indicated that less than 20 percent of the Information Technology (IT) projects studied by the Standish Group were considered successful (Standish Group International Inc. 1999). Failure in this context is defined as a project that is terminated prior to successful completion, one that is completed but overruns the budget, or one that is late or fails to meet user needs. Is it the nature of the field or the way managers run the projects? This research intends to investigate whether a correlation exists in the area of an IT Project Manager's Emotional Intelligence and the customer's perception of project success (Figure 2).

Figure 2. Conceptual Model



This research determines if the IT Project Manager's Emotional Intelligence, or any measurable subscale of Emotional Intelligence, influences a customer's perspective of a project's success. If a correlation is identified, the results can lead to new strategies which increase the success rate of an IT project, thus creating more profitability for IT services companies. The IT Project Manager directly interacts with the customer, and she/he is the one responsible for the project's success, so she/he is arguably the most project knowledgeable team member on this project.

Emotional Intelligence

In 1995, Daniel Goleman introduced the idea of Emotional Intelligence. The ideas and teachings of Emotional Intelligence have gone from classroom (Bar-On et al. 2007; Brackett et al. 2004; Brown & Schutte 2006; Ciarrochi et al. 2001; Clark et al. 2003; Culver 1998; Zeidner et al. 2005) to boardroom (Bradberry & Greaves 2005; Bradberry 2007; Harrison & Clough 2006; Welch 2004; Zhou & George 2003) to leadership training (Antonakis 2003; Collins 2001; Gerbrandt 2005; Goleman et al. 2002; Kanne 2005) and down to team training and

understanding team dynamics (Beers 2003; Jordan et al. 2002; Kelly & Barsade 2001; Wolff et al. 2002). With so much written about Emotional Intelligence, what exactly is it?

Definition of Emotional Intelligence: Though Goleman is the most well known of all Emotional Intelligence authors, he was neither the first to study Emotional Intelligence nor the first to make this an in-depth field of research. The beginnings of Emotional Intelligence can be traced back to a 1920 article by E. L. Thorndike titled "Intelligence and Its Uses" (Thorndike 1920). In this article, Thorndike describes a state referred to as *social intelligence*. Though *social intelligence* is a field of study today, in Thorndike's work, his description of this phenomenon was similar to what Goleman described some seventy-five years later. In 1983, Wayne Payne wrote his dissertation (though unpublished) on the topic of emotions and the development of what he referred to as *Emotional Intelligence* (Payne 1985). Several definitions exist for Emotional Intelligence. Salovey and Mayer were among the first to define Emotional Intelligence as the way a person deals with his or her emotions (Salovey & Mayer 1989). However, the most complete and well accepted definition was created by Davies et al. (Davies et al. 1998). Their definition is based upon a four-dimensional model. These dimensions are as follows:

1. Appraisal and expression of emotion in oneself. This dimension relates to how one can not only understand his or her emotions, but understand the deeper aspects of these emotions. In this area, the individual has a better understanding, and acknowledgement, of why their emotions are occurring and what has provoked the response.
2. Appraisal and recognition of emotion in others. This relates to a person's ability to correctly understand and recognize another individual's emotions. People who have this ability can successfully predict the emotional response of others.
3. Regulation of emotion in oneself. This dimension focuses on an individual's ability to control or regulate their own emotions. In this dimension, the individual can recover quickly from an emotionally charged situation.
4. Use of emotion to facilitate performance. This dimensions focuses on working with others to achieve a successful outcome. This could be a collaborative event or the ability to improve a working relationship (Davies et al. 1998, p. 990-991).

Though several researchers have taken this model and changed it slightly, they all have this foundational construct (Law et al. 2004). Differences exist in aspects of measuring, modeling, or predicting Emotional Intelligence. The key to all EI research is focusing on a *positive* outcome using EI. This does not imply that EI will only be used for the betterment of a team, individual, or a project. Research has shown that people use EI for self-motivated reasons as well, such as for manipulation or as a means to a better job (Austin et al. 2007; Lopes et al. 2003; Palmer et al. 2002). Bossidy notes a key to success, but calls it something other than Emotional Intelligence (Bossidy et al. 2002). In his research, he refers to a key success characteristic as Emotional Fortitude. Though a different title, the description is the same, understanding one's emotions, the emotions of others, and how to work together to ensure the least amount of emotional tribulations.

Measuring EI has always been a point of contention among researchers (Mayer et al. 2001; O'Connor & Little 2003; Schulte et al. 2004). As such, several EQ tools have been created. The founding researchers in this field, Salovey and Mayer created the first framework for Emotional Intelligence (Salovey & Mayer 1989). Later in their research (1995), they created the Multidimensional Emotional Intelligence Assessment (MEIA) as the first means of measuring emotions. This test was later changed to the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) when Caruso joined the research in 1997 (Mayer et al. 1999). Part of their lasting contribution to this field was the branding of a phrase referred to as Emotion Quotient (EQ). This phrase was created as a derivative of the Intellectual Quotient (IQ) phrase. The researchers felt if IQ is an acceptable means of measuring one's intellect, than EQ can refer to the measurement of, and control over, one's emotions (Salovey & Mayer 1989).

In 1985, Reuven Bar-On developed a tool to measure EQ as well (Bar-On 1988), and in 1997 he devised a test to measure EQ accurately (Bar-On 1997). This test is known as the EQ-i (Emotional Intelligence Inventory) instrument. Bar-On's research focused on an individual's mental health and how emotions affect a person mentally.

The Goleman model is the model most researchers have used as the foundation of their tools (Consortium for Research on Emotional Intelligence in Organizations 2009). The Goleman model (Goleman 1998) is a model where four areas are investigated. Originally five topics where explored, but the model was changed slightly and the measurement of motivation has been removed as an influential variable (Goleman 1995). In this model, the first area deals with self awareness. With this area, the model focuses on how well, or even if, the individual is in touch with his/her emotions. For example, does the individual know what influences their emotions (i.e. what makes them happy, upset, sad, etc) and does the individually know the physical reactions caused by the stimuli? The premise is: if the subject knows how or what things affect them, they can work to identify this stimulus and in turn, manage their emotional response in a more appropriate manner.

This leads to the second area: self-management. In this area, the methodology is designed to predict the impact of their emotions and how one controls or expresses these emotions. One fallacy associated with EQ needs to be explained. Self-management by no means implies everyone has to be happy or fully accepting of whatever happens. It means that when problems arise, they can be, and will be, addressed in an emotionally controlled and productive way. The thought process is: if one can understand their emotions and their emotional impact on others, they will not intentionally affect the emotions of others.

The third part of EQ is social awareness, or how your emotions affect other people. The

fourth and final area is relationship management. This area addresses the understanding that once you understand your emotions, learn to handle your emotions, and understand how your emotions affect other people, then you can identify the best emotional approach to achieve a win-win situation for all parties. The goal of these four areas is to ensure that individuals understand how their emotions affect themselves and others; and thus, ensure a mutually beneficial emotional relationship is obtained. Many other models are based upon the Goleman four factor EQ model (Culver 1998; Graves 2000; Quebbeman & Rozell 2002; Rao 2006).

New companies have been created to understand, evaluate, and assist businesses in evaluating their employees' Emotional Intelligence. TalentSmart® for example has a database of more than 500,000 EQ assessments, indicating that EQ is not only more important than IQ, but unlike IQ, it can be adapted through various training and education programs (Talentsmart 2006). TalentSmart® has a vast partnership with Fortune 500 companies who also appreciate the benefits of EQ. Multi-Health Systems (MHS) purchased the rights to both the EQ-i and MSCEIT assessment tool to create a business associated with psychological assessments (Multi-Health Systems 2004). MHS provides companies with an empirically proven test to determine employees' EQ traits. These results are not necessarily used for hiring practices, but are used to evaluated employees' growth opportunities and strengths.

Leadership and Emotional Intelligence: A large body of research has focused on Emotional Intelligence and leadership skills and styles (Alon & Higgins 2005; Antonakis 2003; Brown & Moshavi 2005; Collins 2001; Cooper 1998; Harrison & Clough 2006; Leban 2003; Rao 2006; Suchy 1999). Each of these researchers found mixed results. Leban (2003) discovered in his thesis a causal link between transformational and laissez-faire leadership styles and project success (Leban 2003). Antonakis (2003) discovered the relationship is strong between

charismatic leadership and high EQ (Antonakis 2003). Brown and Moshavi (2005) also focused on transformational leadership, but their research points to the transformational task that must be performed, not the transformational leadership style (Brown & Moshavi 2005).

For every article that argues high EQ is the key to success, it appears that a counter article is written denoting the demise of such a notion. Amelang and Steinmayr (2007) discovered that EI has an effect on a person's life, but no significant effect when it comes to achievement or success in the workplace (Amelang & Steinmayr 2006). They noted that personal networking has a more positive career effect than EI. Bastian and Burns (2005) found a high correlation between EI and perceived problem solving, but no statistical correlation between EI and academic success (Bastian et al. 2005). Brackett even produced two journal articles with contradictory findings. Brackett and Mayer (2004) measured the EQ in a group of male and female graduate students. They found a correlation that notes "EQ was significantly associated with maladjustment and negative behaviors for college-aged males, but not for females" (Brackett et al. 2004, p. 780). In 2006, Brackett and Rivers published a set of counter findings where there was no statistical correlation between EQ and gender (Brackett et al. 2006) leading them to the conclusion that Emotional Intelligence might be situation based. Ashforth and Humphrey (1995) argue that emotions exist whether they are displayed in the workplace or not. As humans, emotions impact our every decision and thought. Attempting to hold emotions in line is detrimental to the organization (Ashforth & Humphrey 1995). Ashkanasy and Ashton-James (2003) discuss in their article that stress is a key contributor affecting tasks in the workplace. They note that emotional intelligence is a key, moderating variable in the behavioral responses to workplace stress (Ashkanasy & Daus 2005).

There is even evidence that EI is more subliminal and therefore has nothing to do with

workplace efficiency, but has to do with a cognitive response to the actors' surroundings. Austin studied how quickly individuals can register and respond to emotional pictures. His findings show a high correlation between recognition speed and high EQ (Austin 2004, 2005). Brown and Schuttle (2006) found similar facts. In their research, they found EQ and fatigue to be linked; a student with high EQ was less fatigued than a student with low EQ (Brown & Schutte 2006). This research does not imply that low EQ causes fatigue. The researchers discovered this correlation and hypothesize that understanding and controlling one's emotions helps students deal with stress and fatigue.

Goleman's book Primal Leadership (2002) discusses how the leader needs to adapt his or her leadership style based upon the EQ of the team members (Goleman et al. 2002). In this book, Goleman notes that leadership styles and the leader's EQ are so tightly related to success that the art of leadership and EQ cannot be separated. Leadership styles are important, but the focus of this work is whether the project manager's EQ (the one ultimately responsible for the project) has any relationship on the project's success.

Emotional Intelligence and Team Performance: The use of Emotional Intelligence and team performance has received much attention in the EI research community. Many researchers have discovered that a higher EQ helps one to deal with team issues or performances (Brooks & Nafukho 2006; Gerbrandt 2005; Kelly & Barsade 2001). Beers' (2003) work provided evidence that demonstrated knowledge transfer is more prevalent among people who possess a high EQ (Beers 2003). Beers deduced this was due to the empathetic nature of the environment, not the higher EQ score. Antonakis (2003) notes in his research that an emotionally intelligent manager will use his abilities to create a cohesive team and thus, provide a better quality product (Antonakis 2003). But Antonakis also notes that the evidence is inconclusive and needs

additional research. Bagshaw's research (2004) determined that EI as related to team performance is complex and is related to the knowledge of the team and the problem they are attempting to solve (Bagshaw 2004). If the problem space is known and well understood, then Bagshaw believes EI might be of some value. Brooks' (2003) thesis research focused on managers in the banking industry and their associated EI (Brooks 2003). In her study, no significant evidence was discovered between managers with high EI and an environment with improved teamwork.

Unfortunately, research on the relationship of team performance and high EI has varying and contradictory results. This research is going to focus on the IT Project Manager's EQ and the project success as perceived by the customer.

EQ Measurement Tool: One of the key arguments surrounding the measurement of EQ across disciplines or competencies is the currently available tool sets. Many researchers acknowledge that their measurement tools provide very strong published validity and reliability results, however, criticism still exists. The most famous tool sets are based upon the Goleman model. As noted earlier, Goleman was one of the first to make EQ famous and has the largest following (Culver 1998; Goleman 1995, 1998; Goleman et al. 2002; Graves 2000). Another popular test is Salovey and Mayer's Multidimensional Emotional Intelligence Assessment (MEIA) or newer Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT). The primary focus of these tests are on the psychological aspect of EI (Leban 2003; Mayer et al. 2001, 2003; Mayer et al. 2005; Salovey & Mayer 1989; Salovey & Grewal 2005). Bar-On created his own EQ test, referred to as the Emotional Quotient Inventory (EQ-i). This assessment tool was created as a means of investigating Emotional Intelligence and its effect on health (Bar-On 1997; Bar-On et al. 2000; Hemmati et al. 2004). The EQ-i is a 133 question self-assessment survey

based upon a 5 point Likert scale ranging from (1) very seldom to (5) very often true of me (Bar-On 1997). The results are grouped into total EQ and five subfactors: Intra-personal; Inter-personal; Stress Management; Adaptability; and General Mood. Wong and Law created the Wong and Law Emotional Intelligence Scale (WLEIS). This assessment tool uses a 16 question self-assessment questionnaire to determine four factors (Self-Emotions Appraisal, Others-Emotions Appraisal, Use of Emotion, and Regulation of Emotion) (Law et al. 2004). Jordan (2002) created the Workgroup Emotional Intelligence Profile (WEIP) as another assessment tool (Jordan et al. 2002). The short version of this tool provides a 25 item, 7-point Likert response format ranging from (1) strongly disagree to (7) strongly agree questionnaire. The results are grouped into four scales (Awareness of Own Emotions, Management of Own Emotions, Awareness of Others' Emotions, and Management of Others' Emotions). Many new tests are constantly under development (Consortium for Research on Emotional Intelligence in Organizations 2009).

With all of these tools, there is one major drawback: they contain a self-assessment aspect. As such, criticism has been made by researchers (Austin et al. 2007; Barchard & Christensen 2007; Collins 2001; Gerbrandt 2005; Kelly & Barsade 2001; Zeidner et al. 2005) about gaming the test or manipulating the answers based upon how people want to be perceived, not how they genuinely perceive themselves. The MSCEIT has received additional criticism pertaining to "self-ratings and MSCEIT scores were not strongly correlated" (Brackett et al. 2006, p. 780). The MSCEIT is also scored based upon expert judgment. Experts in the field of psychology rate the responses based upon what experts deem as *normal* or *the correct answer* (Mayer et al. 2003; Mayer et al. 2005). Attempting to determine what is normal in reference to emotions has drawn its own criticisms (Barrows 2006).

The key to creating an accurate assessment tool is the validity and reliability of the tool. That is, does the tool measure what it is supposed to be measuring and does it do so in a consistent way? The American Psychological Association has identified four categories of tool validation: content validity; construct validity; concurrent validity; and predictive validity (American Psychological Association 1966). Each validation type is described below (Table 1):

Table 1

Validation Definitions

Validity Check	Description	Method/Test
Content or Face Validity	Does the instrument measure what it is intended to measure (Stratford & Kennedy 2004)	▪ Questions are reviewed by experts or a panel of independent reviewers ▪ Pilot study
Construct or Factorial Validity	Is the instrument put together correctly? Is it founded in theory? Usually associated with measuring abstract measures (e.g. IQ)	▪ Cronbach's alpha ▪ Simple factor structure ▪ Rasch models ▪ Correlation Methods
Concurrent Validity	Does the new instrument demonstrate the same results as the old instrument?	▪ Comparing results with other well known instruments
Predictive Validity	Can the data provide generalizable results for the future?	▪ Longitudinal studies
Statistical Validity	Does the instrument provide accurate statistical results?	▪ Double check results ▪ Independent analysis

Though validity is key to creating an accurate and legitimate tool, many researchers disagree on which validity approach is most important (Leydesdorff 2005; Rovine & Anderson 2004; Srivastava 2007). Ahire and Davaraj (2001) came up with a hybrid approach to validation (Ahire & Devaraj 2001). Their research combined different validation methods together to come up with more accurate validation results (Table 2).

Table 2

Empirical Implementation and Validation of Instrument - Ahire and Davaraj's Hybrid Approach (Ahire & Devaraj 2001, p. 321)

Validity Check	Description	Method/Test
Unidimensionality	"The extent to which observed indicators are strongly associated with each other and represent a single concept"	▪ Principal Components Factor Analysis followed by Confirmatory Factor Analysis
Reliability	"The degree of consistency or stability of a scale"	▪ Cronbach's alpha ▪ Wert-Linn-Jöreskog coefficient
Convergent Validity	"The extent to which varying approaches to construct measurement yield the same results"	▪ Bentler-Bonnett Coefficient
Discriminate Validity	"The extent to which a concept and its indicators differ from another concept and its indictors"	▪ Cronbach's Alpha versus Average Interscale Correlation ▪ Maximum Interscale Correlation Magnitude ▪ Average Item-to-total Correlations of Scale Items versus Non-Scale Items ▪ Percent Variance Extracted versus Maximum Interscale Correlation

For this research, the Emotional Quotient Inventory (EQ-i) assessment tool was chosen based upon the above validation criteria. A more detailed explanation will be presented in Chapter 3.

