

Determining the Impact of Emotional Intelligence in Project Management as a Measure of Performance

A dissertation submitted in partial fulfillment of the requirements for the degree of
Doctor of Project Management

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DECLARATION

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; and, any editorial work, paid or unpaid, carried out by a third party is acknowledged.

Signed:

A handwritten signature in black ink that reads "Rebecca A. Turner". The signature is fluid and cursive, with the first letters of each name being capitalized and prominent.

Rebecca A. Turner
August 2007

READER'S NOTE

The author of this thesis is a citizen of the United States (US) of America working as a Program/Project Manager¹ in the US Defense Information Technology (IT) development environment. As such, US spellings and terms are used throughout as relevant and usable by the principal audience of this thesis material.

¹ As defined by the Project Management Institute Global Standard *A Guide to the Project Management Body of Knowledge* and for the purpose of this paper, the term project refers to a finite and unique result (product or service) while the term program refers to a collection or centralization of more than one project.

ACKNOWLEDGEMENTS

“Imagination is the beginning of creation. You imagine what you desire, you will what you imagine and at last you create what you will.” George Bernard Shaw (1856 – 1950)

I thank my husband, Richard Turner for his love and for sharing the load while we both worked toward our educational objectives.

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ABSTRACT

The future project manager must look beyond the parameters of cost, schedule, and performance. Constraints on resources continually lead to the need for new approaches to increase performance and cultivate excellence. Leadership styles and management models abound in literature, as well as, studies on the use of power. However, until recent years; very few explored the idea of emotional development to gain performance improvement from managers or within teams. This study investigates whether an awareness of Emotional Intelligence competencies (EC) will impact the levels of job satisfaction and general job performance of the individual project team member as a predictor of project outcome.

An empirical research project was constructed based on a project team EC enrichment framework. EC Team enrichment advocates the development of emotional competencies to achieve measurable improvements in job satisfaction and performance. The research was conducted in the United States defense industry environment and surveyed the project team members of a large-scale, dynamic project.

This study was experimental in nature and the research was based on a quantitative approach tailored to minimize threats to validity through the use of a control group. Additionally, it involved elements of related qualitative research to interpret findings. An empirically-based, working hypothesis was presented to the effect that, a greater potential of project success can be realized by introducing information on emotional development to enhance behavioral competencies of all project team members. The case study included three distinct phases for pretest, treatment, and post-test. Results support the concept that an introduction to the concept of emotional intelligence can have a statistically significant impact on project performance through improvement of individual ratings for job satisfaction and professional performance.

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1 OVERVIEW OF DISSERTATION

Whether it is a growing demand for qualified project management professionals to tackle the increasing workload or the demand to accomplish more work with fewer people, the importance associated with the work experience in terms of values, attitudes and moods is increasing in the world of project management. Retention of skilled, high-producing professionals to accomplish the current or next task can no longer be solely accomplished with a paycheck. This Chapter introduces this dissertation by vetting the argument that an awareness of Emotional Intelligence (EI) could have value in project management by improving project outcome. For the purpose of this study, EI is defined as involving (a) the ability to perceive, appraise, and express emotion with accuracy; (b) the ability to access and create feelings when they facilitate cognition; (c) the ability to understand emotionally-rich information and make use of the knowledge, and (d) the ability to regulate emotions to promote emotional and intellectual growth and well-being (Mayer and Salovey 1997). A more thorough discussion of EI is given in Chapter 2.

In my experience, it is not always the highly intelligent or most technically trained manager that is bringing the project assignment successfully across the finish line.² Inquiry into why projects succeed or fail should not focus solely on whether a Project Manager (PM) possesses a strong technical knowledge of the functional domain being worked. Perhaps the most powerful assets any PM has in their toolbox are the human tools that form the project team(s). The tacit or formal relationships fostered through leadership can promote success even when traditionally viewed resources (e.g., funding, time, management support) are low in supply.

² Rebecca A. Turner, 24 years of program and project management experience. Resume provided in Appendix A.

EI has emerged as an area of intense interest for project management, strongly equated with successful leadership and importance in building successful teams. Taking this concept one step further, this dissertation sets a high expectation of the importance of EI in team building through the proposition that the introduction of EI to a project team will improve both leaders and followers. If it can be concluded that managers that exhibit strong EI traits experience a higher degree of project success, then it should be possible to expand that theory to all individuals that have the ability to influence the many variables that contribute to a project's resulting success or failure. As will be examined more fully through available literature in Chapter 2, I concur with available project management research that indicates that the *softer* evidence associated with the human factor data is directly related to project outcome (Cooke-Davies 2002). As Cooke-Davies (2002, p. 189) concluded, there is a human dimension to nearly every aspect of project management. People complete the processes that form the framework of a project and therefore it is the performance of people that ultimately determines project outcome. From this evidence, it can be argued that the contribution of people is more significant to a project and is deserving of increased focus on the quality of the human interaction and motivation that influence key procedural and resource decisions.

As a result of the current interest in EI, there are a variety of tools and techniques for measuring an individual's EI quotient (EQ). There is also a fair variety of training and educational tools to select from concerning EI. Some researchers and practitioners take a more skeptical view of EI and question the validity of the available tools for measuring EI. Even with serious concerns, the critics conclude that they are looking forward to further research and tool development to improve the assessment process and refine the properties of the testing methods. The benefit of many of these tools is that they have been proven through demonstration to effectively measure the EI predictors that equate to work performance at all levels. Organizations that have used available tools and taken actions based on the results have been generally pleased with the results.

1.1 Introduction

This Chapter provides an overview of the Doctor of Project Management (DPM) program and describes how this candidate as a traditional PM focused upon the iron triangle project performance drivers of time, cost and quality developed an interest in the concept of EI as a catalyst to improve the success rate in project management. The research will be described including the definition, scope and objectives, and statement of hypotheses. The limitations and expectations are set within a description of the overall research design. The body of this Chapter concludes by providing a structure outline of the dissertation.

1.2 Doctor of Project Management (DPM) Program

As with most professional doctoral degrees, the DPM program places emphasis on technical knowledge and professional competence; requiring a research thesis involving the rigorous investigation of a substantial problem of professional interest. The DPM is based on the Reflection Outcome Model illustrated in Figure 1.1 and is aimed at leveraging the existing skills of the professionally experienced student through reflection on their profound experience in concert with an expansion of his or her knowledge in target areas of expertise. Skill expansion focuses on areas such as leadership, ethical procurement and knowledge management.

Going beyond the certification credential held by a serious project management practitioner, the DPM candidate is encouraged to approach their coursework with grounded experience and a desire to advance the field of project management. Coursework in the areas of knowledge management, project management leadership, procurement and ethics; combined with reflective study allows the doctoral candidate to extend professional insight into theory, hypotheses, and breakthrough from thought to practice.

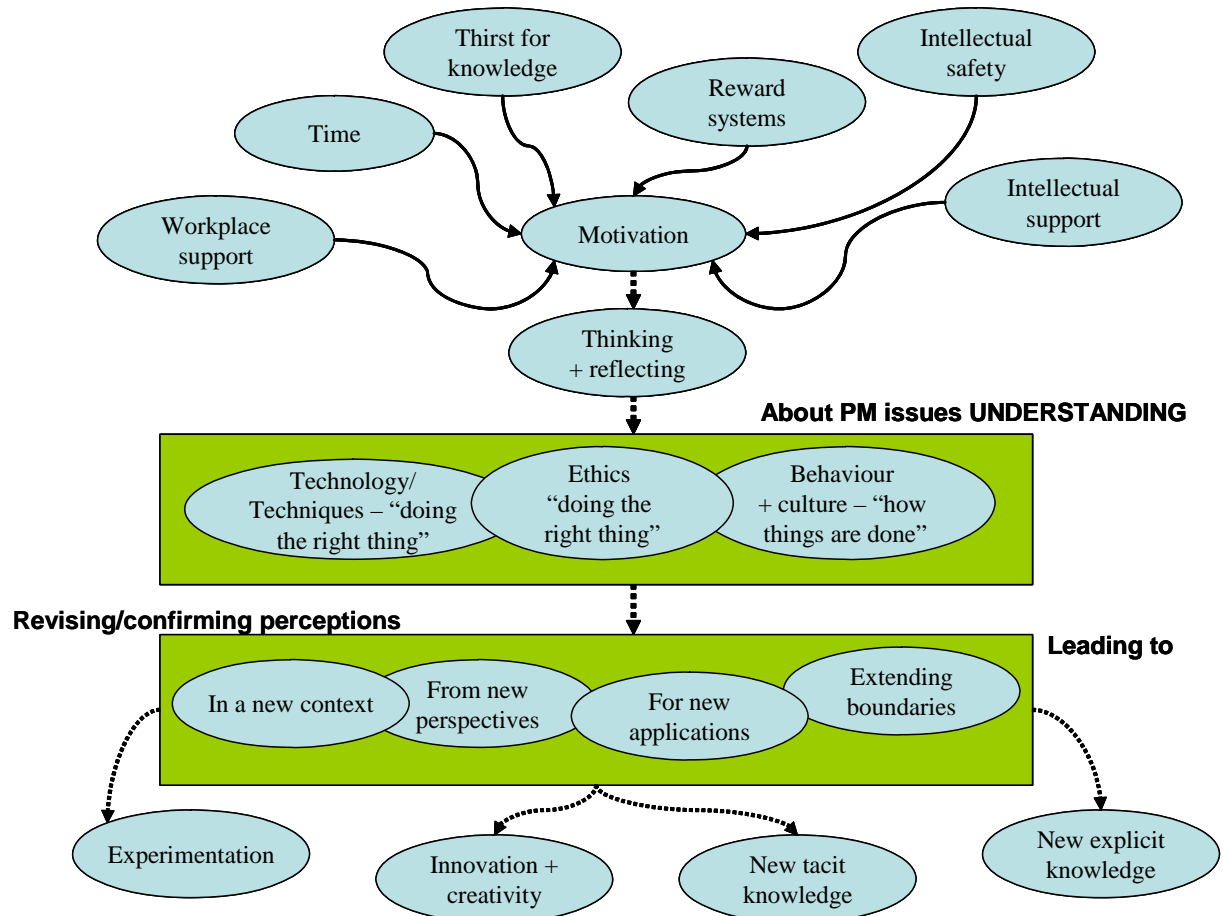


Figure 1-1 Reflection Outcome Model, recreated from (Walker 2005)