Project Management

Many times the phrases *project manager* and *leader* are used synonymously. For this research, they are different and should be noted as such. Yukl (2006) states "a manager is a title of occupation where a leader is a motivator. A leader influences his/her followers as a manager is an authoritative position"(Yukl 2006, p. 6). Or as Bennis and Nanus state: "managers are people who do things right; leaders are people who do the right things" (Bennis & Nanus 2007, p. 56). Even Henry Mintzberg, one of the foremost management and leadership experts, notes that managers and leaders are different. His thought process is the manager is the person who gets the job done through the use of team members, and the leader sets the ultimate direction of the team and organization (Mintzberg 1994).

Ensuring Project Success using Project Managers: In businesses, Project Managers are the responsible parties to ensure projects are completed on time and within budget. These projects can be either internal or external to the organization or company. These endeavors are important to the monetary success of the company. The Project Management Institute (PMI) has become the leading organization in defining and training Project Management (Project Management Institute 2005). It has more than 150,000 members, is located in over 150 countries, and sponsors and distributes the internationally-known certification, the Project Management Professional (PMP®). The PMI notes that project success starts with a foundation of *must have* knowledge areas (Project Management Institute 2004). Though processes are important, the PMI also notes that human interaction (i.e. the social science side of project management) is still an important key to success. According to the PMI's Project Management Book of Knowledge

(PMBOK®), Project Managers spend upwards to 90% of their time communicating (Project Management Institute 2004).

The field of Project Management for IT projects has shown the need for a unique Project Management approach. In 1996, the Central Computer and Telecommunications Agency (CCTA) in the United Kingdom created a Project Management methodology exclusively for IT projects, referred to as Projects in Controlled Environments (PRINCE2) (Newman 1997). They note that IT projects are more dynamic in nature than other product lines, and technology changes so quickly, solutions are constantly changing, even if requirements stay the same. Andersen (2006) confirms IT projects need to be managed differently and also points out that the PRINCE2 methodology is good, but the *controlled* part of the acronym is misleading (Andersen 2006). Al-Zoabi (2008) notes that PRINCE2 is even useful in agile methodologies like extreme programming (Al-Zoabi 2008); however, not everyone agrees that the PRINCE2 methodology creates successful Project Managers. Sampson's article (2007) points out that Project Management is not only about the methodology, but is also about the people and how the manager communicates to the team and mitigates project risks (Sampson 2007). Project Management is about adapting, not just following a predefined set of steps. In the PMP and PRINCE2 certifications, they each point out that the team is a key component of success.

Improving the Project Management Approach: Numerous articles have been written on how to improve the probability of a successful project. The research ranges from training, to improved communication, to being agile or adaptable to the team and processes. The Standish Report provides an opinion that projects need to be broken down into smaller, more manageable pieces (Standish Group International Inc. 1999). The creation of more manageable project tasks helps the Project Manager to gain better insight about possible risks or problems. This is a key

component of the PMBOK® (Project Management Institute 2004). This approach provides project success on the condition that the risks are known. Parson's (2007) article discusses how to identify unknown problems, but also points out that problems occur that can be classified as *unknown unknown* problems. This means the Project Manager does not have the knowledge or experience to know that this type of problem exists and therefore cannot foresee plans to mitigate this potential problem (Parsons 2007). This adds to the failure rate of the project no matter how the project is decomposed. Bannan's (2006) article reinforces this concept. In his research, he notes that sometimes the plans are just the starting point and the Project Manager's *gut feeling* is as good as any other project management tool (Bannan 2006). Bannan's work supports the notion of Emotional Intelligence being a key contributor to successful Project Management.

Decomposing the project into smaller parts is an attempt to reduce project risks. Project risks can affect cost, schedule, performance, or other project resources. This is another documented key to project success: mitigating the impact of potential project risks to improve the chance of project success (Ancona et al. 2007; Eccles et al. 2007; Hoffman 2005, 2006b; Kent 2007; Kouzes & Posner 2002). Leung's (2002) research focuses on the quantification of risk assessments and how it relates to project success. His work finds that an independent assessment provides greater rewards for tasks with high complexity, but minimal impact on tasks with low complexity (Leung 2002). He also discovers that the knowledge one learns during this assessment improves the quality of the task the next time it is performed. This finding is validated with the current epistemological research denoting that once a task is learned and understood, this knowledge helps expedite the completion of the task the next time it is performed (Leung 2002). Amy's (2005) dissertation found a high correlation between a learning organization, especially when supported by the project manager, and better managed and more

successful projects (Amy 2005). This learning and improved team knowledge help reduce the risk as well (Amabile & Kramer 2007; Buckingham & Coffman 1999; Darcy 2001; Groysberg et al. 2006; Landaeta 2003; Magrath 1999; Majchrzak et al. 2006; Parise et al. 2006; Schneyer 2007).

Other articles support the use of *softer sciences* like social networks as the key to project success (Anand & Conger 2007; Austin et al. 2005; Majchrzak et al. 2006; Young 2006). Using these networks allow the project manager to gain better insight about risks, potential problems and resolutions than specific project management tools. Close knit networks also provide better social quality and reduced stress by leveraging knowledge from these networks. Fleming and Marx (2006) collected and analyzed a patent database which revealed "… that the social network of innovators is a small world, with various clusters of people interconnected by different gatekeepers, individuals who bridge one group with another" (Fleming & Marx 2006, p. 8). These patent holding employees used their networks to work out problems and determine solutions to accomplish a patentable resolution.

The creation of an organizational project management office (PMO) is another recommendation for project success. In Fretty's research (2005), he discovers "When executives embrace the project management office [PMO] concept, they provide a newfound structure and efficiency that positively feeds the organization's bottom line" (Fretty 2005, p. 23). And since profit is what makes businesses successful, the PMO solution makes sense (Fretty 2005). Boschetto's (2005) article also notes that a PMO provides the organization with a single source or *best practices* solution. His point addresses that efficiencies exist, using the example of purchasing a single organizational solution for project management monitoring and resolution (Boschetto 2005). This *best practices* approach is similar to the social networks; however, the

tools and processes provide the interactive solutions. Hoffman (2005) agrees with this approach and notes that a "project management office could economize and synergize an organization's many varied projects and lay the groundwork for more cohesive, consistent and mature business practices." (Hoffman 2005, p. 42). Essex (2005) takes a different approach to prove the creation of a PMO will help projects. His approach is driven by the Enron debacle. In his article, he uses Enron as a case study and recommends a PMO for upper management insight into projects. This solution will reduce the amount of freedom Project Managers have with projects and keep upper management appraised of project issues and problems since ultimately, upper management is responsible for business success (Essex 2005).

Some researchers have noted that adaptability of both management styles or processes are the key to good Project Management. Black and Gregersen (2002) discuss that good management traits include the ability to break or change their current ideas and provide new or better ideas (Black & Gregersen 2002). Managers who are able to break these so called brain barriers are better able to provide team solutions and improve project processes. Christensen et al. (2006) provide an insight into Project Management improvements as well. Their work focuses on training Project Managers in the art of negotiation. This allows Project Managers to negotiate potential conflicts into win-win agreements for all parties (Christensen et al. 2006). In R&D projects, De Reyck & Leus' (2008) research asserted strict schedule development and compliance provided a better environment for project success (De Reyck & Leus 2008). Pundir et al. (2007) even developed a framework for managing projects in a complex and emergent field (Pundir et al. 2007). Though theoretical in nature, the framework provides processes and checkpoints along the project's life cycle to determine how it is changing. A lot of research has been performed, but as demonstrated, with no one solution set.

Another area of research for improving the success of IT projects is in risk management (De Reyck & Leus 2008; Eccles et al. 2007). Pinto et al. (2006) provided a case study for research that notes improved risk management could have helped the noted IT project (Pinto et al. 2006). Wilhite and Lord (2006) performed a different case study with similar results (Wilhite & Lord 2006). In their research, they determined if more accurate risk analysis was performed for IT projects, the success rate would improve. Baccarini et al. (2004) used expert judgment as a means to reduce risk on an IT project and improve success (Baccarini et al. 2004). Their research noted a process where experts who have experiences with similar projects could help identify and understand project risks and thus, identify mitigation steps early. This expert judgment approach supports the fact that communication among team and external members is critical to success. Hoffman's work (2006) focused on risk from a corporate perspective. In his research, he made a case for corporations to select which IT projects to pursue based upon a risk analysis approach or prioritization (Hoffman 2006a). This way, the corporation realizes what risks are being taken and can mitigate this from a more holistic corporate standpoint. However, there are two flaws with Hoffman's work. The first is this implies that all risks are identified within an IT project and the Project Managers understand and apply the same risk analysis to each project. The second is since the IT field changes so quickly, identifying risks in the emergent IT field, and comparing these risks across projects is a very difficult, if not impossible, task. Taylor's work (2006) tried to bridge this risk comparison gap by providing a risk framework from exploratory field studies which identified risk as a leading problem in IT projects (Taylor 2006). Taylor's framework focused on risk comparison and risk reduction across IT projects. However, Taylor also noted that though this framework appeared to work, additional research and testing was needed.

Unfortunately, most of the research noted above focuses on the creation of tools and processes to create a Project Management framework for project success. Project Management training is attempting to create a *cookbook set* of instructions for all projects. There exists a bigger, less quantifiable issue. This deals with the softer sciences associated with Project Management: employees, team members; stakeholders; communication; etc. However, the interesting connection is they all have to deal with emotions and the emotional interactions within a group. In Decker's (2006) Master's Thesis, he did not find any significant correlation between the EQ of the Project Manager and the Project's success (Decker 2006). This investigation seeks to explore more extensively this relationship between Project Management and IT projects.

Information Technology (IT) Services

The definition of IT Services varies from researcher to researcher. The easiest way to define IT services is to review what the literature defines it to be or why it is important. At a high level, researchers define IT as a means of creating a competitive advantage in business or increasing business profit (Bharadwaj 2000; Boynton et al. 1994; Brancheau et al. 1996; Dehning et al. 2003; Kohli & Devaraj 2003; Lee & Liu 2006; Lee & Anderson 2006; Piccoli & Ives 2005; Ross et al. 1999). This competitive advantage includes leveraging enterprise-wide solutions or processes (Henderson & Venkatraman 1993) or providing a robust and efficient automated solution for the business (Bharadwaj 2000). In both cases, the reason for IT is to give the company an advantage, and thus, provide for a more profitable business. However, in the 1990s, the same phrase *IT* was used, but with a different meaning. IT referred exclusively to the network infrastructure, the media where transportation of voice, data, or other business

information occurs across the enterprise (Agarwal & Lucas 2005; Barua et al. 2004; Niederman et al. 1991).

Industry groups IT into two distinct categories. The first deals with the R&D of new and improved technologies and methodologies which give companies a business advantage for the delivery of a product. This includes technologies such as nanotechnology (Hughes 2007; Marr & Munakata 2007; Packalen 2007; Ray et al. 2005; Reif & Labean 2007; Robinett et al. 2007) or improvements in semiconductor research (Irwin & Klenow 1996; Sher & Yang 2005; Stout 1993; Stratton 1995; West & Iansiti 2003). The list is extensive with regards to the relationship between R&D and IT, however the key to this group is that it is predominately product based, meaning the goal is sales of a tangible item, and is based upon a *first to market* mentality. In this group, the goal is to create revolutionary products or creative ways to capture external market share. The company's value is based on its ability to be the first one to market a product and hence, to hone its reputation as a company that markets new technologies, influence market directions, or provide a branding where customers deem the business as a market leader.

The other group is associated with IT services. The phrase IT Services has no consistent definition. If one were to review the United States Government's previous definition of service in the early 1900's, it would not include the fields of manufacturing or agriculture. This definition was correct for the early 1900s, but in today's dynamic and ever emerging IT environment, the same company or business unit may be producing a product and providing a service at the same time. This may include work competencies like answering questions about the product, performing product training, or even helpdesk support. There are also parts of production firms that focus on the delivery of services, or solutions, not necessarily the sale of products. Though these two groups do have some overlap, the goal of this service group is not to

produce product sales, but provide business revenue by selling the product knowledge (Bandy 2003). This group consists of solutions, like Enterprise Resource Planning (ERP) solutions (Carte & Russell 2003; Olsen & Sætre 2007; Ross et al. 1999; Shpilberg et al. 2007), or the ability to re-engineer or re-align customer processes to IT solutions (Brittenham et al. 2007; Hughes 2007; Keel et al. 2007). This lexicon could also refer to self-service technologies where the customer identifies the solution or fix based upon their ability to self-diagnose the problem (Curry & Penman 2004). The customer's comfort with this service can have a positive or negative effect on the business and profit.

Though the definitions of IT Services vary, there are some key similar characteristics. Svensson's research (2006) noted that service is vague and ever changing (Svensson 2006). He also noted that services will be the key to future business success and profitability. He goes on to state that service is multifaceted and should be measured as such. Service uses such intangible things as "production, distribution, and consumption are simultaneous processes", empathy, and trust (Svensson 2006, p. 246). His research showed that service is really the combination of human interaction, service encounter, and the quality of the service between the service providers and service receivers.

Seth (2006) defines service as the direct relationship with business performance, customer satisfaction, customer loyalty, and business success. What is referred to as a service is really the process, output, or offering of this interaction (Seth et al. 2006). A service cannot exist without these three interactions.

Gilmore and Morlend (2000) reference service as delivering a result or solution to a customer. This solution has to provide quality in an efficient and effective way similar to

products. Therefore, a service can be improved with standardization. But due to its dynamic nature and complexity, services are difficult to standardize (Gilmore & Moreland 2000).

Johnson's research (2005) notes that services cannot be measured because they are affected by the emotional responses of the receiver. Since emotions play a key in providing service, and since no tool exists to capture the emotions of the moment, services are really perceptions of the customer. These perceptions are uniquely based upon each customer and therefore, providing a service is nothing more than satisfying a customer (Johnson 2005). All of these definitions have something similar in nature; that is, the service is an intangible asset that is important to businesses.

A key attribute of an IT service provider is the service needs to support their customers and the business goals of the customer. This can range from emotional support (Abduh et al. 2007; Al-Marri et al. 2007; Berkley & Gupta 1995; Gilmore & Moreland 2000; Ivor Morgan 2006; Macdonald 1995) to trust (Eisingerich & Bell 2008; Esain & Massey 2006). Some researchers also support the notion that standardization is key because the processes and procedures ensure all customers are treated the same way (Berkley & Gupta 1995; Hocutt et al. 2006; Ling 2006; Liu et al. 2007; Peebles et al. 2001; Ray et al. 2005; Spencer-Matthews & Lawley 2006). However, in the IT market, not all projects have the same solutions.

But one cannot forget the most important characteristic of a service industry: providing a quality solution. Galetzka et al. (2006) discovered that service quality and service reliability is key to customer satisfaction (Galetzka et al. 2006). Berkley and Gupta (1995) discovered in the IT market that information must be obtained from the buyer in order to better understand their needs (Berkley & Gupta 1995). This, in turn, will lead to a tailored solution where the customer's needs are met. Jayasuriya (1998) notes that the use of IT as a delivery service is key

to providing customer support and solutions. IT can change the dynamics of an organization and be the enabler to the service it provides. Therefore, for the purpose of this research, service is the ability to change data into information to benefit the customer.

As noted, Project Management, IT Service, and Emotional Intelligence all have a foundation associated with people and motivating those people. This literature review shows that research has been performed in the areas of Project Management, IT Services, and Emotional Intelligence, but not for an IT Project Manager's Emotional Intelligence. This research investigates if the IT Project Manager's Emotional Intelligence influences the customer's perception of project success.

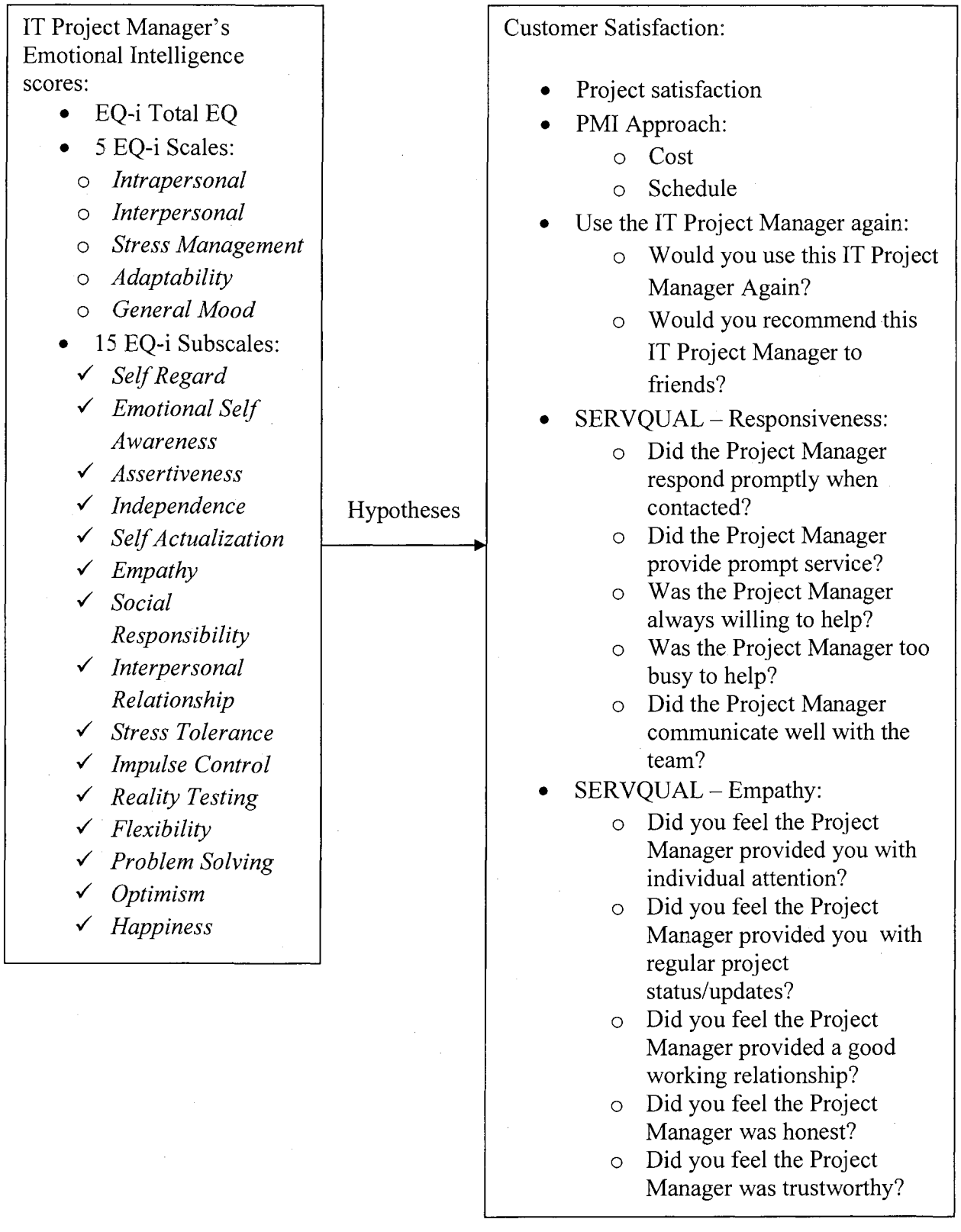
Hypotheses

The rationale behind researching this area is due to both the researcher's personal interest and the deficiency in the current body of knowledge. The previous chapter provided an overview of what is known and unknown regarding this area of research. With respect to a personal interest, the author has been in the Information Technology field for over twenty years, with the past fifteen years as a Project Manager. As such, the researcher has always been intrigued by the fact that some IT projects have greater success than others, despite similar group knowledge, skill sets, or business practices. This dilemma has forced a juxtaposition of researching both project management and emotional intelligence. Project management is a field of study where people assume the process is what dictates the success of the project. The process is usually defined and rigid. Emotional Intelligence focuses on the softer science side of the project team, the individual or team emotions and how these emotions interact among the team members or stakeholders. Though they seem like two distinct and separate competencies, using them together

improves the probability of project success. Both fields have ideas and solutions associated with improving the project's probability of success. However, is there a correlation between a Project Manager's Emotional Intelligence and project success? Figure 3 represents the research model used for this investigation. The literature review has shown that a gap exists in the literature. It is the intent of this research to close this gap with a structured research approach. A detailed description of the methodology and limitations will be described next. The hypotheses for this research are as follows (they are based upon the EQ-i assessment tool):

- H_1 – There is no significant statistical correlation between the EQ of the Project Manager and project success, as perceived by the customer.
- H_2 – There is no significant statistical correlation between the Intrapersonal skill of the Project Manager and project success, as perceived by the customer.
- H_3 – There is no significant statistical correlation between the Interpersonal skill of the Project Manager and project success, as perceived by the customer.
- H_4 – There is no significant statistical correlation between the Stress Management skill of the Project Manager and project success, as perceived by the customer.
- H_5 – There is no significant statistical correlation between the Adaptability skill of the Project Manager and project success, as perceived by the customer.
- H_6 – There is no significant statistical correlation between the General Mood of the Project Manager and project success, as perceived by the customer.

Figure 3. Research Model



CHAPTER III

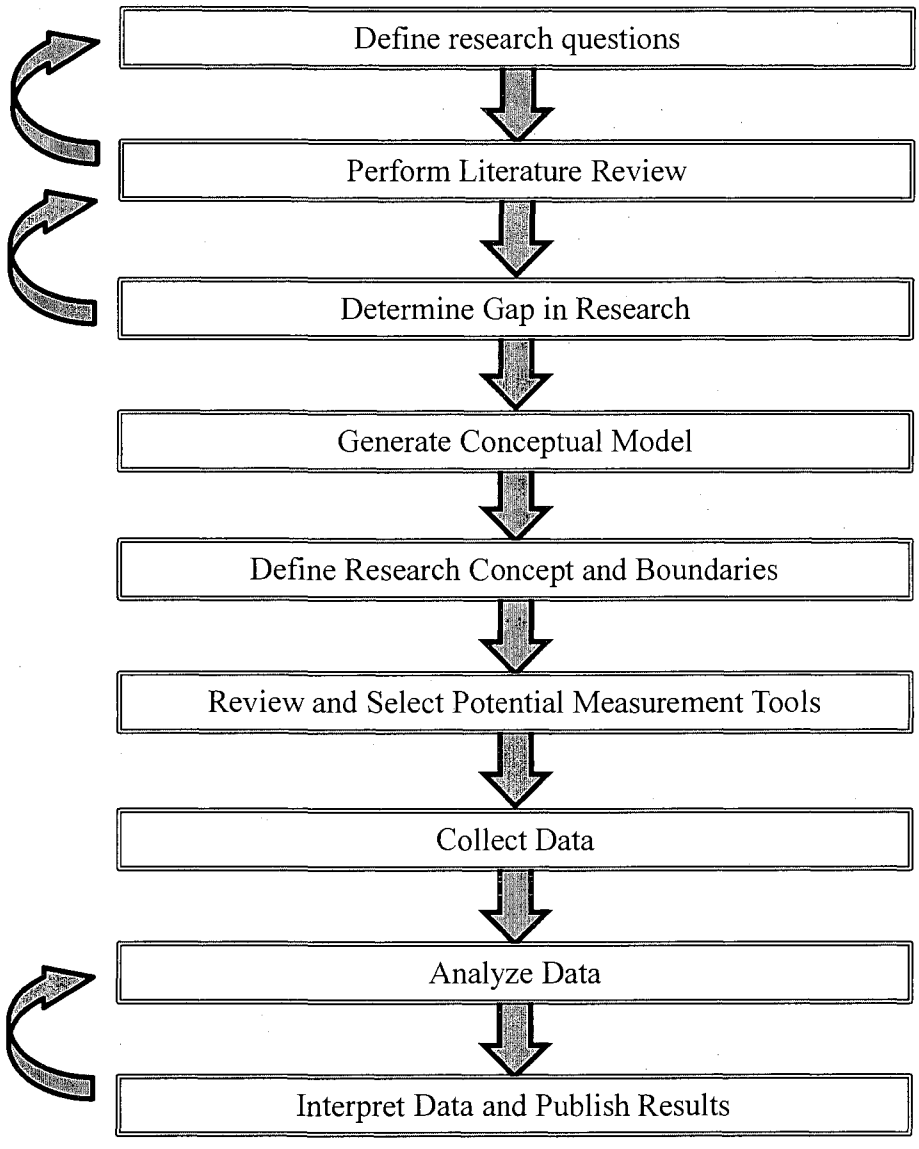
RESEARCH METHODOLOGY

This chapter examines the design and methodology of this research. It focuses on whether an IT Project Manager's Emotional Intelligence influences over the customer's perception of project success. A quantitative statistical analysis was the more appropriate approach because of the nature of the research, the investigative domain, and the constraints of both research and researcher.

Research Design

This research was designed around a nine step research methodology represented in Figure 4 and explained in the subsequent sections.

Figure 4. Research Methodology



Define Research Questions

The researcher and advisor (or appointed parties) discuss potential topics and the current body of knowledge. The feedback loop is documented here to reduce or expand the topic of interest and to clarify how the project addresses whether a knowledge gap exists in the field. The research question is: does an IT Project manager's Emotional Intelligence impact a customer's

perception of a project's successful outcome?

Perform Literature Review

The researcher performs an initial investigation into the topic of interest, identifies different potential research approaches, and identifies specific gaps in the field. EI research has focused on many areas including leadership, education, and psychological evaluations. The research has been mixed with regards to Emotional Intelligence. Chapter 2 demonstrates that research shows that Emotional Intelligence is a key part to professional success. However, there is still a significant part of literature which notes that the data is situational or environmentally based.

Determine Gap in Research

From the literature review, the researcher determines the gaps in the literature and determines which areas to address in his research project. Chapter 2 demonstrates that there is only a limited number of research articles that focus on Project Management and Emotional Intelligence (Decker 2006; Gasiorowska 2007; Leban 2003; Mem et al. 2006; Mersino 2007), but none focus on the IT field or project success from the customer's perspective. This research is unique has potential ramifications for various disciplines including, Engineering Management, Project Management, and Business.

Generate Conceptual Model

This model sets the stage, or focus, for the project. The researcher defines the ideas or approaches for investigative research (Figure 3). This research investigates the relationship

between the IT Project Manager's Emotional Intelligence and the customer's satisfaction of that project. This information will be discussed in more detail later.

Define Research Concept and Boundaries

The researcher defines the contextual boundaries of the research, and addresses the variables, hypotheses, and relationships to be investigated. Statistical parameters like alpha, beta, and sample size are determined. Variables will be addressed in two key areas: IT Project Manager's Emotional Intelligence and the customer's perception of project success.

Review and Identify Potential Measurement Tools

Many EQ assessment tools exist with regards to Emotional Intelligence. The researcher evaluated the MEIA and MSCEIT models. They were the first accepted psychological models for Emotional Intelligence (Barchard & Christensen 2007; Brackett et al. 2004; Brackett et al. 2006; Day & Carroll 2004; Kafetsios 2004; Lopes et al. 2003; MacCann et al. 2004; Mayer et al. 2003; Mayer et al. 2005; O'Connor & Little 2003; Warwick & Nettelbeck 2004; Zeidner et al. 2005). These models use pictures and drawings to assess the subject's ability to describe moods or feelings associated with pictures. However, these models were created and designed for psychological evaluations of emotions. Little attention was given to the results outside of this epistemological group, so, these tools were not chosen.

The next most widely used mode is the EQ-i (Multi-Health Systems 2004). The EQ-i is a model very similar to Goleman's model. This model assesses the individual's perspective with regards to key scales. In this model, five (5) key scales are examined: Intrapersonal, Interpersonal, Adaptability, Stress Management, and General Mood (Table 3).

Table 3

EQ-i Scales and Descriptions

Construct/Score	Description
Total EQ score	This value reflects the overall EQ of the Project Manager.
Intrapersonal score	The intrapersonal score is a value which represents the Project Manager's ability to know how he acts or responds to emotions. It includes the measurements for the subscales of self-awareness, assertiveness, independence, and self-regard.
Interpersonal score	The interpersonal score is a value which represents the Project Manager's ability to identify or know how his emotions affect, or is perceived by, others. It includes the measurements for the subscales of empathy, social responsibility, and interpersonal relationships.
Stress management score	As expected, this score reflects the Project Manager's ability to deal with, and adapt to, stress. It includes the measurements for the subscales of stress tolerance and impulse control.
Adaptability score	The adaptability score provides insight into the Project Manager's ability to be flexible and realistic. It includes the measurements for the subscales of reality testing, flexibility, and problem solving.
General Mood score	General mood evaluates the Project Manager's attitude and perceptions of life and people. It includes the measurement for the subscales of optimism and happiness.

These scales are used to create an overall composite score for the total EQ of the subject. These scales also have quantifiable subscale values or areas. Bar-On's approach and Goleman's are very similar as both refer to areas of self understanding and self control (Bar-On 1988, 1997; Bar-On et al. 2000; Bar-On et al. 2007; Goleman 1995, 1998; Goleman et al. 2002). Bar-On refers to these as Intrapersonal and Interpersonal. Adaptability focuses on how self-

understanding and self-control affect an individual's perceptions and how he adapts to, and manages his environment (Bar-On 1988, 1997; Bar-On et al. 2000). The final two areas, Stress Management and General Mood, provide insight on how the IT Project Managers deal with their environment. Bar-On acknowledges that the environmental mood can also create an interaction influence between emotions. The General Mood scale focuses on the individual's outlook and how his attitude affects his reactions to other stimuli in life (Bar-On 1988, 1997; Bar-On et al. 2000; Bar-On et al. 2007). Each scale uses a set of subscale values (Table 4). The assessment tool provides insight into all of these areas.

Table 4

EQ-i Subscales and Descriptions

Subscale	Description (Bar-On 1997, p. 15-18)
Self Regard	This subscale measures if the individual has the "ability to respect and accept oneself"
Emotional Self Awareness	This subscale measures if the individual has the "ability to recognize his feelings"
Assertiveness	This subscale measures if the individual has the "ability to express feelings, beliefs and thoughts and defend one's rights in a nondestructive manner"
Independence	This subscale measures if the individual has the "ability to be self-directed and self-controlled with regards to one's thinking and actions"
Self Actualization	This subscale measures if the individual has the "ability to realize one's potential"
Empathy	This subscale measures if the individual has the "ability to be aware of, to understand, and to appreciate the feelings of others"
Social Responsibility	This subscale measures if the individual has the "ability to demonstrate oneself as a cooperative, contributing, and constructive member of one's social group"
Interpersonal Relationship	This subscale measures if the individual has the "ability to establish and maintain mutually satisfying relationships that are characterized by intimacy and by giving and receiving affection"
Reality Testing	This subscale measures if the individual has the "ability to assess the correspondence between what is experienced and what objectively exists"
Flexibility	This subscale measures if the individual has the "ability to adjust one's emotions, thoughts, and behavior to changing situations and conditions"
Problem Solving	This subscale measures if the individual has the "ability to identify and define problems as well as to generate and implement potentially

	effective solutions"
Stress Tolerance	This subscale measures if the individual has the "ability to withstand adverse events and stressful situations without *falling apart* and by actively and positively coping with stress"
Impulse Control	This subscale measures if the individual has the "ability to resist or delay an impulse, drive, or temptation to act"
Optimism	This subscale measures if the individual has the "ability to look at the brighter side of life and to maintain a positive attitude, even in the face of adversity"
Happiness	This subscale measures if the individual has the "ability to feel satisfied with one's life, to enjoy oneself and others, and to have fun"

The EQ-i assessment tool was developed by Reuven Bar-On (Bar-On 1988, 1997). This tool has been used for over 20 years, has a proven means of testing EQ, and has been translated into more than 30 different languages. The internal reliability and internal consistency have a Cronbach's Alpha ranging from .91 for Stress Management to .98 for total EQ across almost 2000 samples (Bar-On 1997). This coefficient exceeds the .90 Nunnally requests (Nunnally 1978) for valid research. The six month retest reliability is .72 for men and .80 for women. This compares very favorably with other similar EI assessment tools – the MSCEIT produced a retest result of .86 over a three week retest window (Bar-On 1997). Using predictive reliability, the EQ-i also performs well. In three longitudinal studies of workplace performance, the EQ-i demonstrated a moderate to high relationship. The first study focused on performance leadership capacity with a predictive validity coefficient of .39 (n=539). The second study pertained to group membership with a predictive validity coefficient of .49 (n=940). The third study pertained to multi-rater evaluations with a predictive validity coefficient of .82 (n=236). The MSCEIT tool

provides a test–retest reliability of 0.86 for the MSCEIT total score demonstrating a good concurrent validity (O'Connor & Little 2003).

The WEIS and the WEIP assessment tools were evaluated as well. Both tools are being refined and improved. However, neither tool has the longevity, reputation, or following as either the MSCEIT or EQ-i.

For the aforementioned reasons, the EQ-i assessment tool was selected. It is also one of the few tools which was developed according to the American Psychological Association guidelines (Stein & Book 2000). The EQ-i assessment tool is owned by MHS.

Data Collection

A three survey approach was determined to be the best solution for this research. The first and third surveys were created using the electronic survey tool zoomerang (www.zoomerang.com). Zoomerang was used as a means to keep all of the data in an electronic format as well as provide IT Project Managers and customers a means to access the survey at their convenience. A professional license was purchased to ensure the researcher had access to any zoomerang support staff if necessary. Due to the *potential* sensitivity of the data that was collected, this research has been approved by Old Dominion University's (ODU) Institutional Review Board (IRB). The IRB approved the surveys with the provision that an electronic Informed Consent was provided to the participants (Appendix A). If the survey respondent agreed, and responded "no" to the Informed Consent, zoomerang counted this as a completed survey with no data obtained. When measuring variation in a survey question, a 5 point Likert scale was used. This approach was deemed best based upon Likert's research (Likert 1932). Dawes (2008) performed research comparing the use of 5, 7, and 10 point Likert scales with

minimal improvements (Dawes 2008).

First Survey - IT Project Manager Demographics and Project Information: This first survey collected information about the IT Project Manager and the project being evaluated.

This study focused on IT Project Managers exclusively. The researcher used his social network to solicit help from the local area via e-mail (see Appendix B). The Project Management Institute (PMI) put a survey link on their research webpage, and other PMI Chapters solicited research candidates by including this research in their monthly correspondence. To ensure a good cross-section of IT Project Managers, the researcher requested participation from his employer, other large IT corporations, project management blogging sites (www.projectmanagementblog.com, www.reformingprojectmanagement.com, and project management groups on www.linkln.com) as well as Government Agencies. This created 252 hits on the IT Project Manager survey. Out of the 252 hits, 102 were completed surveys, with 46 partially completed surveys.

An interesting observation was made with the 46 partial-survey data. Each of these partial responses stopped at the same question – entering a project name to be evaluated. The researcher did get a few e-mails from some of these subjects and they acknowledged that they were interested in the outcome, but for project sensitivity, company policy, or personal reasons, they did not want to release customer information. Another interesting observation was that an *example* customer satisfaction survey site was requested by a few subjects. Several IT Project Managers wanted to see what types of questions were being asked of their customers prior to their agreement to participate.

Second Survey – EQ Assessment Tool: At the end of the IT Project Manager's survey, a MHS link was e-mailed to the IT Project Manager to complete the EQ-i survey (Appendix B).