The resulting research papers, matured within the context of the doctoral candidate’s professional interests and applied research, contribute to the completion of the candidate’s dissertation. Quoting from DPM literature, “The dissertation is a systematic, planned and reasoned account that is securely linked to the literature used to develop or modify a theoretical framework to analyze project management work practice.”³

1.2.1 Researcher’s Experience Leading to the Proposed Study

My 24 years of professional work experience began as a United States (US) Naval officer. After four years of commissioned service, I left the military to become a member of the defense contracting community. I began my defense contracting career earning a certification as a professional logistician (C.P.L.) through the Society of Logistics Engineers (SOLE) working on weapon system development project teams, eventually attaining the

³ Taken from the course description for BUSM 2214 as contained in RMIT DPM program literature dated 2005

assignment of project lead. For the next 9 years, I was employed by a Federally Funded Research and Development Center (FFRDC) known as the MITRE Corporation. Unlike the traditional defense contractor, an FFRDC is chartered to assist the US government in performing research and analysis throughout a full spectrum of products and services. It is widely believed that FFRDCs are called upon to address problems that are considered of a long-term nature and of considerable complexity, with the intent of offering an objective, creative, and cost effective solution. The broader benefit to my career was the academic principles upon which the MITRE Corporation operates, requiring the engineering staff to perform rigorous research and professionally publish the resulting work. Following my employment with MITRE, I have had the privilege of working as a Project Manager with Harris Corporation and most recently CACI Premier Services Incorporated (both high-performing information technology development and services firms) providing contracted support to the US Department of Defense (DoD). Table 1-1 provides a breakout of my program/project management experience.

Table 1-1 Author’s Relevant Experience

Period	Program/Project Management Assignment	Management and Leadership Experience/Growth:
1980 – 1984	Commissioned Officer, US Navy	<ul style="list-style-type: none"> • Procedures development • Military project leadership • Military personnel management
1985 – 1989	Logistics Engineering Professional/Manager	<ul style="list-style-type: none"> • Full scope logistics engineering design, development and implementation • Project Management in the context of Defense Contracting • Commercial personnel hiring and management • Quality, risk, communications, and time management • Certified Professional Logistician (C.P.L.)⁴
1990 – 1997	Information Technology Project Leader and Manager	<ul style="list-style-type: none"> • Technical and programmatic development and documentation of defense mission-critical system (estimated lifecycle value range \$120 - \$850M) • Scope definition and management • Human resource, and cost management

⁴ Society of Logistics Engineers (SOLE) earned designation based on controlled examination of engineering knowledge and experience. Additional information about SOLE can be found at <http://www.sole.org>

Period	Program/Project Management Assignment	Management and Leadership Experience/Growth:
1998 – present	Technical Program Manager and Executive Advisor	<ul style="list-style-type: none"> • Technical and program management direction for the development and documentation of enterprise level projects (estimated lifecycle value range \$200M – \$1.2B) • Full-scale Integration Management • Enterprise Procurement Management

1.2.2 Development of Interest in the field of Emotional Intelligence

Entering the realm of senior management, my subsequent work assignments (over the last seven years), include advanced Information Technology (IT) development as the PM for lifecycle of projects valued in excess of \$500 million (US dollars) with engineering and support staffs numbering from 10 to several hundred. As a longtime project team member and with my skills as a certified Project Management Professional (PMP) (Program Management Institute (PMI) certified in 1999), I have a firm understanding of the technical aspects of my profession. Within a very short time, I came to see my shortcomings in knowing how to get the most out of my project team. Fortunately, my employer offered a week-long leadership retreat for all their senior managers, an experience I now view as invaluable in helping me to recognize that I lacked basic skills in dealing with people and in managing my own behaviors when under stress. While I felt a strong benefit from having this information, I was limited to the awareness I gained and remained without a path for improvement.

While on a business trip several months later, a book by Daniel Goleman, Richard Boyatzis, and Annie McKee (2002) caught my attention in the airport - *Primal Leadership, Realizing the Power of Emotional Intelligence*. In this book EI is defined as,

“how leaders handle themselves and their relationships” (Goleman, et al 2002 , p. 6).

Assured that a lack of emotional competencies is not unique to me, I found that my studies in project management often led back to deficiencies in management techniques and team productivity, a subject that resonated in my reading each page of the Goleman, et al (2002) book.

1.3 Background to the Research

Modern day project management techniques evolved from many of the US DoD activities of the late 1950s/early 1960s (Morris 1997). Modeling approaches such as the Program Evaluation and Review Technique developed for the Polaris missile submarine program and the Critical Path Method developed by DuPont Corporation are examples of early attempts to define and track time estimates in the completion of critical and non-critical work activities.

As technology has increased in pace and possibility, the tools and techniques associated with meeting multi-dimensional development initiatives has grown as an area of interest throughout the industrial world. Project management is a blended science and art that strives to achieve specific objectives through the use of defined resources (e.g., time, funding, and personnel). Most often, a project is viewed as a finite endeavor aimed at the creation of some unique system, product or service. In reality, projects can take as little as a few days and others may take many years. Traditional views of projects, in the areas of engineering or construction, are in good company as technology drives process automation and therefore project creation into nearly every professional realm.

Some view project management as, Do It, Do It Right, Do It Right Now.⁵ This approach simplifies the project manager practitioner's role too far in my opinion. Perhaps it is just as concise, but better-rounded to view project management as:

- Have a Clear Vision of Completion
- Know Your Resources and Use Them Well
- Select a Reasonably Aggressive Path and Start Down It

Too many PMs either fail to take or are not afforded the up-front time to understand where they will be/what they should have when the project is complete – clear Target or Vision. The project vision is a critical success factor that must survive and remain solidly in

⁵ Taken from the PMI web page, 17 March 2006.

the minds of project members and stakeholders for the duration of the project (Christenson 2007). Once the target is understood, a PM could more reasonably assess the resources at hand and forecast the resource requirements in the present and for the future. I would suggest that it is more often the case than not, that a PM is given a defined set of resources without the up-front benefit of selection or definition. In this same vein, I would also suggest that the desired completion date is anticipated in advance of having an established clear target for delivery or a resource pool against which to fit the assignment (Walker and Christensen 2005).

The ability of the PM to take A (the resources) and B (the target) to establish a reasonable mark on the calendar for C (the schedule), is ultimately derailed in deference to an established expectation on the part of the stakeholder(s), defining the path that could have been more wisely chosen to fit the project.

So, here you are: a PM with a job to do. When entering a new project assignment you (the new PM) may have a basic understanding of the system, product or service that you are orchestrating, but the vision is still quite blurred. You have a set of resources that may or may not suit the assignment well and the date you are to deliver is marked in bold red just about everywhere you look. Now what?

That uncomfortable, yet-realistic project posture is at the heart of this dissertation. In a perfect world, we could use the precepts of project management like measuring cups and spoons to formulate the perfect project (frosting included). Project management (in terms of a recipe or process) would be more of a science than an art, adding the right amount of each control element to succeed. In reality, there are many aspects of project management that require a less esoteric approach. As an art, the project management community has done little in the way of providing tools to practitioners for making better use of the human resources assigned to the project. Some PMs may actually be able to personally select their project personnel, choosing only those they know will have the right professional skills and behaviors

to promote success. I would suggest that it is more likely that a PM will be provided team personnel, based on availability and affordability. Having an understanding of how to work with, instead of against, the odds of having a high performing team could be the difference between project success or failure.

For project management, it is important to make clear the difference between project success (which cannot be determined until project completion) and project performance (measured during the course of the project) (Cooke-Davies 2002). Establishing the association between the experience of job satisfaction and the performance of people with the metrics of project performance, means linking meaningful data to more fully assess the predictors of project outcome (success or failure).

In defining project success, this study focuses on the importance of human behaviors to successful projects. Measures of improved communication and demonstration of productive, proactive behaviors are considered performance improving leading to positive project outcome. The converse is also considered. Declining measures of communication and demonstration of destructive, reactive behaviors are considered performance inhibitors leading to negative project outcome.

1.4 Research Proposition

This doctoral research will attempt to identify whether an awareness and development of skills in applying EI competencies contributes to successful project teams. To advance project management, the research will strive to create awareness and address the importance of emotional competencies within project teams. The goal is to achieve measurable improvements in personal job satisfaction and professional performance, leading to a synergistic effect to better meet traditional project management goals for cost, schedule, and performance.

1.4.1 Defining the Research

As previously stated, project success is generally defined in terms of cost, schedule, and performance. Success, in this case, is not going to be measured in terms of cost, schedule, or performance, but rather in terms of the way that job satisfaction and individual work performance contributes to and enhances the chance of teams performing to cost schedule and quality. Therefore, this research is intended to look at *people* and the benefits gained through an individual perception of success or failure when influenced by an understanding of emotional competencies.

Project management practice will be advanced through a body of knowledge and case study framework aimed at developing emotional competencies that will support the effort of the project manager and project team members in achieving improved levels of communication, increased collaboration and creativity, evoking an advocacy for project success.

1.4.2 Research Questions

The following research questions are posed:

1. Could an introduction to and overview of the theories of EI influence project team success (perceptions of success and failure)?
2. Beyond the management of cost, schedule, and performance; could an investment in personnel Emotional Competency (EC) development benefit a project?
3. How willing is a project team to explore their EI capabilities and embrace EC development exercises?
4. Could the use of an EC-based management methodology in project teams increase the effectiveness of project teams?

1.4.3 Research Scope and Objectives

From the research questions in section 1.4.2, the following scope and objectives for research were developed:

Scope #1: theories of EI and project team success

Objective: define project management success (and failure)

Scope #2: emotional competencies and project benefit

Objective: (1) describe project management in prescriptive terms and within the context of the case study environment

Objective: (2) describe EI

Scope #3: project team willingness to explore EI

Objective: (1) explore and define the concepts of job satisfaction and performance

Objective: (2) examine project learning and information sharing

Objective: (3) construct, execute and examine the results of a case study to measure effects of introducing EI into a project team

Scope #4: EC-based management methodology effectiveness on project teams

Objective: (1) statistically evaluate the results of measurements taken from the case study for future application

Objective: (2) construct a proposed framework for the role of EI within a project management environment

1.4.4 Empirically-based Hypothesis

The empirically-based hypothesis proposed is as follows:

Made aware of emotional competencies; through knowledge area skill development and trial scenarios as applied within a project setting, a project team will experience a higher degree of job satisfaction and performance and therefore, achieve a greater potential for success.