This survey consists of 133 questions with a 5 point Likert scale ranging from very seldom true of me (1) to very often true of me (5). The data is stored on a secure server where only the researcher had access to the data. Once all the data was collected, the secure link was used to log in and download the raw data in Excel format. Data from the EQ-i assessment demonstrated an average test time of 17 minutes for the research group. This value is in line with the 15-20 minute average outlined in the EQ-i literature (Bar-On 1997).

Third Survey - Customer Satisfaction: Customer satisfaction is a unique research topic unto itself. Parasuraman, Zeithaml and Berry (1985) noted that measuring service is difficult to define as well as to measure. This is due to services being intangible, service quality can vary by customer, and production is inseparable from consumption (Parasuraman et al. 1985). Many articles have been written regarding how to measure satisfaction (Jayasuriya 1998; Jiang et al. 2003; Jones 2004; Kim et al. 2005; Peebles et al. 2001), including if satisfaction can be measured accurately (Fogarty et al. 2000), if the customer's perspective is being measured (Whittaker et al. 2007), or if the research only addresses the customer's emotion at that instance in time (Johnson 2005). For this research, several different variables were used to determine customer success. Jones (2004) notes in his research, that in order to determine customer satisfaction, ask the customer how satisfied he is with the work (Jones 2004). The Project Management Institute notes that all subjectivity associated with project success should be removed and that the only satisfaction criterion should be whether the project was delivered on time and within cost (Project Management Institute 2004). Parasuraman et al (1988) has created a well-known customer-service survey instrument, the SERVQUAL (Parasuraman et al. 1988; Parasuraman et al. 1991). SERVQUAL originated in the retail sector, but has been modified and changed to adapt to different environments. Five key areas are used to determine customer satisfaction:

tangibles – appearance of buildings and personnel; reliability – the ability to perform the requested task; responsiveness – willingness to help; assurance – knowledge of the product; and empathy – customer's perception of whether the staff cares about their concerns. Lai (2006) modified the wording of the questions in this instrument to fit into the E-Commerce space and validated the groups as well (Lai 2006). Lai noted that in the E-Commerce arena, responsiveness and empathy were two key and important areas with a composite reliability of .90 and .84 respectfully. He also calculated a Cronbach's Alpha reliability in these areas of .87 and .82 respectfully. Because this study is about the IT Project Manager, questions associated with the other three areas of SERVQUAL would not be addressed (tangibles, reliability, and assurance).

Keiningham's (2008) research determined that SERVQUAL, though valuable for retail, was not valuable in the IT services market space (Keiningham et al., 2008). This was due to SERVQUAL being difficult to implement and though the results were a collection of subfactors, each subfactor can provide independent or conflicting results. This research was backed by what Sheppard discovered. Sheppard's (2002) research, though in a different domain than Keiningham, came up with an interesting discovery. The discovery was: the most important questions to determine customer satisfaction are questions related to whether you would use this service again or recommend this service to a friend (Keiningham et al. 2008; Sheppard 2002). Their results demonstrate that customer satisfaction is based upon the customer's comfort with the service provider. The customer satisfaction survey took all of this into consideration.

Once the IT Project Manager survey was completed and project information was obtained (Project Manager's name, project name and customer's e-mail address), a unique URL was created for that customer/project. The customer satisfaction survey is located in Appendix D. Using zoomerang's direct e-mail feature, the customer was sent this URL for their customer

satisfaction survey. Upon selecting the link, the customer would see this message with the pertinent data updated:

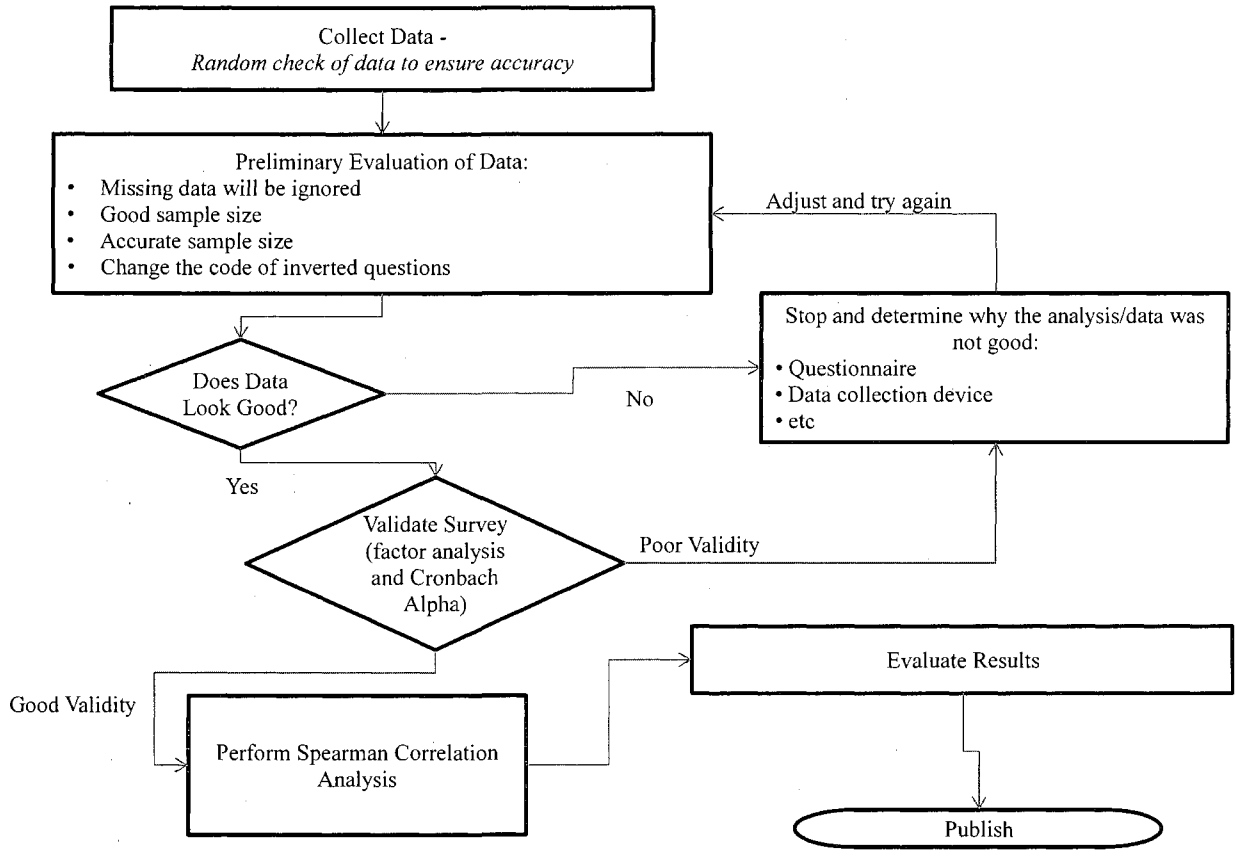
> Greetings,
>
> I received your name and e-mail address from <*insert Project Manager's name here*>. My name is Bill LaMarsh and I am a PhD Student at Old Dominion University. My thesis is researching the Project Manager's Emotional Intelligence (EI) to see if it has any influence on the perception of project success. The Project Manager felt you would be the best person to evaluate the success of the <*insert project name here*> project. This survey will take approximately 10 minutes to complete. You will be asked several questions regarding the project and the Project Manager. **This information will be used for research purposes only. The answers to these questions are your opinion and will have no impact on the Project Manager, professionally or personally. All information will be kept confidential.**
>
> I appreciate your support and if you would like a copy of my thesis results, please write me at <*e-mail address*>. As soon as the information is published, I will send you a copy (estimated completion date early 2009).
>
> Best Regards, Bill

Analyze Data

SPSS version 15 Grad Pack for Windows was used as the statistical analysis tool. SPSS was run under the Microsoft Vista operating system, so the SPSS Vista hotfix was included. The first step in this process was to evaluate the data for consistency and completeness (refer to Figure 5).

Figure 5

Data Analysis Flowchart



A Spearman Correlation Analysis was used. A Spearman Correlation analysis is an acceptable technique for this ordinal type of research (Cetin 2006; Choi & Choi 2003; Dhanasarnsilp et al. 2006; Khandekar & Sharma 2005; Kotey & Anderson 2006; Leban 2003; Welsch & Young 1982). Based upon the hypotheses, a two-tailed analysis was used, (Hair et al. 2006) which was the best choice since the researcher was looking for any changes.

*Collect Data: T*he researcher collected and combined the information from the three surveys into one dataset using the IT Project Manager's name as a key. Though this was time

consuming, it allowed the researcher to keep the customer-satisfaction data separate and independent. As noted above, the survey tool used to collection the information about the Project Manager, project demographics, and customer feedback was an electronic survey tool called zoomerang (www.zoomerang.com). The EQ-i data was supplied by MHS in an excel spreadsheet format. To ensure proper assembly after coding the IT Project Manager's name, an independent assessment was performed on ten randomly selected entries in the dataset. This review ensured no mistakes were made during dataset creations. No discrepancies were found. Once the data was reviewed, the IT Project Manager's name, Project Manager's e-mail address, project name, and customer e-mail address was removed to fulfill the confidentiality requirement.

Any self-assessment measurement tools by their very nature are open to criticism (Austin et al. 2007; Barchard & Christensen 2007; Collins 2001; Gerbrandt 2005; Kelly & Barsade 2001; Zeidner et al. 2005). If the assessment tool is in question, so are the results; however, based upon the above discussion of validity and reliability associated with each questionnaire/survey, this research will provide valid results for future studies.

Online surveys have been deemed a better methodology than paper surveys (Boyer et al. 2002; Carstensen 2003; Fidelman 2007; McNaughton 1999) with regards to response rate, completeness, and providing an anonymous means of feedback. But Boyer also points out that care must be exercised when using online survey tools since learning a new tool may take additional time which might not be available (Boyer et al. 2002). Though the zoomerang site had some unexpected down time and several connection issues, it was deemed a valuable electronic media for survey collection.

Preliminary Evaluations of Data: Once the data was combined, the researcher reviewed the data for any missing information. Any missing or blank data was ignored during the analysis.

The only exception to this was if the IT Project Manager did not answer an EQ-i survey question. In this case, the whole IT Project Manager's EQ-i assessment was deemed unusable. Three questions were negatively phrased and needed the results to be reversed prior to using the data.

Feedback Loop - Does the data look good: This step provides a feedback loop in case any threats, weaknesses, or opportunities have been identified via by the P*reliminary Evaluation of Data* step. A pilot group was used to test for content validity and face validity. Chapter 4 clarifies this in more detail.

Modification to the surveys: If problems are discovered, modifications to the survey were needed.

Reliability and Validity of Measures: A common approach to ensure reliability of a survey is to calculate the coefficient alpha (Cronbach's Alpha). Factor analysis was used to verify the validity of the constructs in this research (Ahire & Devaraj 2001). These results are provided in Chapter 4.

Perform the Spearman Correlation: As noted above, a Spearman correlation was the more appropriate statistical analysis procedure for this research.

Interpret Data and Publish Results

This final step of the process is a verification step as well. Though a research literature review is constantly being performed throughout this process, the researcher at this stage verifies his findings with other research. The researcher also verifies all findings and calculations. When appropriate, the researcher refers to the community of practice to see if the results make sense or are feasible in the business world. A final document is created for publication and transmittal. Sharing these results to enhance the body of knowledge is the end goal.

CHAPTER IV

RESULTS

This chapter examines the results of this research. A detailed discussion of the data collection and analysis follow.

Results of Data Collection

Pilot Study: A pilot group of six (6) IT Project Managers, with a little over one hundred years of project management experience, provided the content validity and were the first to take the IT Project Manager's demographics and customer satisfaction surveys. Table 5 outlines the pilot group's project management experiences.

Table 5

Pilot Group Information

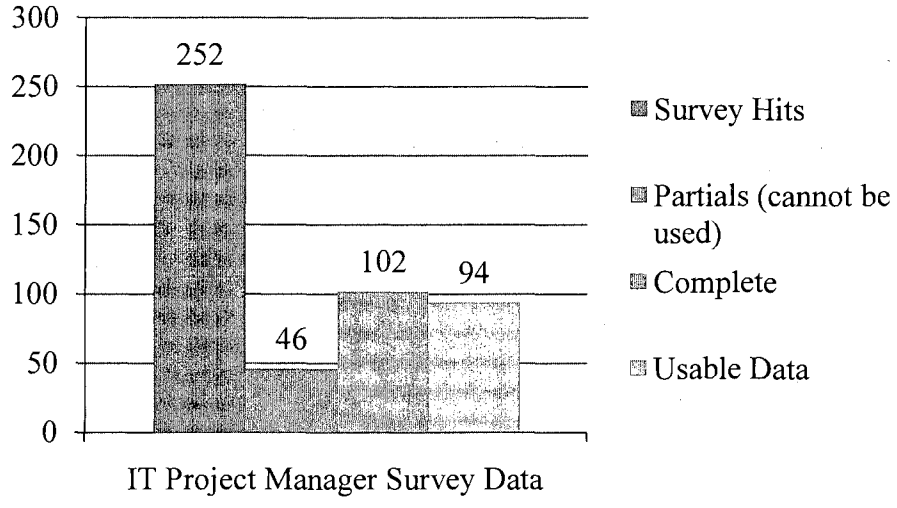
Project Manager	Years of experience
Project Manager 1	18
Project Manager 2	20
Project Manager 3	45
Project Manager 4	3
Project Manager 5	21
Project Manager 6	7
Total Years of Experience	*114*
Median (years)	*19*
Standard Deviation (years)	*14.71*

The pilot group recommended adding the name of the project to the surveys. Their recommendation was based on experience where customers or IT Project Managers might be working on multiple projects. A project name in the survey would ensure proper evaluation. This change also forced a change in the customer satisfaction survey as well. The surveys were modified based upon their recommendations. Once the pilot study was complete, the next step was obtaining a test group of IT Project Managers.

IT Project Manager Data: The IT Project Manager Survey (the survey that collects demographic data) was attempted 252 times. Out of that number, 46 were surveys that were not completed (partials) with 102 completed surveys (Figure 6). As noted in the previous chapter, all of the 46 partially completed surveys stopped at the exact question - the request for the name of a project to be evaluated. The few e-mails the researcher received noted that a project name could not be provided for various reasons, but the subjects also noted that the field of research was interesting and *of great value*. The additional 104 hits could be due to various reasons including people surfing the web and clicking an unknown link. The author received two e-mails from people inquiring about the research. These e-mails were from Project Managers outside of the IT field who were interested in Emotional Intelligence. They followed the link from the "survey" section of the Project Management Institute's web page (www.pmi.org). Another e-mail was sent by an IT Project Manager who became nervous after reading the Informed Consent screen and opted to close the web browser. If participants had answered "no" to the Informed Consent, the result would have counted as a completed survey.

Figure 6

Website Responses



Of the 102 completed surveys, 8 data points had erroneous data (incorrect or nonexistent e-mail addresses) and could not be used. When the researcher contacted these IT Project Managers, all 8 noted that they wanted to take the EQ-i survey, but did not want the customer satisfaction survey to be given to any of their clients. Two IT Project Managers answered "no" to the Informed Consent bringing the total usable IT Project Manager surveys to 92 (90% rate). Out of the 92 useable IT Project Manager samples, only 86 completed the EQ-i assessment for a 93% return rate (Table 6). Several e-mail reminders were sent, but due to workload and other unknown reasons, the remaining EQ-i data points were not obtainable by data collection closure (Appendix F).

Table 6

IT Project Manager Survey Data

	Number	Percentage
Complete IT Project Manager Demographic Surveys	102	
Usable IT Project Manager Data Points**	92	90%
EQ-i assessment	86	93%

** Eight surveys had inaccurate data and two responded "no" to the Informed Consent

EQ-i Results: Via a secure website, the IT Project Manager's EQ-i assessments were obtained. This report provided raw data from each of the EQ-i assessments. This data included the following information (Table 7):

Table 7

Layout of EQ-i Data

EQ-i Validation and Coaching Information
** These values were not used in this research
Total EQ Score
** the higher the score, the higher the Emotional Intelligence of the person
Intrapersonal Score (composed of):
Self Regard
Emotional Self Awareness
Assertiveness
Independence
Self Actualization
** the higher the score, the higher the understanding of one's inner self
Interpersonal Score (composed of):
Empathy
Social Responsibility
Interpersonal Relationship
** the higher the score, the better the social skills
Stress Management Score (composed of):
Stress Tolerance
Impulse Control
** the higher the score, the better the person can handle pressure filled situations
Adaptability Score (composed of):
Reality Testing
Flexibility
Problem Solving
** the higher the score, the higher the understanding of one's inner self
General Mood Score (composed of):
Optimism
Happiness
** the higher the score, more cheerful and positive this person appears
Individual responses to the EQ-i Assessment (133 values)
** These values were not used in this research

The **bold** fields represent the fields to be used in this research and the hypothesis testing. The IT Project Manager information was used to assemble the data. Only the OMISSION RATE

and INCONSISTENCY INDEX were used from the validation and coaching data. The EQ-i assessment tool provides an OMISSION RATE field as a guide to determine if any assessment contains incomplete responses. The OMISSION RATE for the data used was zero (0), indicating that no incomplete responses existed with this group. Therefore, the EQ-i assessment data was complete. The INCONSISTENCY INDEX is also provided with the EQ-i assessment tool. This variable measures if the respondents contradict themselves or respond randomly, providing one more means of validity. Bar-On recommends an INCONSISTENCY INDEX of less than twelve (Bar-On 1997 pg 41). All of the INCONSISTENCY INDEX data points were significantly under twelve (the highest value was 8). The **bold** values of Total EQ, Intrapersonal, Interpersonal, Stress Management, Adaptability, and General Mood were used for hypothesis testing. The italicized fields represent the subfactors used in creating the EQ-i scaled in **bold.** Although the answers to all 133 questions have been obtained, the researcher does not have access to how the questions relate back to the scales or subscales. These values were not used and were deleted from the data.