1.4.5 Theoretically-based Hypothesis

The theoretically-based hypothesis proposed is as follows:

Project teams with awareness of emotional and social competence within the work place will increase in overall EI, positively influencing individual job performance and satisfaction with the implication of positively influencing overall project results.

1.5 Research Design

A case study was structured within a subject project office where an experimental research construct was applied to determine cause and effect. To study the effects of the proposed case study, a nonequivalent-group design was chosen. A collection of people was selected and two groups established. One of the two groups was considered *active* and received the study *treatment* described in Chapter 5. A random approach to group assignment established the *control* group separately from the active group. The control group participated in the same case study process as the active group but, did not receive the study treatment. These two groups were as similar as possible within the idea of probability and were therefore probabilistically equivalent (Trochim 2001).

As shown in Table 1-2, the information required from the case study is the results of a pretest and post-test of each of the study groups, only one of which received the treatment program.

Table 1-2 Research Design Notation

Group Assignment	Assignment to group	Observation or measure	Treatment	Observation or measure
Group A (Active Group)	Random	Observation	Yes	Observation
Group B (Control Group)	Random	Observation	No	Observation

This research combines quantitative and qualitative research methods within a case study of a project unit within a single organization. Although the typical methodological approach taken in a case study does not include statistical analysis, Strauss and Corbin (1998) found when questioning research on how cases were used in their research that the term ‘case’

was used both when individuals and groups are interviewed, when studying a single organization, in sociological or anthropological studies when a village is studied, or when an event (e.g., a war) is studied. Qualitative research has been described as research where one or more variables cannot be measured on an interval scale (Runeson and Skitmore 1999). A variety exists between the two extremes of variables that can be measured to those that cannot, but the goal and intent of both approaches is to interpret and understand the subject being researched. Quantitative research involves testing theory, while qualitative research building on theory (Runeson and Skitmore 1999). This research undertook testing existing theories on EI and project management performance and aims to contribute to theory concerning EI, project team performance and overall project success.

The approach taken is a correlation research design using survey tools (inventories) to attain data on selected variables. Three overarching variables were studied: 1) emotional competence, 2) job satisfaction, and 3) job performance. Multiple measures are intended to attempt triangulation for enhanced accuracy and confidence in study results. Triangulation involves the use of two or more approaches to data collection, including the combination of quantitative and qualitative methods. This approach has been recognized within the social sciences as providing a fuller explanation of the richness and complexity of human behavior (Burns 1994). As this research relates to human behavior within project teams, this combined approach was used to answer the research questions and ensure triangulation to improve validity. Burns (1994) believes that reliance on one research method alone can lead to a distortion of the researcher's perception of the reality under investigation. In combining statistical data with the observations of the researcher, in this case, it was possible to more deeply understand the affect of the treatment on participants.

Two of the variables (emotional competence and job satisfaction) were measured using commercially available products. The third variable (job performance) was measured

using questions extracted from job performance surveys accessed online and questions drawn from personal experience to ensure the instrument used suited the environment being studied.

1.5.1 Limitations of Research

The following limitations are noted for the research conducted:

This case study was limited to participants from the US defense community.

However, the diversity of the entire workforce was acknowledged by the inclusion of military, government civilian and contracting personnel. While the Emotional Competency Inventory (ECI) and job satisfaction survey were proven tools, I was unable to discover any other events where they had been used together. In addition, the job performance tool was extracted from job performance surveys accessed online together with original questions drawn from and grounded in personal experience. However, these original questions had not been previous testing before application in this study. Study tools are described in more depth in Chapter 4.

Much of the survey data collected was provided by self-report. Some results could have been skewed by other events taking place within the work environment at the time of the survey. No overt events were noted that would require explanation.

No ideal time for administering any phase of the case study could be identified. To ease the burden on participants, surveys were made available in hardcopy and electronic format, wherever possible. External factors such as annual personnel performance reviews that could skew responses were considered. The ability for individuals to respond, at their own convenience, over a multi-week timeframe allowed for mitigating any additional stress from over-tasking or other colliding interests such as periodic performance ratings.

1.5.2 Research Expectations

This study will provide relevant information to the world of project management that will introduce the usefulness of emotional competence development (emotional intelligence)

to improve individual job satisfaction and performance, resulting in improved team performance.

1.6 Structure of the Dissertation

A review of the relevant literature is covered in Chapter 2. Included are the areas of EI with a look at the development of the ECI tool developed by Drs. Goleman and Salovey and the job satisfaction survey developed by the members of the Ball Foundation. In addition, a review of the project management literature (including job satisfaction and job performance as they related to project success) and the discussion of the value of learned emotional behaviors as agents for change are included.

Chapter 3 defines the study environment, describing project management in the defense industry and the associated leadership. The project management structure of the case study environment is reviewed and modelled.

Chapter 4 provides a full explanation of the case study performed, including sampling preparation, group identification, treatment refinement and phased data collection. The elements of study will be examined through the conclusion of participant involvement and completion of study design.

Chapter 5 describes the methodology of the study. A description of the instruments used to collect data is given, with explanation of any modifications to enhance comprehension, or to more directly address the case study community. The organizational cultural similarities and differences within the case study community will be presented.

Chapter 6 presents the analyses results of the data collected in each of the two data collection phases and the comparative findings as they relate to the research questions. The summary, conclusions, implications and recommendations are presented in Chapter 7.

1.7 Summary of the Chapter

This Chapter provides an introduction to the dissertation. The basis for argument of the research is that an awareness of emotional intelligence within a project team will impact the job satisfaction of the team members and create statistically significant shifts in individual performance. Given that high performing teams are more likely to complete a project successfully, the promotion of improved EI to influence job satisfaction levels would therefore prove to be an important project management tool. The research proposal was defined with a statement of scope and objectives. The hypotheses were stated and the design for the research was described including the limitations and expectations.

A review of literature and theoretical concepts follows in Chapter 2.

2 REVIEW OF LITERATURE AND THEORETICAL CONCEPTS

Chapter 2 presents a review of available literature in the areas of project management, emotional intelligence, job performance and job satisfaction. The theory and concepts around project learning and information sharing are reviewed with some emphasis on communities of practice (COPs) in terms of how they may benefit project learning and support the value of knowledge management.

As the case study for this dissertation was conducted in a US defense industry environment, the culture of this community is discussed in terms of political influences, the expectations for performance of the defense project manager and the leadership styles that prevail. Theories are examined for making progress in effecting leadership changes, enriching project teams, and enhancing project outcome.

2.1 Project Management

A project is defined by PMI as a temporary endeavor that has a definite beginning and a definite end (PMI 2004). PMI publishes *A Guide to the Project Management Body of Knowledge* (PMBOK), which provides a framework for understanding project management and provides a general explanation of terminology, structures, and processes within a standard project management construct. Within the PMBOK, project management is approached in a formulaic fashion. Figure 2-1, is an illustrated overview of the Project Management Knowledge Areas and Processes.

While the PMI (2004) standards and processes for project management are helpful tools indeed, there is strong evidence that these standards and processes do not provide the tools for a PM to conquer the challenges that will come from the political influences and life events that will test the mettle of his/her best project management skills and those of the project team.

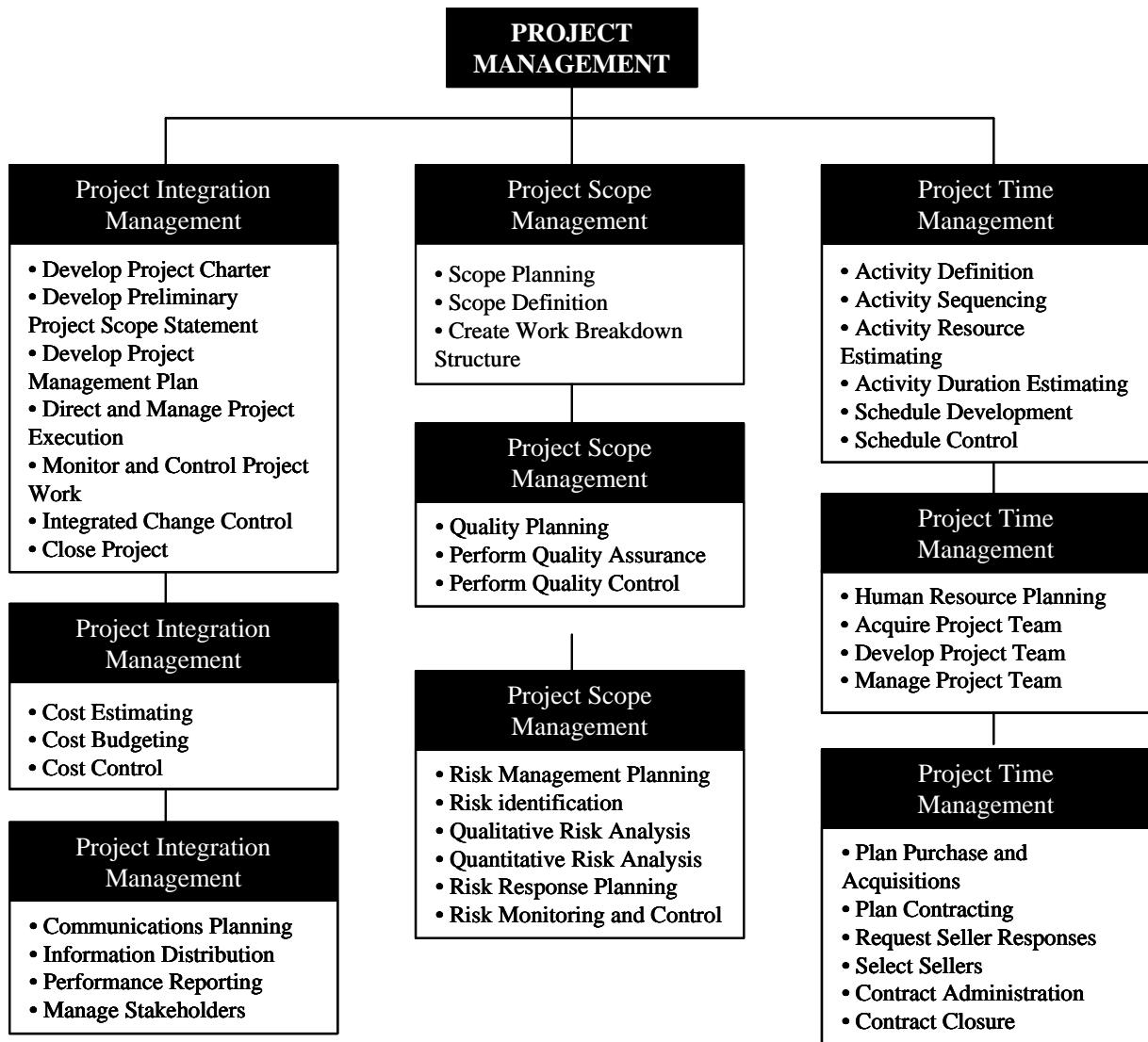


Figure 2-1 Overview of Project Management Knowledge Areas and Processes adapted from PMI (2004)

Turner and Muller (2005) note that leadership style and competence of the PM have been overlooked in considering project success. They point out that this oversight goes against convention in terms of general management literature where management leadership style and competence are considered to have a direct and measurable affect on the performance of an organization or business.