Measuring Customer Satisfaction: As noted earlier, trying to understand and measure customer satisfaction has many different solutions. For this research, four approaches were used to create the customer satisfaction survey:

- The customer was asked to rate their satisfaction (question 7).
- Following the Project Management Institute's approach, the customer was asked cost and schedule questions (questions 8 & 9).
- The customer was asked if she/he would use this IT Project Manager again or recommend the IT Project Manager to others (question 10).

- Using the SERVQUAL responsiveness and empathy subfactors, the customer was asked questions pertaining to these two subfactors (questions 11 & 12).

This four-factor approach allowed the researcher the ability to perform a principal components confirmatory factor analysis (CFA) within SPSS to verify the construct validity.

A total of 61 customer-satisfaction surveys were completed with three of the customers answering "no" to the Informed Consent, leaving 58 total possible datasets. This represented a 66% return rate (Table 8). Reminder e-mails were sent weekly to the customers to encourage customer response. A minimum of four e-mail reminders were sent to the non-responsive customers, both from within zoomerang and from the researcher's personal e-mail address. The researcher received two very harsh e-mails from customers stating they had more important things to do than participate in this research. Though unfortunate, the IT Project Manager in both of these cases did not inform the customer of this research prior to the survey request. Five e-mails were received stating that supporting research outside of their company or without passing the information through corporate legal approval was not allowed. Most of the e-mail exchanges throughout this research were very supportive and encouraging.

Complete Datasets: Out of the 58 possible datasets, two IT Project Managers did not complete the EQ-i assessments. Combining the IT Project Manager, EQ-i, and Customer Satisfaction data together produced 56 complete packages. This represented 61% of the total potential sample population (Table 8).

Table 8

Complete Datasets

	Number	Percentage
Usable IT Project Manager Data Points	92	
Customer Survey responses**	61	66%
EQ-i assessments	86	93%
Complete packages (IT Project Manager, EQ-i, and Customer Satisfaction data)	56	61%

** Three customers answered "no" to the Informed Consent

All of the data (IT Project Manager's demographic, EQ-i results, and customer satisfaction response) was combined into one dataset. As noted earlier, the names, e-mail addresses, and project names were removed from the dataset to ensure confidentiality. Three questions (cost, schedule, and the IT Project Manager's availability) were negatively phrased and the values needed to be inverted.

Demographics

A good mix of different IT Services was obtained (Table 9). Almost 85% of the projects (84.78%) were in the IT Architecture, Web Development, Application Development, and General IT Services categories.

Table 9

IT Service Project Distribution

Type of IT Service Projects	Number	Response Rate
Database Development	2	2.2%
IT Architecture	16	17.4%
IT Security	5	5.4%
Network Support	5	5.4%
Web Development	22	23.9%
Application Development	19	20.7%
General IT Services	21	22.8%
Other	2	2.2%
Total	*92*	*100.0%*

The demographics of the IT Project Managers and project data are varied as well (Table 10), which provides a good cross-sectional sample for this research.

Table 10

IT Project Manager Demographics

Demographics	Category	Frequency (n=92)	Percentage
Gender	Female	54	58.7%
	Male	38	41.3%
Education	Doctorate	11	12.0%
	Master's	39	42.4%
	Undergraduate	36	39.1%
	Attended some college	4	4.3%
	Trade or vocational school	1	1.1%
	Prefer not to answer	1	1.1%
Years of Project Management experience			
	0-4 years	11	12.0%
	5-9 years	27	29.3%
	10-14 years	20	21.7%
	15-19 years	26	28.3%
	20-24 years	3	3.3%
	>25 years	5	5.4%
Experience with this type of Project			
	Very Little	3	3.3%
	Little	4	4.3%
	Some	23	25.0%
	Fair Amount	35	38.0%
	A Lot	27	29.3%
Number of changes made throughout the Project			
	1-9	25	27.2%
	10-24	26	28.3%
	25-99	23	25.0%
	100-200	10	10.9%
	>200	8	8.7%

Reliability and Validity of Data Collection Instruments

The researcher used a Cronbach's Alpha to calculate the coefficient alpha. The coefficient alpha measures the internal consistency of the scale of the questions of a construct or variable. It is generally thought that an alpha reliability value of greater than 0.5 is acceptable in exploratory research (Ahire & Devaraj 2001; Nunnally 1978).

When using CFA, different opinions exist as to the minimal number of samples necessary for CFA, anywhere from 100 to 300 (Gorsuch 1983; Guilford 1954; Kline 1979). The sample size has always been the determining factor in factor analysis. MacCallum et al (1999) demonstrated that using the sample size to determine if factor analysis is appropriate is not accurate (MacCallum et al. 1999). They noted that "level of communality plays a critical role" (MacCallum et al. 1999, p. 96). This research fits nicely into their work. Factor loadings between 0.3 and 0.6 are generally considered in the moderate range, but factors below 0.4 should be ignored (MacCallum et al. 1999). The researcher performed a factor analysis to identify which variables explain the construct of *Customer Satisfaction* (Table 11). This result verifies the construct validity.

Table 11

Customer Satisfaction Factor Loads

Question	Factor Loading
Overall, how satisfied were you with this project:	.736
From a cost perspective, the project came in:	.406
From a schedule perspective, the project came in:	.512
Use this Project Manager again?	.855
Recommend this Project Manager to others?	.822
Did the Project Manager respond promptly when contacted?	.701
Did the Project Manager provide prompt service?	.817
Was the Project Manager always willing to help?	.721
Was the Project Manager too busy to help?	.393
Did the Project Manager communicate well with the team?	.629
Did you feel the Project Manager provided you with individual attention?	.483
Did you feel the Project Manager provided you with regular project status/updates?	.772
Did you feel the Project Manager provided a good working relationship?	.851
Did you feel the Project Manager was honest?	.804
Did you feel the Project Manager was trustworthy?	.826

The factor loading analysis demonstrated that one question should not be used to measure the construct *customer satisfaction* variable because of the low factor loading obtained. This question was the SERVQUAL subfactor associated with Responsiveness (*Was the Project*

Manager too busy to help?). This question was removed from the datasets. All other questions produced a loading value greater than .4. This demonstrated good construct validity.

When the reliability was measured with the remaining fourteen customer satisfaction questions, a Cronbach's Alpha value of 0.924 was calculated (Table 12). This value is greater than the recommended 0.9 value, proving, for this sample group, the questions provided good reliability or internal consistency (Nunnally 1978).

Table 12

Customer Satisfaction Cronbach's Alpha Calculation

Cronbach's Alpha	Number of Questions
.924	14

As noted above, MHS provided the researcher with the values of the total EQ and the five additional scales (Interpersonal, Intrapersonal, Stress Management, Adaptability, and General Mood) for hypothesis testing. The total EQ score was calculated by summing up the 117 EQ-i assessment questions (Bar-On 1997). 117 questions represented the total number of questions in the assessment (133) excluding the 8 questions which were used for the positive impression measure and the 7 questions which were used for the negative impression measure. The positive and negative impression values were not used in this research. Since the total EQ score is a composite score, as well as a response associated with a moment in time, Bar-On recommends using this as a general value, not a complete solution (Bar-On 1997). Using the total EQ score and the five scales provides a deeper understanding into Emotional Intelligence. These five scales are created also by summing up their individual subscale values (Bar-On 1997). MHS provided the responses to all 133 EQ-i responses if further analysis was needed.

The researcher performed the same CFA approach on the subscales to verify the construct validity of the EQ-i scales (Table 13). The factor loading analysis results were above the 0.40 recommended by MacCallum (MacCallum et al. 1999).

Table 13

EQ-i Subscale Factor Loads

Subscales	Factor Loading
Intrapersonal (composed of):	
Self Regard	.809
Emotional Self Awareness	.855
Assertiveness	.759
Independence	.771
Self Actualization	.803
Interpersonal (composed of):	
Empathy	.922
Social Responsibility	.892
Interpersonal Relationship	.793
Stress Management (composed of):	
Stress Tolerance	.900
Impulse Control	.900
Adaptability (composed of):	
Reality Testing	.883
Flexibility	.425
Problem Solving	.743
General Mood (composed of):	
Optimism	.851
Happiness	.851

When the reliability was measured with the fifteen subscale values, a Cronbach's Alpha value of 0.922 was calculated (Table 14). This value is greater than the recommended 0.9 value, proving for this sample group, the values have good reliability or internal consistency (Nunnally 1978).

Table 14

EQ-i Subscales Cronbach's Alpha Calculation

Cronbach's Alpha	Number of Items
.922	15

A CFA was also performed for the five EQ-i scales: Intrapersonal, Interpersonal, Stress Management, Adaptability, and General Mood. This produced the factor loads in Table 15. The factor loading analysis demonstrated that all factors were above the 0.40 recommended by MacCallum (MacCallum et al. 1999). This provided good construct validity for these measures. This result verifies the construct validity

Table 15

EQ-i Scale Factor Loads

EQ-i Scales	Factor Loading
Intrapersonal	.853
Interpersonal	.869
Stress Management	.851
Adaptability	.889
General Mood	.889

When the reliability was measured with the five EQ-i scales, a Cronbach's Alpha value of 0.914 was calculated (Table 16). This value is greater than the recommended 0.9 value, proving for this sample group, the values have good reliability or internal consistency (Nunnally 1978).

Table 16

EQ-i Scales Cronbach's Alpha Calculation

Cronbach's Alpha	Number of Items
.914	5

Hypothesis Testing

Hypothesis testing was used with the following six hypotheses:

- H_1 – There is no significant statistical correlation between the EQ of the Project Manager and project success, as perceived by the customer.
- H_2 – There is no significant statistical correlation between the Intrapersonal skill of the Project Manager and project success, as perceived by the customer.
- H_3 – There is no significant statistical correlation between the Interpersonal skill of the Project Manager and project success, as perceived by the customer.
- H_4 – There is no significant statistical correlation between the Stress Management skill of the Project Manager and project success, as perceived by the customer.
- H_5 – There is no significant statistical correlation between the Adaptability skill of the Project Manager and project success, as perceived by the customer.
- H_6 – There is no significant statistical correlation between the General Mood of the Project Manager and project success, as perceived by the customer.

These values came from the IT Project Manager's EQ-i results and a correlation analysis was performed against the *customer satisfaction* value created by the factor analysis.

Hypothesis H_1 – There is no significant statistical correlation between the EQ of the Project Manager and project success, as perceived by the customer: This hypothesis was tested using the Total EQ score provided by the EQ-i assessment and the *customer satisfaction* value (Appendix G). A two-tailed Spearman correlation analysis was performed (rho = -0.241, p = 0.074). A marginal negative statistical correlation at the 0.1 level was identified between the

Total EQ score and customer satisfaction, and therefore the research rejects the hypothesis.

Hypothesis H_2 – There is no significant statistical correlation between the Intrapersonal skill of the Project Manager and project success, as perceived by the customer: This hypothesis was tested using the Intrapersonal Score provided by the EQ-i assessment and the *customer satisfaction* value (Appendix G). A two-tailed Spearman correlation analysis was performed (rho = -0.164, p = 0.324). No statistical significant evidence was found in this investigation to reject the hypotheses.

Hypothesis H_3 – There is no significant statistical correlation between the Interpersonal skill of the Project Manager and project success, as perceived by the customer: This hypothesis was tested using the Interpersonal Score provided by the EQ-i assessment and the *customer satisfaction* value (Appendix G). A two-tailed Spearman correlation analysis was performed (rho = -0.220, p = 0.103). No statistical significant evidence was found in this investigation to reject the hypotheses.

Hypothesis H_4 – There is no significant statistical correlation between the Stress Management skill of the Project Manager and project success, as perceived by the customer: This hypothesis was tested using the Stress Management Score provided by the EQ-i assessment and the *customer satisfaction* value (Appendix G). A two-tailed Spearman correlation analysis was performed (rho = -0.208, p = 0.124). No statistical significant evidence was found in this investigation to reject the hypotheses.

Hypothesis H_5 – There is no significant statistical correlation between the Adaptability skill of the Project Manager and project success, as perceived by the customer: This hypothesis was tested using the Adaptability Score provided by the EQ-i assessment and the *customer satisfaction* value (Appendix G). A two-tailed Spearman correlation analysis was performed (rho

= -0.211, p = 0.119). No statistical significant evidence was found in this investigation to reject the hypotheses.

Hypothesis H_6 – There is no significant statistical correlation between the General Mood of the Project Manager and project success, as perceived by the customer: This hypothesis was tested using the General Mood Score provided by the EQ-i assessment and the *customer satisfaction* value (Appendix G). A two-tailed Spearman correlation analysis was performed (rho = -0.411, p = 0.002). A significant negative statistical correlation at the 0.01 level was identified between this sample of IT Project Managers, the EQ-i scale General Mood and customer satisfaction, and therefore the research rejects the hypothesis.

Hypothesis Summary

The four different customer satisfaction approaches were use to determine *customer satisfaction.* The researcher performed a CFA to created a survey based upon the above mentioned customer-satisfaction research. A CFA was performed and the data from one of the questions was removed (data associated with the *SERVQUAL Responsiveness subfactor question - Was the Project Manager too busy to help?*). Using the EQ-i results obtained from a secure website, the hypothesis testing provided the following information (Table 17):

Table 17

Hypotheses Testing – Summary

Hypotheses	Fail to Reject/Reject for this Sample Data
H1 - There is no significant statistical correlation between the EQ of the Project Manager and project success, as perceived by the customer.	Reject at the 0.1 level
H2 – There is no significant statistical correlation between the Intrapersonal skill of the Project Manager and project success, as perceived by the customer.	Fail to Reject
H3 – There is no significant statistical correlation between the Interpersonal skill of the Project Manager and project success, as perceived by the customer.	Fail to Reject
H4 – There is no significant statistical correlation between the Stress Management skill of the Project Manager and project success, as perceived by the customer.	Fail to Reject
H5 – There is no significant statistical correlation between the Adaptability skill of the Project Manager and project success, as perceived by the customer.	Fail to Reject
H6 – There is no significant statistical correlation between the General Mood of the Project Manager and project success, as perceived by the customer.	Reject at the .01 level

A two-tailed Spearman correlation provided that for this sample of IT Project Managers, the Intrapersonal, Interpersonal, Stress Management, and Adaptability scores showed no significant statistical correlation with the *customer satisfaction* score. This research fails to reject

the hypotheses H2, H3, H4, and H5. A marginal negative statistical correlation at the 0.1 level was identified for this sample of IT Project Managers between the Total EQ score and the *customer satisfaction* score. Therefore, this research rejects the hypothesis H1 at the 0.1 level. A significant negative statistical correlation at the 0.01 level was identified for this sample of IT Project Managers between the General Mood score and the *customer satisfaction* score. Therefore, this research rejects the hypothesis H6 at the 0.01 level. The negative correlation associated with both Total EQ and General Mood demonstrates for this sample group, as the IT Project Manager's EQ or General Mood score increases, customer satisfaction decreases. These results demonstrated external validity with findings from other researchers (Becker 2003; Ciarrochi et al. 2000; Clanton 2005; Davies et al. 1998; Gannon & Ranzijn 2005; Lyons & Schneider 2005; Palmer et al. 2002). Additional research is needed to better understand this phenomenon.

Additional Research Conducted

This section includes additional analysis conducted that is out of the scope of this investigation, but that provides meaningful information to further understand the relationships between EQ and customer satisfaction in IT service projects. This section includes expanded discoveries that were thought to be of importance to the Engineering Management Body of Knowledge.

General Mood Research: General Mood is a combination of two other subfactors: optimism and happiness. Optimism is defined as "the ability to look at the brighter side of life and to maintain a positive attitude even in the face of adversity" (Bar-On 1997, p. 18). Happiness is the "ability to feel satisfied with one's life, to enjoy oneself, and others, and to have fun" (Bar-

On 1997, p. 18). Performing further correlation analysis, a two-tailed Spearman correlation analysis was performed on the General Mood subscale scores optimism and happiness and the *customer satisfaction* score (Appendix G).

It is very interesting that the *customer satisfaction* variable had a strong significant negative statistical correlation (at a 0.01 level) with the optimism subfactor (rho = -0.536, p = 0.000), but no statistical significant correlation with the happiness subfactor (rho = -0.176, p = 0.194). Further research is needed into this discovery.

Total EQ Research: Additionally, the researcher looked into the other EQ-i subscales as well to see if any subscales appear to influence the marginal negative statistical correlation at the 0.1 level identified between the Total EQ score and customer satisfaction (Appendix G). The data demonstrates that subscales OPTIMISM and STRESS_TOLERANCE provide a strong significant negative statistical correlation (at a 0.01 level) with the customer satisfaction value. Subscales INDEPENDENCE, SELF_ACTUALIZATION, and INTERPERSONAL_RELATIONSHIP provide a significant negative statistical correlation (at a 0.05 level) with the customer satisfaction value as well. These subscales appear to be the force behind creating the marginal negative statistical correlation (at the 0.1 level) that was identified between the Total EQ score and customer satisfaction. Additional research is needed in this area.

CHAPTER V

DISCUSSION

Research in the field of Emotional Intelligence has received much attention, both positive and negative, since Daniel Goleman's book *Emotional Intelligence* was published. Though Daniel Goleman's examples were anecdotal, it started a whole field of research to determine if emotions affect workplace performance. Research has shown that Emotional Intelligence can be a good indicator for success in business (Alon & Higgins 2005; Bar-On et al. 2007; Brooks 2003; Cooper 2000; Day & Carroll 2004; Goleman 1998; Graves 2000; Mayer & Cobb 2000; Salovey & Grewal 2005; Stein & Book 2000). Little research has been performed on Project Management and Emotional Intelligence (Bagshaw 2004; Decker 2006; Gasiorowska 2007; Gerbrandt 2005; Leban 2003; Mem et al. 2006; Mersino 2007). No research has been performed on Emotional Intelligence and Project Management in Information Technology. Consequently, this research focused on the IT field and investigated whether there is a relationship between an IT Project Manager's Emotional Intelligence and the customer's perception of project success. The literature review in Chapter 2 notes that there is a gap in the research between the Emotional Intelligence, Project Management and IT Services areas. This exploratory research addresses this gap and adds documented research results to the Project Management and Engineering Management bodies of knowledge as a means for increasing IT project efficiency and thereby improving company profitability. Chapter 3 outlines the three survey approach and data analysis frameworks. This three survey approach combined data from: information about IT Project Managers and projects they had managed; results from the EQ-i assessments of the IT Project Managers; and results from a customer satisfaction survey. Chapter 4 elucidates the findings and explains that customer satisfaction is based upon four approaches:

- The customer was asked how satisfied were they with the service that was provided or being provided (Jones 2004).
- Following the Project Management Institute's approach where cost and schedule are the driving force behind customer satisfaction (Project Management Institute 2004), the customer was asked cost and schedule questions.
- Using the *Responsiveness* and *Empathy* subfactors of SERVQUAL (Parasuraman et al. 1988; Parasuraman et al. 1991), the customer was asked questions regarding these two subfactors.
- The customer was asked if they would use this IT Project Manager again or if they would recommend them to another (Keiningham et al. 2008; Sheppard 2002).

This research provides value to several disciplines: Project Management, Engineering Management, and Emotional Intelligence. Several discoveries were made during this research. First, for this sample of IT Project Managers, the question *if the IT Project Manager was too busy to help* did not provide good factors for the *customer satisfaction* value. The researcher discussed this discovery with co-workers (personal communication, December, 2008). This discovery might be due to the customer not needing any help on this project. Or if could be the customer did not know what aspect of *help* they were expecting. For example, the IT Project Manager could be helping the team via training or knowledge transfer which the customer had no knowledge about. For this question, additional research in this area is needed.

Second, using a combination of four different types of customer satisfaction approaches, this research discovered, with this subject group, there was no significant correlation between the EQ-i scales of Interpersonal, Intrapersonal, Stress Management, or Adaptability. A marginal

negative statistical correlation was discovered between the IT Project Manager's Total EQ and customer satisfaction. This research discovered, for this IT Project Manager group, that as the EQ scores went up, the rating of customer satisfaction went down. The researcher discussed these findings with an IT Professional with more than 40 years of experience (personal communication, March 1, 2009) and this found that this anomaly made sense. Over time, the IT Project Manager position has gone from a means of promotion within the corporation (where relationships play a big part) to being part of a dual-career ladder. This means workers can still stay technical while being promoted within the corporation. Emotional Intelligence research has shown that higher EQ provides more upward mobility, but maybe not in a dual-career occupation. This evolution has created opportunities, whether for good or not, where experienced staff with technical know-how is now interfacing with customers. It has also created an environment where customers wonder about the Manager's ulterior motives if he is trying to create an emotional relationship. This is evident with the OPTIMISM and INTERPERSONAL RELATIONSHIP statistically significant negative correlations.

This same IT Professional also noted that his experience has shown these technical people give the customer "what they asked for," not necessarily "what they need." As such, building a relationship and customer satisfaction are not the driving forces. In this environment of IT Project Managers, this might be the norm. This could be where the IT field differs from other fields of service. Future work is needed to provide better insight.

A strong negative correlation was discovered regarding General Mood and specifically the optimism subscale. This research discovered, for this IT Project Manager group, that as the optimism of the IT Project Manager went up, the rating of customer satisfaction went down. This too makes sense. Customers may feel that too much optimism does not provide an accurate

representation of the state of the project. When the researcher discussed these findings with co-workers (personal communication, December, 2008), the discussion focused around one area of customer concern: *sugar coating bad news*. Fellow co-workers provided insight that customers need to know how the project is going, both the good news and the bad news. Co-workers felt that too much optimism may give customers the impression that things on the IT project are going well, when they are not. This could be due to the customer's lack of IT experience and knowledge. Or this could be due to the IT Project Manager providing an *optimistic* outlook that is not accurate or overly aggressive. Also, unexpected project problems will not improve customer satisfaction. More research is needed, but for this group, optimism in the IT field might demonstrate unrealistic customer expectations or unrealistic deadlines. This does agree with Baccarini's work where it is noted that risks must be addresses realistically and honestly in IT projects (Baccarini et al. 2004).

Limitations and Future Research

This research used 56 complete datasets (IT Project Manager's demographics and IT Project, IT Project Manager's EQ-i results, and customer satisfaction results). Due to the number of complete datasets, the results are not generalizable to the IT Project Management field of study. But the findings do provide value to the Project and Engineering Management fields. Future research should take this research and expand the dataset.

Future research should also include EQ evaluations of the project team. As noted earlier, a limitation of a self-assessment is when an actor answers the questions based upon how they are expected to feel or act, not *actually* how they feel or act. The same is true for this research. The IT Project Manager could have answered the EQ-i questions based upon how they *think* they

respond to the situation, not how they *actually* respond to the situation. An expanded evaluation to include the team member's EQ, the team members EQ assessment of the IT Project Manager, and the customer's assessment of the IT Project Manager's EQ would be of extremely beneficial.

There are also biases associated exclusively with the IT field. The researcher had several e-mails from people wanting to participate, but they were not in the IT field. Future research should focus on expanding this research beyond the IT segment to determine if similar findings are obtainable.

Also, since the IT Project Manager chose the project to be evaluated, in future research, multiple projects should be selected. Based upon the feedback of the 41 partial surveys, IT Project Managers are selecting projects they want evaluated. This provides a bias of *trusted* or *welcomed* customer feedback. Collecting a more independent and potentially less neutral customer base may expose other results.

One other potential follow-up research would be the use of a longitudinal study of IT Projects. In this follow-up study, several different IT Projects and EQ results from the IT Project Manager, team, and customers would be correlated to determine if any combination of results changes the outcome of an IT Project. Since this research allowed IT Project Managers to select the projects to be evaluated, there is no way to know if the answers were based upon what the customer "thought" or what truly transpired.

Finally, this research used a correlation analysis. A correlation analysis is a good choice for this type of survey research, but a correlation analysis does not imply causation.

Conclusion

This research investigated if there is any correlation between the IT Project Manger's Emotional Intelligence and the customer's perspective of project success. The research focused on a three survey approach where the first survey collected information about the IT Project Manager and a project he/she was working on or had completed. This survey attracted 252 hits on the electron survey website. Forty-six IT Project Managers started the survey, but never completed. Combining all of the data together provided 56 complete datasets (IT Project Manager's EQ-i values and customer satisfaction data).

The second survey was to use the EQ-i assessment tool to collect the IT Project Manager's Emotional Intelligence information. The EQ-i assessment tool was used for its known validity and reliability in the Emotional Intelligence field. The EQ-i data provided the researcher with the Total EQ score as well as the five scales scores: Intrapersonal, Interpersonal, Stress Management, Adaptability, and General Mood. The 15 EQ-i subscale scores were also obtained: self regard, emotional self awareness, assertiveness, independence, self actualization, empathy, social responsibility, interpersonal relationship, stress tolerance, impulse control, reality testing, flexibility, problem solving, optimism, and happiness. A factor analysis and a Cronbach's Alpha calculations were performed. The instrument demonstrated good validity and reliability for this sample group.

The third survey was distributed to the customers identified by the IT Project Managers in the first survey. These customers were sent a customer-satisfaction survey which was comprised of four different customer-satisfaction topics: the customer was asked how satisfied were they with the service that was provided or being provided (Jones 2004); following the Project Management Institute's (Project Management Institute 2004), the customer was asked

cost and schedule questions; using the *Responsiveness* and *Empathy* subfactors of SERVQUAL (Parasuraman et al. 1988; Parasuraman et al. 1991), the customer was asked questions regarding these two subfactors; and the customer was asked if they would use this IT Project Manager again or if they would recommend them to another (Keiningham et al. 2008; Sheppard 2002). While conducting a factor analysis, three questions had factor values below the acceptable 0.4 range and were removed from the customer-satisfaction calculations. Once these questions were removed, the instrument possessed a Cronbach's Alpha value greater than an acceptable 0.9.

No statistically significant correlation was discovered regarding the EQ-i scales of Intrapersonal, Interpersonal, Stress Management, and Adaptability scores of the IT Project Manager and the customer's perception of project success. A marginal negative statistical correlation was discovered between the IT Project Manager's EQ-i total EQ score and the customer's perception of project success. A significant negative statistical correlation was discovered between the EQ-i subscale General Mood of the IT Project Manager and the customer's perception of project success at a 0.01 level. Future research is needed to determine if this response is generalizable to the IT Project Management field.

The field of Emotional Intelligence is continuing to evolve and this research helps contribute to new knowledge in this field. The field of Emotional Intelligence is being introduced into many different occupational areas, so this research provides valuable data into future research and discoveries.

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Appendix A ODU's Informed Consent Signature Page

No.: 08-077

OLD DOMINION UNIVERSITY
HUMAN SUBJECTS INSTITUTIONAL REVIEW BOARD
RESEARCH PROPOSAL REVIEW NOTIFICATION FORM

TO: Rafael E Landaeta — **DATE: September 18, 2008**
Responsible Project Investigator — *IRB Decision Date*

RE: **Investigating the Relationship between an IT Project Manager's Emotional Intelligence and the Customer's Perception of Success**
Name of Project

Please be informed that your research protocol has received approval by the Institutional Review Board. Your research protocol is:

___ Approved
___ Tabled/Disapproved
__X_ Approved, contingent on making the changes below*

George C. Maihafer — September 18, 2008
IRB Chairperson's Signature — *date*

Contact the IRB for clarification of the terms of your research, or if you wish to make ANY change to your research protocol.

The approval expires one year from the IRB decision date. You must submit a Progress Report and seek re-approval if you wish to continue data collection or analysis beyond that date, or a Close-out report. You must report adverse events experienced by subjects to the IRB chair in a timely manner (see university policy).

Appendix B E-mail to IT Project Managers

Greetings,

My name is Bill LaMarsh. I am working on my PhD at Old Dominion University. My research is investigating the IT Project Manager's Emotional Intelligence to determine if it has an influence on the customer's perception of success. This is a long title for a pretty simple, yet complex problem I see in the IT field. As an IT Project Manager, I have seen projects have great success and others fail while using the same development team. So my intended goal is to see if I can investigate one aspect of this, the Project Manager's emotional intelligence.

By the end of September, I will be ready to start collecting data via my surveys. There are three parts to this research:

1 – A survey sent to the IT Project Manager to collect project and Project Manager demographics. Plus, the IT Project Manager selects a customer (internal or external) to participate in a customer satisfaction survey.

2 – The IT Project Manager takes the EQ-i assessment (this will be mailed from MHS since they license the EQ-i).

3 – A customer survey is sent to the customer identified by the IT Project Manager asking traditional satisfaction questions (service performed, cost schedule, etc.). This link (zoomerang survey page) takes you to the customer satisfaction survey. This is what I used for my pilot test.

All of the data will be kept confidential and as anonymous as possible. The Project Manager's name will be used as the key to merge all survey data together. All information is voluntary.

From a time perspective, my pilot showed that items 1 and 3 took about 5 to 10 minutes to complete. Item 2 is a little more (anywhere from 20 to 45 minutes). The EQ-i consists of 45 questions, so it depends on how quickly you read and answer the questions. When I took my EQ-i assessment, it took about 25 minutes. Sum total, one lunch break is all it should take. As an EQ-i trainer, I can debrief you on what the EQ-i scores show (for more information on the EQ-i assessment tool, check out www.mhs.com).

If you are interested, or you know of other IT Project Managers who might be interested, please let me know so I can put you on my contact list.

Thanks for your help in supporting my PhD work. Regards,
Bill LaMarsh II, PMP, CISSP

Appendix C IT Project Manager Zoomerang Survey

Project Manager's Demographics Survey

Thank you for participating in my research. The goal of my research is to determine if the Emotional Intelligence (EI) of a Project Manager (you) has influence over the perceived success of an Information Technology (IT) project.

I will be collecting data in three areas. The first part is this survey which collects demographic data. This information will include data about you, the project you have chosen to be evaluated, and the customer e-mail address to evaluate this project (once you select this customer, please send them an e-mail so they know a survey request is coming). The second part of the research will be to evaluate your Emotional Intelligence. Upon completion of this survey, an e-mail will be sent to you from MultiHealth Systems. This e-mail will contain a link to the Emotional Quotient Inventory (EQ-i) assessment tool. The assessment contains 45 questions to determine your Emotional Intelligence (fondly referred to as your Emotional Quotient (EQ)). This survey takes anywhere from 15 - 45 minutes to complete, depending on how quickly you read the questions. The final part of my research includes a *customer satisfaction* survey sent to the e-mail address you identified.

Please complete this survey for as many projects as you want evaluated (one project per survey).

Thank you for your support,

Bill

START SURVEY!

Project Manager's Demographics Survey

Questions marked with an asterisk (*) are mandatory.

INFORMED CONSENT

PROJECT TITLE: Investigating the Relationship between an IT Project Manager's Emotional Intelligence and the Customer's Perception of Success

INTRODUCTION
The purpose of this form are to give you information that may affect your decision whether to say YES or NO to participating in this research, and to record the consent of those who say YES. If you say YES, you will continue with this survey. If you say NO, you will not be allowed to participate.

The subsequent survey will collect data about the Project and Project Manager. A second survey will be e-mailed to you later. This survey will come from MultiHealth Systems (www.mhs.com), the owner of the Emotional Quotient Inventory (EQ-i). The EQ-i is the Emotional Intelligent assessment tool I have chosen for this research.

RESEARCHERS
This research is being conducted for a dissertation in Engineering Management from Old Dominion University. The PhD student is Bill LaMarsh and the PhD committee consists of Drs. Rafael Landaeta, Pilar Pazos, Vickie Parsons, and Denise Trudeau.

DESCRIPTION OF RESEARCH STUDY
Several studies have been conducted looking into the subject of improving IT Project success. None of them have looked into determining if the IT Project Manager's Emotional Intelligence has an influence on the Customer's perception of project success.

If you decide to participate, then you will join a study involving research of IT Project Management, Emotional Intelligence, and Customer Satisfaction. The responses to several electronic surveys will be used to see if a correlation exists between these values. If you say YES, then your participation will only take 15 minutes for this survey and up to 45 minutes for the EQ-i. Approximately 200 IT projects will be participating in this study.

EXCLUSIONARY CRITERIA
The only exclusionary criterion is you are an IT Project Manager. In this research, a Project Manager is defined as the person responsible for the project or part of the project. Some organizations refer to this position as a Project Manager, Project Lead, Task Lead, etc. You also need a customer to evaluate this project. It can be an internal or external customer. To the best of your knowledge, you should not have influence or company issues that would keep you from participating in this study.

EXCLUSIONARY CRITERIA
The only exclusionary criterion is you are an IT Project Manager. In this research, a Project Manager is defined as the person responsible for the project or part of the project. Some organizations refer to this position as a Project Manager, Project Lead, Task Lead, etc. You also need a customer to evaluate this project. It can be an internal or external customer. To the best of your knowledge, you should not have influence or company issues that would keep you from participating in this study.

RISKS AND BENEFITS
RISKS: If you decide to participate in this study, then you may face a risk of having your name associated with your Emotional Intelligence and Customer Satisfaction. The researcher tried to reduce these risks by keeping all of the data secure and confidential. The web site that is being used to administer the electronic survey provides security so that any information subjects divulge will not be available for view by public or other unauthorized parties. And, as with any research, there is some possibility that you may be subject to risks that have not yet been identified.

BENEFITS: The main benefit to you for participating in this study is to see if Emotional Intelligence has influence on the customer's perception of project success. This could help with company training and education.

COSTS AND PAYMENTS
The researchers are unable to give you any payment for participating in this study.

NEW INFORMATION
If the researchers find new information during this study that would reasonably change your decision about participating, then they will give it to you.

CONFIDENTIALITY
The researchers will take reasonable to keep private information, such as the answers to the surveys confidential. The results of this study may be used in reports, presentations, and publications; but the researcher will not identify you. Of course, your records may be subpoenaed by court order or inspected by government bodies with oversight authority.

WITHDRAWAL PRIVILEGE
It is OK for you to say NO. Even if you say YES now, you are free to say NO later, and walk away or withdraw from the study at any time. Your decision will not affect your relationship with Old Dominion University, or otherwise cause a loss of benefits to which you might otherwise be entitled.

COMPENSATION FOR ILLNESS AND INJURY
If you say YES, then your consent in this document does not waive any of your legal rights. However, in the event of harm, injury, or illness arising from this study, neither Old Dominion University nor the researchers are able to give you any money, insurance coverage, free medical care, or any other compensation for such injury. In the event that you suffer injury as a result of participation in any research project, you may contact Bill LaMarsh at wlama001@odu.edu or Dr. George Maihafer the current IRB chair at 757-683 4520 at Old Dominion University, who will be glad to review the matter with you.

1 * VOLUNTARY CONSENT

By selecting YES, you are saying several things. You are saying that you have read this form or have had it read to you, that you are satisfied that you understand this form, the research study, and its risks and benefits. The you understand how to contact the researchers should you have any questions about the research. If you have any questions later on, then the researchers should be able to answer them. Please contact Bill LaMarsh at wlama001@odu.edu.