In Figure 2-2, the PM presides over the project management processes and addresses four areas of expertise, one of which is interpersonal skills. Adaptability and flexibility within a workforce have also been shown to have a measurable affect on how quickly and effectively teams can mitigate or resolve problems that arise (Belout and Gauvreau 2004).

The speed and appropriateness of response could result in positive or negative impact on project outcome.

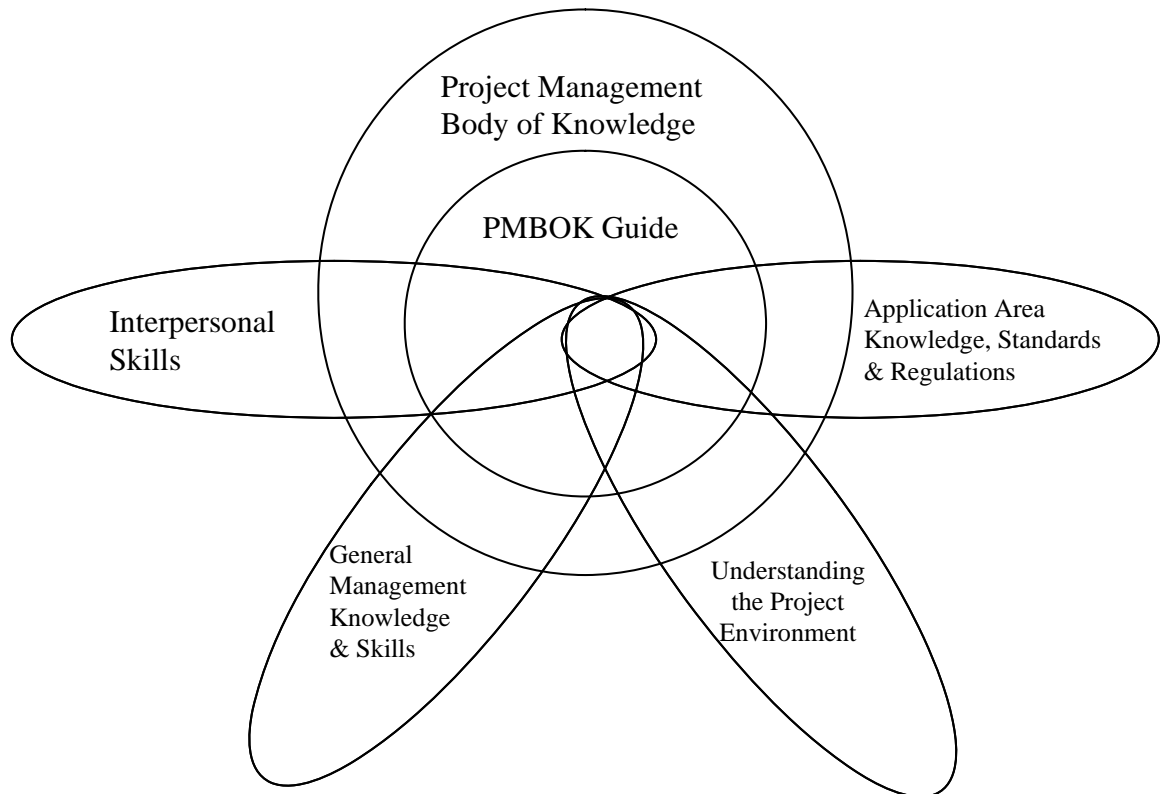


Figure 2-2 PMBOK (2004) defined Areas of Expertise needed by the Project Manager/Team

2.1.1 Project Success or Failure

According to Hartman (1999), a project is successful if all the stakeholders⁶ are happy. Hartman notes that this definition has nothing to do with quality, cost, time, scope or safety (traditional project management domains). But rather, it deals with people (stakeholders and functional groups represented on the project team) and how effectively the complexity of communication manages stakeholder expectations (Hartman 1999). Recent research on the importance of stakeholder engagement has reinforced the need for project management teams to actively consider the perspective of the stakeholder in a way that requires the use of emotional competencies (EC) (Bourne 2005; Bourne and Walker 2006).

This communication is represented in personnel interactions and decision-making processes as illustrated in Figure 2-3. People are involved in every project management

⁶ Stakeholder = Person or organization that is actively involved in the project, or whose interest may be positively or negatively affected by execution of completion of the project (Hartman 1999).

process and it is ultimately these people that establish the success (Cooke-Davies 2002).

Active communication among stakeholders can be supportive in correcting derailed processes, becoming a positive driver in successful projects (Bourne and Walker 2005).

Muller and Turner (Muller and Turner 2006) concluded in their qualitative research findings concerning the matching of the results of project manager’s leadership style to the type of project to which they should be assigned, that EI contributed significantly to the likelihood of project success. In the research represented here, the author examines the impact of introducing emotional competencies into the element of *individual project performance*. It is hypothesized that improving the emotional awareness skills and behaviors of the personnel assigned to projects teams will improve the performance of project teams and therefore lead to higher rates of project success as indicated linking element 3 and 4 in Figure 2-3.

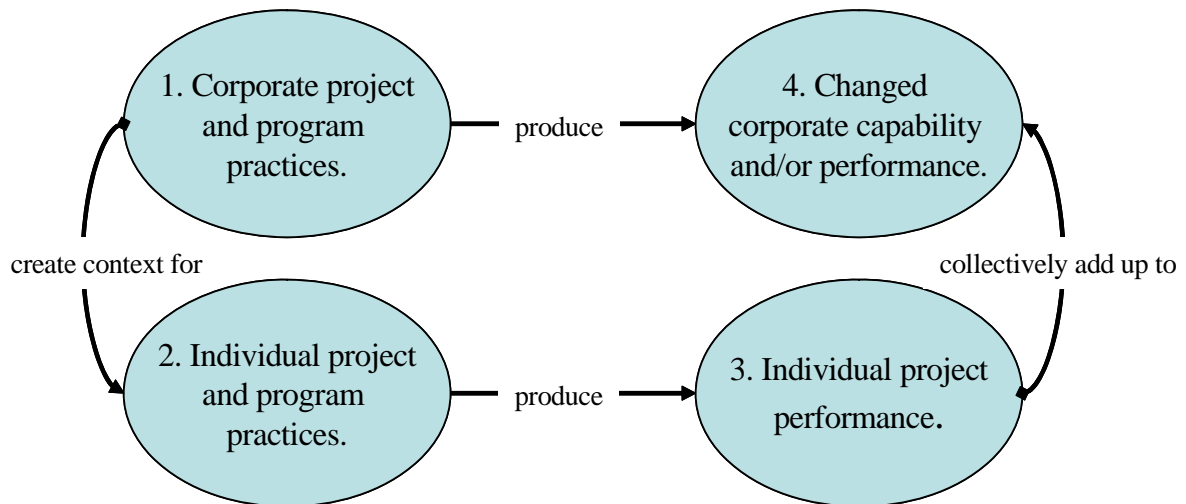


Figure 2-3 The Corporate process context for project success extracted from (Cooke-Davies 2002)

Cleland (1999) addresses project management with much the same standards and processes as PMI. His work addresses the strategic application of technique and organization. Figure 2-4 is representative of Cleland’s (1990) project management knowledge areas. Strategic application is the area where this research seeks to show the importance of people, their expectations, and perspectives relate to their abilities to behave in an intelligent and

emotionally connected/understood fashion. In relation to Figure 2-4, the author believes that any corporate process for project success depends to a large extent on the proper hiring of individuals (human resources) with communications skills/abilities that have significant depth across the spectrum of emotional competencies defined in Section 2.2.



Figure 2-4 Project management knowledge areas (adapted from (Cleland 1999: p11)

The technical revolution has expanded the definition of what was traditionally viewed as a project. The delivery of products and services has joined the definition of project and as such, the definition of project outcomes has also evolved. The parameters of cost, time, and quality are now seen as representing only a subset of tools within the project manager's arsenal (Nogeste and Walker 2005). Both Nogeste (2005) and the PMI (2006) Portfolio Management Standard link tangible outputs to intangible outcome providing support for the argument that the introduction of emotional intelligence competencies (enhancing a project teams emotional competencies) is a contributing, intangible project outcome.

Turning our attention to project outcome from both a tangible and intangible perspective, Garcia-Ayuso (2003) argues that the research over the past three decades provides evidence that:

- Intangible outcomes are fundamental sources of competitive advantage that must be identified, controlled, and measured in order to efficiently manage the corporation.

- Intangibles have become main drivers of growth and competitive advantages in society and having metric data will be essential to updating policies.

Research to understand the tangible and intangible benefits of nontraditional management tools could lead to improvements in project success beyond the current constraints of cost, time and performance (Nogeste and Walker 2005).