If at any time you feel pressured to participate, or if you have any questions about your rights or this form, then you should call Dr. George Maihafer, the current IRB chair, at 757 683 4520, or the Old Dominion University Office of Research, at 757 683 3460.

And importantly, by selecting YES, you are telling the researcher YES, that you agree to participate in this study. If you would like to keep a copy of this screen for your personal records, please use print screen on your computer.

YES NO

SUBMIT

A response of *yes* must be selected to continue the survey.

Project Manager's Demographics Survey

Questions marked with an asterisk (*) are mandatory.

In this section, you will be asked information about you. Again, this information is for correlation purposes only.

2 * First and Last Name (for correlation purposes only):

3 * E-mail address (used to send you the EQ-i link)

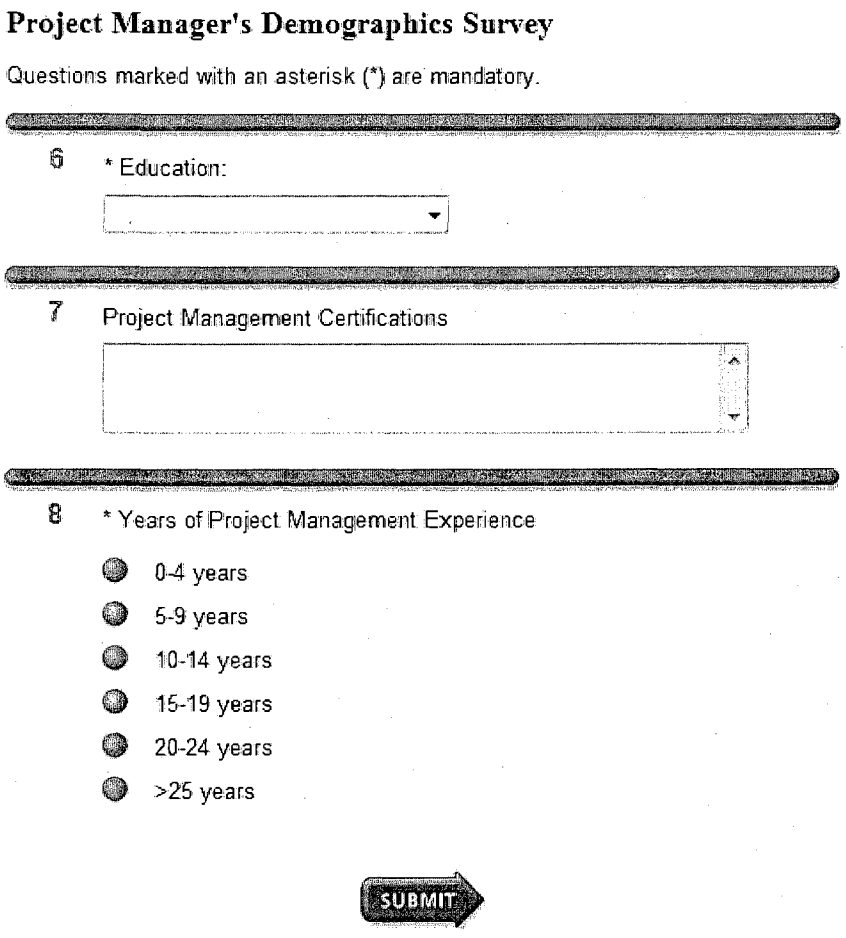
4 Country

5 Gender:

- Male
- Female

SUBMIT

In this screen, the IT Project Manager's first and last name was used as a "key" to combine with the customer and EQ-i data.



Project Manager's Demographics Survey

Questions marked with an asterisk (*) are mandatory.

6 * Education:

7 Project Management Certifications

8 * Years of Project Management Experience

- 0-4 years
- 5-9 years
- 10-14 years
- 15-19 years
- 20-24 years
- >25 years

SUBMIT

Years of education was a drop down menu of:

- High school or less
- Trade or vocational school
- Attended some college
- Undergraduate college degree
- Master's degree
- Doctorate
- Prefer not to answer

Project Manager's Demographics Survey

Questions marked with an asterisk (*) are mandatory.

Information about the Information Technology Project you managed and are using in this survey.

9 * Name of Project being evaluated:

10 * Customer's e-mail address to evaluate your Project (only one e-mail address):

11 * Type of IT Service Project:

- Web Development
- Database Development
- Network Support
- IT Architecture
- IT Security
- Other, please specify

SUBMIT

The *Name of Project being evaluated* field recommended by the pilot group.

Project Manager's Demographics Survey

Questions marked with an asterisk (*) are mandatory.

12 Duration of Project:

13 Size of team you managed:

14 * Experience with this type of Project:

Very Little	Little	Some	Significant	A Lot
1	2	3	4	5

15 * Number of Changes to this Project:

1-9	10-24	25-99	100-200	>200
1	2	3	4	5

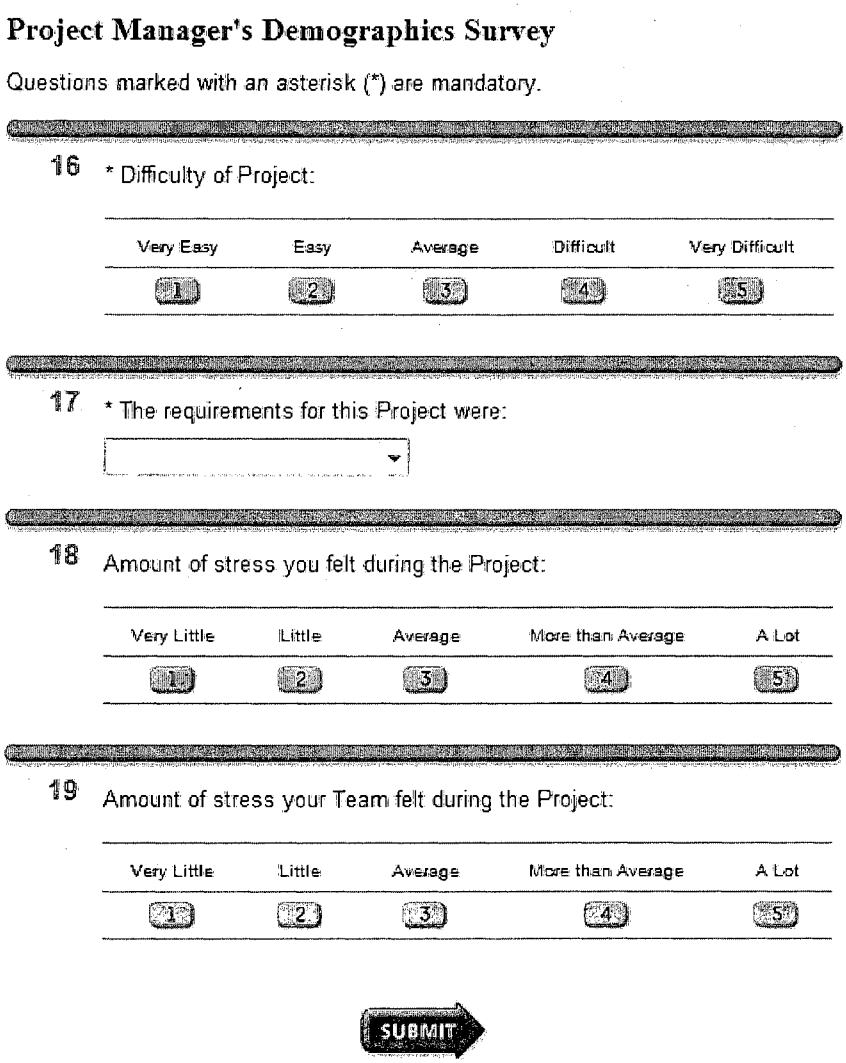
SUBMIT

The *Duration of Project* response was a drop down menu of:

- <1 month
- 1-6 months
- 7-12 months
- 1 year

The *Size of team you managed* field was a drop down of:

- 1-3
- 4-6
- 7-9
- >10)



Project Manager's Demographics Survey

Questions marked with an asterisk (*) are mandatory.

16 * Difficulty of Project:

Very Easy	Easy	Average	Difficult	Very Difficult
1	2	3	4	5

17 * The requirements for this Project were:

18 Amount of stress you felt during the Project:

Very Little	Little	Average	More than Average	A Lot
1	2	3	4	5

19 Amount of stress your Team felt during the Project:

Very Little	Little	Average	More than Average	A Lot
1	2	3	4	5

SUBMIT

The field *The requirements for this Project where:* was a drop down box containing:

- No Requirements Existed
- Not Very Well Defined
- A Little Defined
- Fairly Well Defined
- Very Well Defined

Appendix D Customer Zoomerang Survey

Customer Satisfaction Survey

Greetings,

I recieved your name and e-mail address from XXX. My name is Bill LaMarsh and I am a PhD Student at Old Dominion University. My thesis is researching the Project Manager's Emotional Intelligence (EI) to see if it has any influence on the perception of project success. The Project Manager felt you would be the best person to evaluate the success of the XXX project. This survey will take approximately 10 minutes to complete. You will be asked several questions regarding the project and the Project Manager. ***This information will be used for research purposes only. The answers to these questions are your opinion and will have no impact on the Project Manager, professionally or personally. All information will be kept confidential.***

I appreciate your support and if you would like a copy of my thesis results, please write me at wlama001@odu.edu. As soon as the information is published, I will send you a copy (estimated completion date early 2009).

Best Regards, Bill

START SURVEY!

Customer Satisfaction Survey

Questions marked with an asterisk (*) are mandatory.

INFORMED CONSENT

PROJECT TITLE: Investigating the Relationship between an IT Project Manager's Emotional Intelligence and the Customer's Perception of Success

INTRODUCTION
The purpose of this form are to give you information that may affect your decision whether to say YES or NO to participating in this research, and to record the consent of those who say YES. If you say YES, you will continue with this survey. If you say NO, you will not be allowed to participate.

The subsequent survey will collect customer satisfaction data. This data will have no impact, professionally or personally, on the Project Manager who recommended you as a subject.

The subsequent survey will collect customer satisfaction data. This data will have no impact, professionally or personally, on the Project Manager who recommended you as a subject.

RESEARCHERS
This research is being conducted for a dissertation in Engineering Management from Old Dominion University. The PhD student is Bill LaMarsh and the PhD committee consists of Drs. Rafael Landaeta, Pilar Pazos, Vickie Parsons, and Denise Trudeau.

DESCRIPTION OF RESEARCH STUDY
Several studies have been conducted looking into the subject of improving IT Project success. None of them have looked into determining if the IT Project Manager's Emotional Intelligence has an influence on the Customer's perception of project success.

If you decide to participate, then you will join a study involving research of IT Project Management, Emotional Intelligence, and Customer Satisfaction. The responses to several electronic surveys will be used to see if a correlation exists between these values. If you say YES, then your participation will take less than 15 minutes. Approximately 200 IT projects will be participating in this study.

EXCLUSIONARY CRITERIA
To the best of your knowledge, you should not have influence or company issues that would keep you from participating in this study.

RISKS AND BENEFITS
RISKS: If you decide to participate in this study, then you may face a risk of having your name associated with the evaluation of a project. The researcher tried to reduce these risks by keeping all of the data secure and confidential. The web site that is being used to administer the electronic survey provides security so that any information subjects divulge will not be available for view by public or other unauthorized parties. And, as with any research, there is some possibility that you may be subject to risks that have not yet been identified.

BENEFITS: The main benefit to you for participating in this study is to see if Emotional Intelligence has influence on the customer's perception of project success. This could help with company training and education.

COSTS AND PAYMENTS
The researchers are unable to give you any payment for participating in this study.

NEW INFORMATION
If the researchers find new information during this study that would reasonably change your decision about participating, then they will give it to you.

CONFIDENTIALITY
The researchers will take reasonable to keep private information, such as the answers to the surveys confidential. The results of this study may be used in reports, presentations, and publications; but the researcher will not identify you. Of course, your records may be subpoenaed by court order or inspected by government bodies with oversight authority.

WITHDRAWAL PRIVILEGE
It is OK for you to say NO. Even if you say YES now, you are free to say NO later, and walk away or withdraw from the study at any time. Your decision will not affect your relationship with Old Dominion University, or otherwise cause a loss of benefits to which you might otherwise be entitled.

COMPENSATION FOR ILLNESS AND INJURY
If you say YES, then your consent in this document does not waive any of your legal rights. However, in the event of harm, injury, or illness arising from this study, neither Old Dominion University nor the researchers are able to give you any money, insurance coverage, free medical care, or any other compensation for such injury. In the event that you suffer injury as a result of participation in any research project, you may contact Bill LaMarsh at wlama001@odu.edu or Dr. George Maihafer the current IRB chair at 757-683 4520 at Old Dominion University, who will be glad to review the matter with you.

1 * VOLUNTARY CONSENT
By selecting YES, you are saying several things. You are saying that you have read this form or have had it read to you, that you are satisfied that you understand this form, the research study, and its risks and benefits. The you understand how to contact the researchers should you have any questions about the research. If you have any questions later on, then the researchers should be able to answer them. Please contact Bill LaMarsh at wlama001@odu.edu.

If at any time you feel pressured to participate, or if you have any questions about your rights or this form, then you should call Dr. George Maihafer, the current IRB chair, at 757-683-4520, or the Old Dominion University Office of Research, at 757-683-3460.

And importantly, by selecting YES, you are telling the researcher YES, that you agree to participate in this study. If you would like to keep a copy of this screen for your personal records, please use print screen on your computer.

YES NO

SUBMIT

A response of *yes* must be selected to continue the survey.

Customer Satisfaction Survey

Questions marked with an asterisk (*) are mandatory.

2 * Your e-mail address (used for correlation purposes only):

3 * Type of project:

- Web Development
- Database Development
- Network Support
- IT Architecture
- IT Security
- Other, please specify

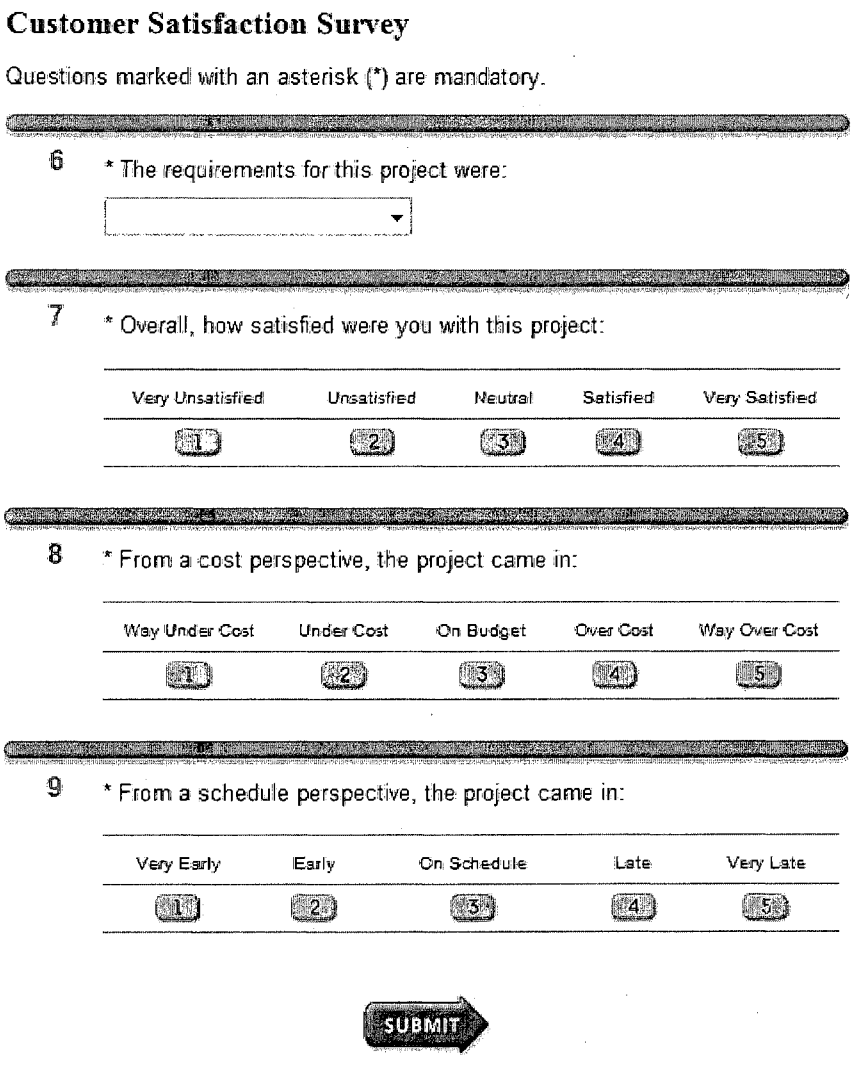
4 * Number of changes to this project:

1-9	10-24	25-99	100-199	>200
1	2	3	4	5

5 * In your opinion, the difficulty of this project was:

Very Easy	Easy	Average	Difficult	Very Difficult
1	2	3	4	5

SUBMIT



Customer Satisfaction Survey

Questions marked with an asterisk (*) are mandatory.

6 * The requirements for this project were:

7 * Overall, how satisfied were you with this project:

Very Unsatisfied	Unsatisfied	Neutral	Satisfied	Very Satisfied
1	2	3	4	5

8 * From a cost perspective, the project came in:

Way Under Cost	Under Cost	On Budget	Over Cost	Way Over Cost
1	2	3	4	5

9 * From a schedule perspective, the project came in:

Very Early	Early	On Schedule	Late	Very Late
1	2	3	4	5

SUBMIT

The values for the *The requirements for this project were:* field was a drop down box containing:

- No Requirements Existed
- Not Very Well Defined
- A Little Defined
- Fairly Well Defined
- Very Well Defined

Customer Satisfaction Survey

Questions marked with an asterisk (*) are mandatory.