2.1.2 A Community of Practice – a Political Approach to Learning

A Community of Practice (COP) is usually comprised of motivated and dedicated people intending to share and transfer knowledge. Much of the inducement and the participant's incentive are inherent. These qualities and our understanding of effective knowledge transfer that Szulanski (1996) makes concerning the need for knowledge recipients to have good relationships to build individual and organizational bridges leads to the need for the development of strong emotional competencies. Szulanski (1996) makes the point that the quality of understanding between knowledge exchange partners is vital to effective knowledge transfer. Thus, EI can be a powerful enabler.

2.1.2.1 A Learning Organization

As viewed by the Center Point Institute (2003, p. 1), "Some connections are inevitable. Given enough time and networking, some people are bound to meet and find that they share a passion." The US defense community is a microcosm of industry. It is not unusual for individuals to work with each other on related projects while in military uniform, while employed as government civilians, or as an employee of the defense contracting community; on multiple occasions over the course of 30 – 40 years. While there are associations and institutions that support specialty technical areas such as the Institute of Electrical and Electronics Engineers (IEEE), Armed Forces Communications and Electronics Association (AFCEA), the SOLE, and the PMI that host one or more community of practice forums; the gap between government and competing commercial cultures is not bridged. To

build this bridge, the standard of internalized hiring of individuals from the former and retired military and government service (GS – government employees) communities does not fully lend itself to creating a learning organization as opportunities to introduce fresh or alternate knowledge is stifled. According to Peter Senge, learning organizations are:

...organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together. (Senge 1990, p. 3)

A learning organization is capable of creating, acquiring and transferring knowledge, and as a result is capable of modifying the organization's behavior to reflect the new knowledge and lessons gained (Pedler, Burgoyne et al. 1988).

Senge (1990) identified five activities that learning organizations practice:

1. Systems thinking
2. Personal mastery
3. Mental models
4. Building shared vision
5. Team learning

According to Bayraktaroglu and Kutanis (2003), learning organizations are capable of developing and integrating their learning and have a capacity for:

- 'Systematic problem solving, which underlies notions of quality and is focused on transformations in management and organizational activity.
- Experimentation; actively seeking and testing new knowledge and the ability to learn from mistakes.
- Drawing on memory and past experience.
- Learning from and with others.
- Communicating effectively within and beyond the organization.

- Systematic thinking and developing shared ideas/models of the current organizational position.

Simon (1991) argued that all organizational learning takes place inside the human head. With that as reference, we are limited to two ways that organizations learn:

1. through existing employees taking part in learning, or
2. by hiring new members who have core knowledge unique to the organization (Simon 1991).

2.1.2.2 Benefits of the Community of Practice

COPs are self-organizing communities of people that gather knowledge in the field and share one or more common areas of expertise or interest. There are several ways that COPs can add value to an organization (Wenger and Snyder 2000). COPs can help drive organizational strategy. Wenger and Snyder (2000) found that following the decision to fund COPs within the World Bank, the number of organization-wide communities grew to more than 100 and participation also increased. When members of a community need information or direction, they have a ready and willing community to approach for advice. Communities provide the avenue for transfer of *best practice*.

Symposiums and conferences are held by COPs at IBM, some of which are web-based using on-line technology. During these events ideas are exchanged, skills are shared and enhanced, and networks are developed. This type of effective learning occurs when peers are accessible and willing to share information and act as mentors. Through this medium, COPs provide an acceptable method and setting for the development of professional skills (Wenger and Snyder 2000).

Tacit knowledge, including aspects of organizational culture ('how things are done here') resides in a person's mind. COPs are recognized as one of the ways in which tacit knowledge is generated and disseminated (Ardichvili, Maurer, Li, Wentling, and Steudemann 2006). Some tacit knowledge is proprietary, meaning that it has become a key element in

sustaining a competitive advantage for the organization. In today's global business environment face-to-face gatherings of COP members are not always possible. As a result, COPs have been established using collaborative online technologies. Geographically dispersed work groups and employees are increasingly being supported in organizational knowledge sharing through the use of secure communications technology (Wenger, McDermott, and Snyder 2002).

Face-to-face meetings are not required to transfer explicit knowledge assets (e.g., documents, picture, or video) from one person to another, technology routinely provides this transfer. But it should be pointed out that explicit knowledge does not have the same type of competitive advantage that is attached to tacit knowledge. Explicit knowledge is, however, used as a basis for developing further tacit knowledge. For instance, by considering lessons learned from previous projects, less-successful methods or results can be modified or improved to create new solutions to correct past errors or improve overall results.

Knowledge creation and sharing are essential for innovation. To benefit from the competitive advantages innovation offers in today's economy organizations need to develop a knowledge sharing culture and systems to support knowledge sharing (Dessler, Griffiths et al. 2004).

'Knowledge is experience. Everything else is just information.' (Albert Einstein)

Much more information is becoming available regarding knowledge in organizations. What we find in reviewing this information is that knowledge is defined and that it is uniformly agreed that both people and organizations have and use knowledge. Some describe knowledge in terms of what needs to be done (procedural). Knowledge is also described as daily work practices that are more difficult for people to share. Knowledge is gained through actively creating and organizing experience, and it is generally accepted that 'we know more than we can say' (Polanyi 1997). Knowledge has been described as 'justified true belief' (Plato in, Nonaka and Takeuchi 1995). Generally is it understood that knowledge is about

beliefs, commitment, and about action and meaning (Nonaka and Takeuchi 1995).

Knowledge can be understood as a resource held by individuals and organizations, as an individual resource, and also as an organizational resource (Nonaka and Takeuchi 1995). von Krogh (1998) also refers to ‘care why’ knowledge relating to knowledge about purpose.

One well-known definition, taken from Davenport and Prusak (2000), is: knowledge is a mix of experience, values, contextual information and expert insight that provides a framework for evaluating and incorporating new experiences and information. In organizations, knowledge often becomes embedded in documents, data repositories, as well as in organizational routines, processes and norms (Davenport and Prusak 2000). Taking this perspective, knowledge is important to this research in adding EI to the framework for knowledge to better evaluate and incorporate new experiences and information at the individual level, and collectively at the project level to improve project outcome.

A COP sets up the potential for learning, but knowledge is *sticky-stuff* (Szulanski 1996). The concept of ‘sticky knowledge’ was developed by Szulanski (1996; 2003). Gabriel Szulanski (1995; 1996; 2003) undertook a PhD on the stickiness of knowledge and identified seven sources of knowledge stickiness:

1. Source lacks motivation (unwillingness to share knowledge);
2. Source lacks credibility (the source lacks authority, expertise or is perceived as unreliable or untrustworthy);
3. Recipient lacks motivation (does not care);
4. Recipient lacks absorptive capacity (has not the background to perceive cause and effect links, lacks underpinning knowledge or experience in experimentation to know how to use the knowledge);
5. Recipient lacks retentive capacity (forgets vital details);
6. Barren organizational context (the culture or governance structure inhibits knowledge sharing); and

7. Arduous relationship between source and recipient (lack of empathy, trust or commitment to collaborate in the task of sharing knowledge).

Szulanski (1996; 2003) concluded from testing his model (using canonical correlation analysis of a data set consisting of 271 observations of 122 best-practice transfers in eight companies) that contrary to conventional wisdom, which blames primarily motivational factors, major barriers to internal knowledge transfer are:

- Knowledge-related factors such as the recipient's lack of absorptive capacity;
- Casual ambiguity; and
- An arduous relationship between the source and the recipient (Szulanski 1996).

These identified barriers relate to a person's and an organization's ability to communicate and retain information effectively by sending and receiving whole, clear messages. The barriers described are also closely related to the quality of relationships and depth of understanding of the information provided.

The research undertaken by this dissertation is expected to provide insights into the possibility that improving the emotional competencies of project management personnel would serve as a powerful enabler for knowledge transfer.

With little incentive to invest in the sharing of information, particularly when proprietary information could be lost, some powerful tangible or intangible incentives will be necessary to overcome the existing barriers. Assuming that profit motives will outweigh other possible incentives, the sharing of knowledge internal to organizations is a more reasonable community on which to focus potential benefits. Szulanski (1996) believes that it will be necessary to go beyond the normal incentives for knowledge sharing and use high-valuable resources and managerial experience to develop the learning capacities, develop the working relationships between internal units, and then to systematically understand and communicate best practices to reduce the stickiness of knowledge transfer.

Knowledge sharing within projects is possible only when stakeholders and all members of a project team develop the necessary trusting relationships that will foster both dynamic knowledge creation and a community where knowledge is readily transferred.

Nonaka (1998) used the Japanese-based concept of *ba* (defined as a shared space for emerging relationships) to describe the condition required to promote knowledge creation.

Nonaka (1991) views the cause-and-effect relationship as it involves the process of knowledge sharing between individuals, allowing knowledge to stick. Improved emotional competencies may be one method for improving relationships between and within work groups, fostering the sharing of personal knowledge through a common place – or *ba*.

2.1.3 Connecting Pockets of Expertise

Valuable pools of expertise remain isolated and the lessons learned from years of experience expire without consideration. Based on the author's experience, the sharing of information and common interests is a long-standing area of concern within the US government. Multiple government programs have attempted to cross-train functional experts and share valuable information between government program areas (DoD 1995; DoD 1996). The DoD found that incentives (such as the possibility of increased promotion potential) may have spurred some interest and resulted in some knowledge transfer. By comparison, the defense contracting community (commercial vendors in the government environment) gain recognition that results in revenue based on each company's ability to show superior technical skills and capabilities when compared to those of competitors. To that end, the development and nurturing of COPs can be found in abundance (e.g., the Boeing Corporation view COPS as the "most effective way to share information"(Arkell 2007, p. 14)), particularly among those vendors that possess a broad enough work-base to sustain personnel on the payroll between work opportunities and losses. For those vendors that do not have this capability, the fostering of COPs within their ranks may backfire in the event of a contract loss. The

inability to retain knowledge assets when a contract is lost often results in the transition of valuable intellectual capital to the winning competitor (Stewart 1997; Teece 2002).

Some project settings are subject to a higher potential for knowledge loss than are others. As will be further explained in Chapter 3, projects within the US defense community are often constructed of elements of the US military, GS civilian employees (employed directly by the federal government), and to a large extent contracting personnel (employed by a firm through a contracted statement of work to be performed). Some government projects may have only a few supporting (product or service) contract personnel assigned under one or more contracts. While others, could have many hundred working under a variety of contract agreements. The GS civilian is perhaps the most stable participant (in terms of expected longevity within a given job or project assignment) within the project staffing mix. Military personnel are transferred routinely to facilitate national security concerns and contract personnel whose long-term participation is not guaranteed (e.g., contract termination, funding cut backs, and competitive attrition) tend to be highly employment mobile. Often times, the contract personnel host the high value knowledge based on either the original, unique experience for which they were hired or a level of advanced education. As a result, the benefit from a COP (defined earlier in this chapter) to support the sharing of knowledge and expertise is great. At the same time, the very nature of competitive contracting makes the value of intellectual capital the key difference between winning or failing to win available defense contracts.

2.2 Emotional Intelligence

A growing body of contemporary literature shows the increasing interest in EI within the workplace (Cherniss (2000); Chamberlin (2001); Cavallo and Brienza (2002); Goleman, et al. (2002); Mayer, Salovey, Caruso (2002); Wolff, Pescosolido, and Druskat (2002); Dulewicz and Higgs; Prati, Douglas, Ferris, Ammeter, and Buckley (2003); Voola, Carlson, and West (2004)). Much of this literature seeks to answer the question of whether or not

people with advanced emotional competencies are likely to be high performing and would therefore lead their organization to greater success. Goleman, et al. (2002) introduce the notion that EI is not only a power enhancer, but is an essential component to being a successful leader. As shown in Table 2-1, the Goleman et al. (2002) model for EI identifies four domains, which breakdown into 18 emotional competencies.

Table 2-1 Emotional Intelligence, Leadership Competencies, extracted from (Goleman, Boyatzis et al. 2002)

Domain:	Competencies:
SELF-AWARENESS	<ul style="list-style-type: none"> • Emotional Self-awareness • Accurate Self-assessment • Self-confidence
SELF-MANAGEMENT	<ul style="list-style-type: none"> • Self-control • Transparency • Adaptability • Achievement • Initiative • Optimism
SOCIAL AWARENESS	<ul style="list-style-type: none"> • Empathy • Organizational awareness • Service
RELATIONSHIP MANAGEMENT	<ul style="list-style-type: none"> • Inspiration • Influence • Developing others • Change catalyst • Conflict management • Teamwork and collaboration

2.2.1 Goleman’s Emotional Intelligence Model

In Table 2-1, the EI domain of *Self-Awareness*, captures the concept of an individual’s ability to understand personal emotions, values and motivations; both in terms of strengths and limitations. In a technical sense, Goleman et al. (2002) explain that the human brain provides us the capacity to manage our frustration, keep us on track with our goals and motivate us to use thoughtfulness and self-reflection rather than impulse to guide our decisions.

Goleman et al. (2002) define *Self-Management* as a by-product of having self-awareness. This domain emphasizes the ability to be in control of one’s emotions and

maintain the desired composure. As Goleman et al. (2002) point out, those who have mastered their emotions are better prepared to adjust to changes within the work environment.

Social Awareness is captured simply as empathy. Being in touch with the emotional actions and reactions of others allows for the maintenance of team resonance and keeps teams driving toward the same vision.

The final EI ability is the combination of the first three. The tools Goleman et al. (2002) address within *Relationship Management* are: 1) persuasion, 2) conflict management, and 3) collaboration. Relationship management is the capacity to move people in a given direction, to refine and guide vision and values to positively drive outcome.

Fluidity of leadership is one of the abilities resulting from an emotionally intelligent leader. An emotionally intelligent leader is capable of using fluid styles of leadership in keeping with the environment, culture, and the prevailing moods to steer or change the momentum. Looking at the Goleman et al. (2002) focus on the benefits of EI to the leader, is it then possible to extrapolate the possible benefit to entire groups of individuals?

Along the same line as fluid leadership styles, Goleman (1998, p. 149) addressed the “Power of Pygmalion” as a means to develop others. This concept means that setting expectations to which people can aspire to promotes self confidence and empowering improvement (Goleman 1998).

It is important to note that not all researchers agree with Goleman et al. (2002) and find that evidence is lacking when attempting to support claims that EI promotes leadership vitality (Antonakis 2003). However, studies by Cavallo and Brienza (2002) at Johnson & Johnson revealed a direct correlation between higher performing management personnel and higher EI measures. The methods for measuring EI have also come under some scrutiny based on the level of maturity of current tools (McEnrue and Groves 2006), as well as the overall validity of measurement approaches (Conte 2005). Even those that find the current

inventory of available measurement tools questionable support further research into the concept of EI and refinement of measurement methods.

2.2.2 Emotional Intelligence and Leadership

Project management leadership enables the achievement of project goals that are generally very visible and dynamic. According to Briner, Hastings, and Geddes (2001), a project leader:

- Is unable to hide and is therefore a high risk role.
- Must generally be skilled at negotiating for resources and visionary support both inside and outside of the immediate organization.
- Is expected to cut across organizational boundaries in order to deal with and defeat resistance to project completion.
- Must often face the unknown and unpredicted and need to establish credibility through successive increments of positive activity.

The research, designed to measure leadership effectiveness and linkages to EI, suggests that a more emotionally intelligence leader is able to recognize and handle diverse business situations and apply the right style of leadership, at the right time (Goleman 2004). Goleman (2004) believes that through the development of emotional competencies, a leader is able to foster a broader range of leadership approaches and flexibility in application.

Goleman et al. (2002) associate the term *resonant leadership* with the concept of EI. Exploring what contributes to and detracts from resonant leadership for each of the four EI domains influences the leadership style exhibited. Maintaining a style repertoire establishes a good leader, capable of moving largely between democratic, visionary, coaching and affiliative style with the occasional application of the less effective pacesetting and commanding styles as seen in Table 2-2 (Goleman et al., 2002).

Table 2-2 Leadership Styles taken from Goleman, et al. (2002)

Leadership Style	How it builds resonance	Impact on climate	When appropriate
Democratic	Values people’s input and gets commitment through participation	Positive	To build buy-in or consensus, or to get valuable input from employees
Visionary	Moves people toward shared dreams	Most strongly positive	When changes require a new vision, or when a clear direction is needed
Coaching	Connects what a person wants with the organization’s goals	Highly positive	To help an employee improve performance by building long-term capabilities
Affiliative	Creates harmony by connecting people to each other	Positive	To heal rifts in a team, motivate during stressful times, or strengthen connections
Pacesetting	Meets challenging and exciting goals	Because too frequently poorly executed, often highly negative	To get high-quality results from a motivated and competent team
Commanding	Soothes fears by giving clear direction in an emergency	Because so often misused, highly negative	In a crisis, to kick-start a turnaround, or with problem employees

Much of the research into the benefit of EI focuses on leadership rather than on work groups or organizations. Cherniss’ (2000) research takes a broader perspective and he finds that empathy plays a very important role in the contribution that EI makes in occupational success. In fact, Cherniss views EI as an increasingly important component of success not only in the work place, but in life.

Druskat and Wolff (2001a) suggest that leadership is essential in developing group effectiveness. As shown in Figure 2-5, group EI provides the foundation for a range of components for group success. Druskat and Wolff’s (2001b) research found that three successive conditions must exist: 1) trust among project team members, with a sense of group identity, and a sense of group power to produce an effect; 2) improved participation, cooperation, and collaboration; and that this will then lead to 3) better decisions, more creative solutions and generally higher productivity. In order to be most effective, leadership must enable and encourage emotionally intelligent norms, building standards and guides that will lead to attitudes and behaviors that will over time become habits. These habits could then support behaviors conducive to complete engagement in tasks, group trust, identity and

efficacy (Druskat and Wolff 2001a). Project teams are groups and would be good model environments for the promotion of team effectiveness.

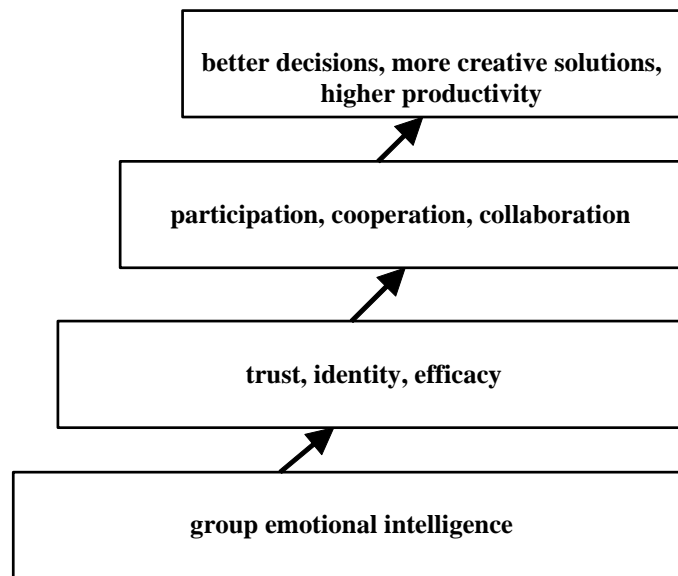


Figure 2-5 A Model of Team Effectiveness (Druskat and Wolff 2001a)

Druskat and Wolff (2001a) emphasize the importance of empathy and constructive emotions in all levels of their model of team effectiveness shown above. They stress that the power of team building allows a stronger emotional connection, enabling teams to perform better when faced with challenges. This belief is also held by others (Hess and Kirouac 2000; Ashkanasy and Daus 2002; Yang and Mossholder 2004).

Abraham (2004) attempted to identify particular emotional competencies that are most clearly related to performance. Abraham (2004) stated that a range of factors such as organizational climate and job dimensions (e.g. autonomy) combine with emotional competencies to impact job performance. Abraham (2004) concludes that additional research is required on EI assessment and the role it plays in leadership in project management. Winter, Smith, Morris and Cicmil (2006) identified a range of research in relation to projects management that would benefit from further research. In particular they recommended research into what they called a 'theory for practice' to examine projects as social processes. This research would focus on the interaction between project members as an identified area of

need within the practice of project management. Winter et al. (2006) believe that emotional competencies relate to the ability to use experience and intuition in becoming a reflective project manager leading to overall improved performance.