10 * If I had a choice, I would:

	1 Absolutely Not	2 Probably Not	3 Maybe	4 Probably	5 Absolutely
Use this Project Manager again?	1	2	3	4	5
Recommend this Project Manager to others?	1	2	3	4	5

11 * In this project:

	1 Never	2 Usually	3 Sometimes	4 Mostly	5 Always	N/A
Did the Project Manager respond promptly when contacted?	1	2	3	4	5	
Did the Project Manager provide prompt service?	1	2	3	4	5	
Was the Project Manager always willing to help?	1	2	3	4	5	
Was the Project Manager too busy to help?	1	2	3	4	5	
Did the Project Manager communicate well with the team?	1	2	3	4	5	

SUBMIT

Customer Satisfaction Survey

Questions marked with an asterisk (*) are mandatory.

12 * In this project:

	1 Never	2 Usually	3 Sometimes	4 Mostly	5 Always	N/A
Did you feel the Project Manager provided you individual attention?	1	2	3	4	5	
Did you feel the Project Manager provided you regular project status/updates?	1	2	3	4	5	
Did you feel the Project Manager provided a good working relationship?	1	2	3	4	5	
Did you feel the Project Manager was honest?	1	2	3	4	5	
Did you feel the Project Manager was trustworthy?	1	2	3	4	5	
Did you feel the Project Manager trained or educated the team?	1	2	3	4	5	

SUBMIT

Appendix E EQ-i Link

MHS link and instructions for the EQ-i:

Hello William LaMarsh,

MHS would like to welcome you to our online assessment service.

Your MHS Scoring Organizer account is ready and immediately accessible using the address and login information provided below.

To login to MHS Scoring Organizer,

1. Go to http://www.mhsassessments.com

2. Click the Click here to manage accounts link.

3. Enter your login ID and Password. Click Login.

*Your ID is: **XXX***

*Your original password is: **XXX***

4. Read the Terms and Conditions of Use and click I accept if you agree.

5. Change your password as instructed.

Full instructions for setting up and using MHS Scoring Organizer are attached at the end of this message as a PDF file. Please read this document before setting up your first assessment group. Adobe® Acrobat® Reader® is free software that lets you view and print Adobe Portable Document Format (PDF) files. A free download of Adobe® Reader is available at http://www.adobe.com/products/acrobat/readstep2.html.

Note: Depending on your email provider and web browser, the website given above can be launched by clicking on the hyperlinked address, cutting and pasting the address into your browser address bar, or typing the address into your browser address bar.

Once again, welcome to MHS Scoring Organizer. Please don't hesitate to contact us with any questions, comments, or suggestions.

Should you require any help logging in, contact MHS Customer Service by phone between 8:00am and 6:00pm EST, and we will be happy to assist you.

1-800-456-3003 (USA), 1-800-268-6011 (Canada), 01635 551122 (U.K.) or +1-416-492-2627 (International).

Appendix F E-mails to customers

First reminder e-mail:

Greetings!!

You have been invited to participate in my research on Emotional Intelligence and customer satisfaction. Your response is very important to my research and I am only a few data points shy of having a large enough data set. Please help me reach my goal and gather enough data to research this topic.

Regards,
Bill

E-mail sent to a customer who's domain does not allow zoomerang surveys. The "XXX" was replaced with the appropriate information:

Greetings,

You have been selected to participate in my PhD research on Emotional Intelligence and the customer's perception of project success. Unfortunately, it appears the e-mails from zoomerang have been filtered. Please use the below URL to participate. I am trying to complete my data collection by the end of November and your input is extremely important to my PhD success. If you have any questions or concerns, please do not hesitate to contact me.
XXXX

Regards and thank you for your help,
Bill

Reminder e-mail send to IT Project Manager:

I have tried to send my customer satisfaction to XXX, but it appears to bounce or is being filtered. Could you please forward this URL to your customer (XXX)? They might answer if it comes from you. I am only a few data points shy of having a large enough data set. Please help me reach my goal and gather enough data to research this topic.

Thanks for your support,
Bill

Reminder e-mail sent to the customer:

Greetings!!

I am just a FEW data points shy of completing my data collection. With your help, I will be able to start my analysis on Emotional Intelligence and the customer's perception of project success. Please use the URL below. The survey only takes 5 minutes to complete and your input is VERY important to my research. Thanks for your support.

Regards and have a great Thanksgiving,
Bill

Appendix G EQ-i Scale, Subscale, and Customer Satisfaction Correlation Matrix

		Customer satisfaction	Satisfaction	Cost	Schedule	Use this Project Manager again?	Recommend this Project Manager to others?	Did the Project Manager respond promptly when contacted?	Did the Project Manager provide prompt service?	Was the Project Manager always willing to help?	Did the Project Manager communication well with the team?	Did you feel the Project Manager provided you individual attention?	Did you feel the Project Manager provided you regular project status/updates?	Did you feel the Project Manager provided a good working relationship?	Did you feel the Project Manager was honest?	Did you feel the Project Manager was trustworthy?
TOTAL_EQ	Correlation Coefficient	-.244	-.056	-.097	.079	-.175	-.152	-.241	-.304(*)	-.194	-.074	-.186	-.328(*)	-.300(*)	-.267(*)	-.080
	Sig. (2-tailed)	.070	.681	.478	.562	.198	.264	.074	.023	.151	.589	.169	.014	.025	.047	.559
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
INTRAPERSONAL	Correlation Coefficient	-.165	.067	.010	.107	-.081	-.092	-.268(*)	-.228	-.207	.058	-.212	-.199	-.241	-.191	.046
	Sig. (2-tailed)	.224	.625	.942	.432	.552	.498	.046	.091	.126	.669	.116	.141	.073	.158	.738
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
SELF REGARD	Correlation Coefficient	-.112	.116	.051	.064	-.038	-.084	-.278(*)	-.266(*)	-.147	.069	-.171	-.163	-.258	-.232	.028
	Sig. (2-tailed)	.411	.393	.709	.639	.780	.537	.038	.047	.280	.615	.207	.230	.055	.085	.838
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
EMOTIONAL SELF AWARENESS	Correlation Coefficient	-.139	.037	.001	.037	-.032	-.038	-.180	-.109	-.150	.041	-.106	-.161	-.180	-.137	.077

This style is based on the Publication Manual of the APA

	Sig. (2-tailed)	.307	.789	.996	.785	.817	.782	.186	.422	.269	.765	.437	.237	.184	.314	.574
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
ASSERTIVENESS	Correlation Coefficient	.053	.202	.087	.224	.103	.075	-.046	.034	-.091	.222	-.098	.006	-.055	-.039	.177
	Sig. (2-tailed)	.697	.136	.525	.096	.449	.584	.735	.804	.507	.101	.474	.966	.685	.777	.191
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
INDEPENDENCE	Correlation Coefficient	-.323(*)	-.102	-.210	-.103	-.244	-.225	-.308(*)	-.324(*)	-.319(*)	-.185	-.268(*)	-.189	-.321(*)	-.321(*)	-.132
	Sig. (2-tailed)	.015	.453	.121	.450	.070	.095	.021	.015	.017	.172	.046	.162	.016	.016	.333
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
SELF ACTUALIZATION	Correlation Coefficient	-.305(*)	-.142	-.008	.011	-.181	-.179	-.385(**)	-.355(**)	-.144	-.032	-.192	-.271(*)	-.266(*)	-.163	-.128
	Sig. (2-tailed)	.022	.297	.954	.934	.181	.186	.003	.007	.291	.813	.156	.044	.047	.230	.346
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
INTERPERSONAL	Correlation Coefficient	-.217	-.158	-.084	-.058	-.124	-.082	-.149	-.183	-.044	-.037	-.084	-.335(*)	-.254	-.209	-.112
	Sig. (2-tailed)	.108	.244	.540	.670	.362	.548	.273	.176	.746	.787	.539	.012	.059	.122	.409
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
EMPATHY	Correlation Coefficient	.013	-.051	.015	.035	.110	.175	.212	.051	.166	.041	-.001	-.249	-.031	-.123	.059
	Sig. (2-tailed)	.926	.709	.912	.799	.418	.198	.116	.707	.223	.764	.993	.064	.822	.368	.666
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
SOCIAL RESPONSIBILITY	Correlation Coefficient	-.084	-.110	.001	-.045	-.024	.045	-.050	-.050	.059	-.073	.058	-.248	-.070	-.172	-.163
	Sig. (2-tailed)	.539	.421	.996	.741	.863	.741	.714	.712	.666	.594	.671	.065	.610	.206	.229
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
INTERPERSONAL RELATIONSHIP	Correlation Coefficient	-.270(*)	-.150	-.083	-.028	-.214	-.207	-.273(*)	-.227	-.119	.001	-.184	-.330(*)	-.330(*)	-.147	-.076
	Sig. (2-tailed)	.044	.270	.541	.835	.113	.126	.042	.092	.383	.994	.175	.013	.013	.280	.577
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
STRESS MANAGEMENT	Correlation Coefficient	-.209	.029	-.038	.164	-.206	-.236	-.231	-.400(**)	-.213	-.194	-.138	-.256	-.274(*)	-.287(*)	-.156
	Sig. (2-tailed)	.123	.831	.779	.227	.127	.080	.086	.002	.115	.152	.312	.057	.041	.032	.251
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
STRESS TOLERANCE	Correlation Coefficient	-.448(**)	-.222	-.267(*)	-.039	-.463(**)	-.456(**)	-.450(**)	-.530(**)	-.250	-.280(*)	-.178	-.429(**)	-.464(**)	-.263	-.314(*)
	Sig. (2-tailed)	.001	.100	.047	.775	.000	.000	.001	.000	.063	.037	.188	.001	.000	.050	.018
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
IMPULSE CONTROL	Correlation Coefficient	-.067	.115	.095	.174	-.052	-.085	-.074	-.281(*)	-.163	-.157	-.091	-.185	-.135	-.287(*)	-.075
	Sig. (2-tailed)	.622	.399	.485	.199	.704	.534	.589	.036	.231	.248	.506	.171	.320	.032	.585
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56

ADAPTABILITY	Correlation Coefficient	-.217	-.136	-.047	.100	-.195	-.109	-.178	-.224	-.206	-.121	-.154	-.289(*)	-.216	-.286(*)	-.147
	Sig. (2-tailed)	.109	.316	.733	.463	.150	.425	.189	.097	.127	.376	.257	.031	.110	.032	.280
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
REALITY TESTING	Correlation Coefficient	-.097	-.036	.059	.168	-.042	-.063	-.096	-.157	-.128	-.003	-.099	-.187	-.141	-.250	-.069
	Sig. (2-tailed)	.475	.790	.664	.217	.761	.643	.482	.247	.346	.985	.470	.168	.299	.063	.615
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
FLEXIBILITY	Correlation Coefficient	-.207	-.042	-.022	.031	-.108	-.046	-.205	-.225	-.265(*)	-.108	-.213	-.142	-.260	-.171	-.025
	Sig. (2-tailed)	.125	.758	.873	.821	.429	.739	.130	.096	.048	.427	.115	.298	.053	.208	.857
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PROBLEM SOLVING	Correlation Coefficient	-.076	-.006	-.094	.133	-.134	-.040	-.100	-.105	-.070	-.108	-.047	-.206	-.034	-.156	-.056
	Sig. (2-tailed)	.578	.964	.491	.329	.325	.770	.462	.443	.609	.430	.733	.128	.804	.250	.683
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
GENERAL MOOD	Correlation Coefficient	-.415(**)	-.172	-.240	-.093	-.348(**)	-.344(**)	-.424(**)	-.478(**)	-.247	-.168	-.258	-.352(**)	-.456(**)	-.321(*)	-.181
	Sig. (2-tailed)	.001	.206	.075	.494	.009	.009	.001	.000	.067	.216	.055	.008	.000	.016	.182
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
OPTIMISM	Correlation Coefficient	-.536(**)	-.288(*)	-.300(*)	-.143	-.454(**)	-.467(**)	-.445(**)	-.546(**)	-.308(*)	-.372(**)	-.318(*)	-.413(**)	-.564(**)	-.391(**)	-.326(*)
	Sig. (2-tailed)	.000	.031	.025	.295	.000	.000	.001	.000	.021	.005	.017	.002	.000	.003	.014
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
HAPPINESS	Correlation Coefficient	-.176	-.014	-.073	.022	-.158	-.130	-.338(*)	-.291(*)	-.166	.105	-.206	-.160	-.230	-.161	-.021
	Sig. (2-tailed)	.194	.917	.593	.872	.245	.341	.011	.030	.222	.443	.128	.238	.088	.237	.881
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56

VITA

Skill Summary

More than 20 years of experience in the information technology field. Strong background in Project Management, Systems Engineering, and Systems Architecture. Diverse background includes systems administration, network solutions, and customer requirements.

Work experience

September 2001 – Present Raytheon Corporation Virginia
Consolidated IT Services Contract (ConITS)
Senior Project Manager / Chief Engineer

- Lead architect for the NASA Agency Workforce Integrated Management System (WIMS). This multi-million dollar project provides NASA with the capability to plan workforce for today and into the future.
- Responsible for the systems and network integration of all modules and other Agency applications. This includes, but is not limited to, communication, usability, and IT related solutions.
- Responsible for technical training and solutions for both customer and team.
- One module, the Labor Pricing Module, received the Project of the Year (2006) from the Hampton Roads Chapter of the Project Management Institute (PMI). This award is given to the project which exemplifies the best project management expertise.
- Key point of contact for any IT related customer issues including network, security, or architectural.
- Key resource on the LaRC Voice over IP whitepaper.

June 2000 – September 2001 Symantec Corporation Virginia
Senior Development Manager

- Manager and development lead over approximately twenty software engineers in the release of pcAnywhere 10.0.
- Stood up a new process oriented software development team. This included the creation of research, design, technical feasibility, and development documents.
- Responsible for the budget, annual reviews, merit increases, promotions, and scheduling of all development resources.
- Received an A++ award for my leadership in the project. Many customer letters and accolades from the customers of pcAnywhere.

July 1997 - June 2000 International Research Institute Virginia
Systems Engineer

- Technical lead for the Combat Systems Interface (CSI). This multi-

million dollar program provided the Navy with an interface from the UNIX based Global Command and Control System (GCCS) to a real time radar system. Provided guidance and direction with regards to integration and communication design. While lead, this program came in under budget and on time. Responsibilities included interfacing with the customer, obtaining requirements, designing, scheduling resources, and deployment, installation, and training of Navy personnel. Spent ten days aboard the USS Hue City as INRI's technical representative. Received a letter of recognition from the Program Manager for a job well done.

- Technical lead for the United States Custom Service P3 Orion project. This was INRI's first "fixed price" contract, so scheduling and resourcing was critical. This project required interfacing with the prime contractor, obtaining requirements, implementing acceptance testing, designing the software, providing the installation, and training to the United States Customs personnel. Received a letter of accommodation from the United States Custom service for work above and beyond the call of duty.
- Technical lead on the United States Coast Guard project. This project was an "at risk" project when I first got assigned. I worked with the Program Manager to create a better working relationship and created an increase in tasking and projects.

May 1985 - June 1997 Contractor NASA Langley Research Center

System Administrator

- Responsible for upkeep and maintenance of almost three dozen UNIX boxes and the network infrastructure.
- Responsible for the training and technical assistance of thirteen United States Air Force base's UNIX machines.

Education

- Ph.D. Student Engineering Management Department. Old Dominion University, Norfolk, Virginia. Estimated completion, 2009.

- 1992 Master's of Engineering Administration. George Washington University, Washington D.C

- 1985 Bachelor's of Science in Computer Science. University of Maryland, College Park Maryland

Professional Certifications

Project Management Professional (PMP)
Certified Information System Security Professional (CISSP)
Raytheon Six Sigma Expert (Six Sigma Black Belt equivalent)
Information Technology Infrastructure Library (ITIL) Foundation Certified
TalentSmart™ Level I EQ Certified

Emotional Quotient Inventory (EQ-i) Trainer
Brainbench UNIX System Administrator Certification

References and Publications

IEEE Conference Paper - Complexity as a Cause of Failure in Information Technology Project Management. Presented at the System of System (SoS) conference in San Antonio Texas 2007.

American Society of Engineering Management (ASEM) conference – A Literature Review on Social Capital. Presented at the ASEM conference in Huntsville Alabama 2006.

American Society of Engineering Management (ASEM) conference - Is a New Knowledge Area Needed for PMI – Crisis Management? Presented at the ASEM conference in Norfolk Virginia 2005.

NASA Technical Manual - Application of a neural network to simulate analysis in an optimization process, Jun 01 1992, NASA Langley Research Center

NASA Technical Manual - User's guide for NETS/PROSSS, Oct 01 1991, NASA Langley Research Center

NASA Technical Manual - Reducing neural network training time with parallel processing, Feb 01 1995, NASA Langley Research Center

AIAA Paper/Presented - Aerodynamic performance optimization of a rotor blade using a neural network as the analysis, Sep 01 1992, NASA Langley Research Center

NASA Technical Manual - Application of a neural network as a potential aid in predicting NTF pump failure, Jan 01 1993, NASA Langley Research Center

NASA Technical Manual - Fully integrated aerodynamic/dynamic optimization of helicopter rotor blades, Feb 01 1992, NASA Langley Research Center

AIAA Paper - Fully integrated aerodynamic/dynamic optimization of helicopter rotor blades, Jan 01 1992, NASA Langley Research Center