2.3 Job Performance and Job Satisfaction

Job performance and job satisfaction strongly influence the ability for team members to deliver an optimal performance and therefore, provides a powerful tool for PMs. Research such as (Newsome, Day and Catano 2000) and (Day and Carroll 2004) have examined the validity of claims that emotional intelligence can serve as a predictor of individual performance, with the latter finding some specific correlations using only the Mayer, Salovey, & Caruso Emotional Intelligence Test (MSCEIT) (an ability-based measurement tool). It is important to remember that satisfaction with a job and employee satisfaction with their immediate supervisor or with the organization for which they work, although often linked, are not the same thing. Discussions here relate to team members' satisfaction with the role they are performing within the project team – satisfaction with their job. However the link between job satisfaction and job design, leadership, and team interaction is discussed as these elements combine to affect project success.

The way that work is designed has an affect on levels of job satisfaction. Research has shown that when a variety of skills are used, when the individual can identify with the tasks to be performed, and when they believe the job positively impacts on others the employee will feel that they are performing meaningful work. If, in addition, they have autonomy, for instance in relation to making decisions about how the job is to be performed, they will feel they have been entrusted with responsibility for the outcomes of the work they perform. Finally, when feedback is received both from their supervisor in relation to their performance and from customers or other team members, employees will experience higher levels of motivation. This was found, several years ago, to link to high levels of satisfaction with the job, increased motivation and improved work performance (Hackman and Oldham 1980;

Schleicher, Wall, Greguras 2004). More recent work has examined the job satisfaction/performance link in more detail. Moorman (1991) examines the relationship between job satisfaction and work, reporting a correlation of 0.14 between satisfaction and performance. Moorman points out that the relationship of satisfaction to performance is complicated. Two issues brought out by this article for consideration are the attitudinal basis of job satisfaction measures and the relative effect of more pure indicators of affect and cognition on job satisfaction (Moorman 1991). The difference between the affective measure and cognitive satisfaction is considered. The question being considered is whether the job experience evokes a good mood and positive feelings and affectively-orientes measures of job satisfaction or whether the mood and feelings are based on a more logical and relational evaluation of the job conditions. In others words, the article looks at feelings and emotions versus measurable conditions.

Nuttall (2004) concluded that relationship competencies paired with effective modes of management and leadership allow for a coherent, simplified mode for optimal performance. Measures of job satisfaction in programmers/analysts were examined by Goldstein and Rockart (1984) using three independent variables (job characteristics, role perceptions, and leadership characteristics) – and one dependent variable (job satisfaction). They chose information system programmers/analysts as information systems related workers having technical degrees tend to work closely with other technical project team personnel; while at the same time lack training, experience in management, and specific interpersonal skill development. Goldstein and Rockart (1984) felt that training in those areas would lead directly to reducing role conflict and ambiguity and, indirectly, would improve job satisfaction. The first independent variables are basic job characteristics (i.e. skill variety, task identity, task significance, autonomy and feedback from the job itself e.g. see (Hackman and Oldham, 1980)). The second variable of role perceptions (role ambiguity and role conflict) tend to occur among workers who have a great deal of contact with others within

their organization, are often found to be negatively correlated with job satisfaction (Miles and Perrault 1976; Bostrom 1981; House and Rizzo 1981). Goldstein and Rockart (1984) felt that because contact is such an important part of the programmer/analyst job that role perceptions should be significantly correlated to job satisfaction. The third independent variable of leadership characteristics measures the quality of leadership from supervisors and peers (e.g., supervisory support, goal emphasis, work facilitation, interaction facilitation) often found to be positively correlated with job satisfaction (Bowers and Seashore 1966). The result of this examination showed that job characteristics (particularly autonomy) correlated highly with job satisfaction measures. For role perceptions, ambiguity was more strongly correlated (negatively) than role conflict (also a negative correlation) with job satisfaction, consistent with other research for these variables (Bostrom 1981). While the leadership variable (leadership characteristics) correlated highly with measures of job satisfaction, Goldstein and Rockart (1984) found the addition of role and leadership variables to defined job characteristics significantly increased the variance in findings for job satisfaction.

Nerkar, McGrath and MacMillan (1996) considered how social satisfaction (the way that team members interact with one another and the organization) impacts the completion of skillful, innovative projects as one of three independent facets of job satisfaction. The results of their work indicated that as social satisfaction declines, team skill and performance are impeded (Nerkar et al. 1996).

2.3.1 Work Values, Moods, and Attitudes Explored

George and Jones (1997) explored the experience of work as it relates to the thoughts, feelings, and beliefs of people about their work. They found the research, in terms of work experience, to be less than satisfactory and in need of a more multi-dimensional perspective (George and Jones 1997).

While George and Jones (1997) did not specifically address EI, they take the approach of relating work values, work attitudes and work moods with the experience of work. The intent of this approach is to examine a multi-dimensional view of the work experience for a more complete understanding of each element (values, attitudes and moods) in how they are similar to or different from each other and any direct relationships between all or any two of the three elements. When taken in aggregate, values, attitudes, and moods provide a construct for personal behaviors that can be related to what is currently called *emotional intelligence*.

As previously stated, George and Jones (1997) explored three behavioral aspects as they related to work: 1) values, 2) attitudes and 3) moods. Values, as George and Jones (1997) view them, form the generalized framework around which an individual evaluates and defines the events around them. This framework establishes the expectations of the individual for the modes of behavior applied to the various actions and events at work. The second aspect of this model is work attitudes.

George and Jones distinguish moods, from emotions, as being less intense and longer in duration. In conclusion; the Values, Attitudes, and Moods (VAM) model (see Table 2-3) focuses on work moods rather than on those emotions that demand attention or cause interruption to examine how people feel when performing their job.

2.3.2 Principles for Behavior

When addressing emotional intelligence; leadership; or values, moods and attitudes the subject is human behavior. Other studies focused on behavior (in addition to those already covered) include:

- Dainty, Cjeng and Moore (2005) documented 12 behavioral competencies they believe are required of projects managers. This list of behaviors is reduced into two broad areas of competencies – team leadership and self-control.
- Rokeach (1973) concerns instrumental and terminal values, as the work applies to establishing principles for behavior.

- Nord, Brief, Atieh, and Doherty (1990) present an exploration of values being a set of guiding principles to achieve satisfaction of intrinsic (end states that occur through work) and/or extrinsic (end states that occur as a consequence of work, regardless of the content of the work) work values.

Values, attitudes and moods are all viewed as elements of the work experience. To further construct the framework for the ways of experiencing work, the dimensions of time, dynamism and focus are added to form a model as shown in Table 2-3.

Table 2-3 Three dimensions of work values, attitudes, and moods (George and Jones 1997)

	WAYS OF EXPERIENCING WORK		
DIMENSIONS OF EXPERIENCING WORK	Values	Attitudes	Moods
TIME	Prospective	Retrospective	Contemporaneous
DYNAMISM	Stable	Evolving	Fluctuating
FOCUS	General	Specific	General

George and Jones (1997: p402) see moods as having the most immediate association to the work experience. Work is multidimensional with varying values, attitude and moods as each experience in the work place unfolds. As such, George and Jones consider all three dimensions together, rather than in isolation, to gain a more complete perspective on the work experience.

In terms of time, the VAM model suggests that each dimension is being experienced concurrently with each creating the venue for change throughout the work experience. The model provides a view of the stability or dynamics of each work experience dimension. The VAM model indicates that work values are more stable than attitudes, which in turn, are more stable than moods. Lastly, the concept of focus was added to the model to differentiate between those moods that are aspects of the work experience, those that are not tied to a specific job or organization, and those that are based on the particular jobs and/or organization.

The VAM model develops the interrelationships between values, attitudes and moods and the variables that can be associated with the differences and similarities of the work experience. The VAM model offers the possibility of viewing the interactive attributes of values, attitude, and moods to increase the overall understanding of behaviors in the work place. The insights provided by this type of research are expected to benefit the individual, as well as the organization. The implication for organizations is that the knowledge of any performer's values, attitudes and moods provides valuable insights as to why any one person out performs any other person. The expectation is that a set of predictive associations could be derived to more fully understand the work experience/job performance relationship.

Emotional intelligence is a comprehensive concept wherein the values, attitudes and moods of an individual are broadly considered in understanding their own goals, intentions, responses, and behaviors; as well as those of others. Understanding the VAM model established by George and Jones (1997) provides insight into the development of a similar model for measuring the impact EI might have for a project management team. Values, attitudes and moods all resonate in the scope of EI. Personal development in terms of EI translates into skills that promote respect, honesty and compassion. A reduction in relationship conflicts and increase in empathy could promote healthier work attitudes and may in turn promote more successful project teams.

2.3.3 Behaviors and Organizational Effectiveness

Considering individual behavior as it relates to job performance and job satisfaction is important, general consideration should also be given to how behaviors impact the organization. George and Brief (1992) examined behavior patterns that Katz (1964) claimed are essential for a functioning organization. Katz describes these behaviors as spontaneous or voluntary, attracting and retaining people and supporting (or contributing to) dependable role performance. George and Brief (1992) believe that the latter two have been given significantly more consideration than the first.

Taken from the seminal work of Katz (1964), and updated by George and Jones (1997a) to show how these individual behaviors operate at the core of a group inside an organization and within an interorganizational group, *spontaneous behaviors* are those additional behaviors that are performed under free-will that contribute to organizational effectiveness. These additional organizational behaviors are defined in five forms:

1. *Helping co-workers.* These voluntary behaviors are not defined within job descriptions or planned, but lend themselves in ways that solve minor problems such as the absence of needed supplies or lack of common information that would otherwise cause work stoppage.
2. *Protecting the organization.* This behavior allows for a measure of protective responsibility; wherein individuals report fire hazards or security issues that, when corrected, provide for a more secure work environment.
3. *Making constructive suggestions.* Although some organizations encourage input from employees to improve work assignments (Katz and Kahn 1978), it is not typically a routine assignment itself. Katz and Kahn propose that the act of spontaneous suggestion leads to improvements or creates a benefit to the organization.
4. *Developing oneself.* Employees that continue their education voluntarily in ways that increase their knowledge base, work skills and other abilities that create better products within their work environment, lend unplanned value to an organization.
5. *Spreading goodwill.* This word-of-mouth benefit to an organization is the result of employees sharing with others outside the organization, positive insights that lend value to the organization improving its public image.

The importance of spontaneously initiated contacts and communication, a product of spontaneous individual behavior, has been found to be of great importance to teams working on innovative projects as it ensures that ideas and other contributions are shared across the team (Hoegl and Gemuenden 2001).

To make a comparison, organizational spontaneity is examined in relationship to citizenship behavior. George and Brief (1992) provide Organ's (1988) definition of Organizational Citizenship Behavior (OCB) -

“Represents individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization (Organ 1988, p. 4)”.

The forms of OCB discussed include altruism, conscientiousness, sportsmanship, courtesy, and civic virtue. The comparison of organizational spontaneity with OCB concluded that both concepts expressed behaviors that are voluntary and result in organizational benefit or enhancement. However, the OCB concept denies formal recognition or reward for the expression of the behaviors.

A second comparison performed by Brief and Motowidlo (1986) examined the concept of Prosocial Organizational Behavior (POB). Prosocial behavior is defined by Brief and Motowidlo as:

“Behavior which is (a) performed by a member of an organization, (b) directed towards an individual, group or organization with whom he or she interacts while carrying out his or her organizational role, and (c) performed with the intention or promoting the welfare of the individual, group, or organization toward which it is directed (Brief and Motowidlo 1986, p. 711)”.

George and Brief (1992) expressed their discomfort with the broad definition offered for POB. They did, however, note that POB contained many of the behaviors that would be included in the concept of organizational spontaneity.

George and Brief (1992) recognize the overlap between OCB, POB and organizational spontaneity. To capture these overlaps, they offer a framework for comparison against four behavioral dimensions (see Table 2-4).

Table 2-4 Behavioral Dimensions Along Which OCB, POB, and Organizational Spontaneity Vary (George and Brief 1992)

Behavioral dimension	<i>Behavioral construct</i>		
	OCB	POB	Organizational spontaneity
Organizationally functional-organizationally dysfunctional	Includes functional behaviors	Includes functional and dysfunctional behaviors	Includes functional behaviors
Role prescribed – extra role	Includes role-prescribed and extra-role behaviors	Includes roles-prescribed and extra-role behaviors	Includes extra-role behaviors
Possibility of financial remuneration	Behaviors cannot be recognized by formal reward system	Behaviors can be recognized by formal reward system	Behaviors can be recognized by formal reward system
Active-Passive	Includes active and passive behaviors	Includes active and passive behaviors	Includes active behaviors

Notes: OCB = organizational citizenship behavior; POB = prosocial organizational behavior

According to George and Brief (1992), the first dimension presented in Table 2-4 takes into consideration whether the behavior is functional or dysfunctional to the organization. While the concepts of OCB and organizational spontaneity are concerned with functional behaviors, the POB concept considers those behaviors that are dysfunctional as well. The second dimension takes into consideration whether a role is prescribed or extra. Organizational spontaneity includes only roles that are considered extra, while both OCB and POB include roles that could be considered prescribed. The next dimension considers whether the behavior will be rewarded. OCB excludes these behaviors, while POB and organizational spontaneity include behaviors that may meet with reward. The final dimension considered is that of whether the behavior is active or passive. OCB and POB include active and passive behavior, while organizational spontaneity is concerned with active behaviors only.

What this framework concludes is that although there are overlaps between the constructs of POB, OCB and organizational spontaneity, POB and OCB include behavioral elements that are inconsistent with the organizational spontaneity concept from Katz (1964).

George and Brief (1992) identify that Katz (1964) and many others believe that organizational spontaneity is key to the survival and effectiveness of organizations.

George and Brief (1992) take the foundation of Katz's (1964) work and engage in developing a more detailed theory. The more detailed theory includes three specific areas:

1. In addition to the concept that organizational spontaneity is derived from two levels of analysis (Katz 1964), the organization and the primary work group, George and Brief (1992) add a third level, the individual.
2. The importance of mood is increased in the George and Brief (1992) theory, becoming central to their hypothesis that positive mood is a primary determinant of organizational spontaneity.
3. George and Brief (1992) add to Katz's (1964) interest in the primary work group and to the theory that a work group is likely to possess particular characteristics if it is to be considered a positive model on organizational spontaneity.

2.3.4 Linking VAM and Behaviors to Emotional Intelligence

Values, attitudes, and moods are significant dimensions of the work experience underlying the contributions made by individuals to the organization (George and Jones 1997). The incorporation of emotional intelligence could benefit the organization by assisting employees to channel their emotional energy to find job satisfaction, improve job performance and add value in achieving work related goals. The inclusion of *mood* in the George and Brief (1992) investigation of organizational spontaneity will lend insight into the impact of EI when introduced to the work place. George and Brief (1992) state that people are often unaware of the effects of our moods. This brings the concept of EI to the fore, with self and social awareness modifying the idea that people may not be aware of how our moods influence our behavior and our ability to perform as individuals, groups, or organizations. Katz and Kahn (1978) examined the psychological basis of individual behaviors as they related to organizational effectiveness. The motivational bases for individual behaviors differ

in logic and patterns. Katz and Kahn looked at how to capture the conditions involved and apply them to produce a given behavior. The development of soft skills is one way to develop employees to achieve more logical behavior patterns by developing relationship skills. The development of emotional competencies is viewed by Goleman (1998) as an effective way to teach skills that matter for the work place such as:

- *Perspective taking*, to help job seekers think like an employer
- *Self-confidence*, the crucial sense that one can succeed, which is critical to making the effort in the first place
- *Networking*, since most jobs are found through personal contacts
- *Decision making for career management* – the first offer that comes is not necessarily the one to take, and any job needs to be measured against a person’s values and career goals
- *Emotional self-control*, so that distressing feelings do not overwhelm and paralyze the person, making it difficult to put in the hard effort that is needed (Goleman 1998, p.257)

2.3.5 Organizational Commitment

In examining various aspects of organizational commitment, Meyer and Allen (1991) have identified three general themes as shown in Table 2-5.

Table 2-5 Meyer Organizational Commitment Themes

Theme	Characteristics
Affective Commitment	Reflects a desire to maintain membership in an organization, which develops as a result of work experiences that create feelings of comfort and personal competence.
Continuance Commitment	Reflects a need to remain and results from recognition of the costs associated with leaving.
Normative Commitment	Reflects an obligation to remain resulting from internalization of loyalty and the receipt of favors that require repayment.

Skilled project leaders could leverage the application of exercising the right leadership style and use of empathy and constructive emotions to increase levels of affective commitment among team members. Meyer and Allen (1991) emphasized that leaders should

consider the well-being and therefore increase the willingness of employees to work toward attaining organizational goals to increase organizational commitment. This indicates that increased affective commitment would be an outcome of team co-operation, where levels of trust and goodwill are high and that this, in turn, would lead to increased commitment to the team and its goals.

2.4 Project Learning and Information Sharing

Within the US defense community; there are a number of acquisition related projects in one of the many phases defined by the US DoD acquisition process. Since approximately 1995, the DoD guidance for acquisition has been in a state of flux. Driven by the changing pace of war fighting, as well as the pace of development of supporting technology, the acquisition of the systems to support the military mission must to be able to rapidly deliver capability. Methods of streamlining and tailoring requirements have matured as an interest in evolutionary acquisition (EA) and spiral/incremental development. According to Farkas and Thurston,

“An EA strategy allows for the inclusion of new technology, changes in users’ needs, and lessons learned as the system progresses from the initial increment through the full fielding of a system” (Farkas and Major Paul Thurston 2003, p.11).

The policies and practices relative to ensuring the streamlining of defense acquisition are well considered and documented. The most recent release of this policy in DoD Instruction 5000 series (2003) is focused on the need to instill flexibility, responsiveness, and innovation in the DoD acquisition processes. This is a marked deviation from prior years (prior to 1995) when the rigidity of acquisition called for the strict use of military instructions and standards, against which there was little opportunity for deviation or waiver. The expected value from the move toward acquisition streamlining is clear – become more efficient and deliver a product to the user sooner (Defense 2003). Realizing the full value of streamlined acquisition through the use of evolutionary and spiral approaches to design has well documented merit within industry. Much like the pace of warfare, increasing

competition and globalization within industry is driving firms to discover ways to bring their products and services to the market ahead of their competition. As reported by Mayo (1995), the pace of change needed in today's world makes flexibility and rapid effective learning key competitive advantages, a view shared by others such as Goleman (1996) and Bharadwaj (2000).

As captured by Hayes (1997) from her investigation into the study of organizational behavior and learning, three themes emerge:

1. The systems thinking underpinning the process,
2. Acquisition of new knowledge, and
3. Involvement of all members of the organization.

It is the last of these three themes that is most important in the context of this study. The construct of the US defense community, including the US military, US government service (GS) civilian employees; and a broad, seemingly unlimited number of products and services providers from industry, work in varying degrees of concert toward acquisition results. A representative example of this working relationship is the AFCEA.⁷ AFCEA is a non-profit international association that provides a forum to encourage close cooperative relationships among government agencies, the military, and industrial product and service providers.

For the benefit of example, one such representative sample is the United States Transportation Command (USTRANSCOM). USTRANSCOM is a joint operational command, meaning that elements of the three armed services of the US military (Air Force, Army, Navy, Marines, and Coast Guard) are represented within the organization under the oversight of the US government Office of the Secretary of Defense (OSD). USTRANSCOM in turn, has oversight of one major command component from each of the three service areas. USTRANSCOM and those related component commands, undertake a researcher-estimated

⁷ Note: Reference membership information regarding AFCEA in APPENDIX B.

number of 100 new-start IT projects each year with an additional estimated 500 on-going projects. Each of these projects can be identified as progressing through one of the evolutionary acquisition stages toward completion. The exact number of projects for USTRANSCOM is estimated due to a lack of specific information in this area (Frank 2003).

The researcher was not able to locate authoritative information concerning the success or failure of specific IT programs within the defense community. Many of the points of reference are based on the observations and direct participation in IT programs by the researcher.⁸

2.5 Related areas of Organizational Learning and Knowledge Sharing

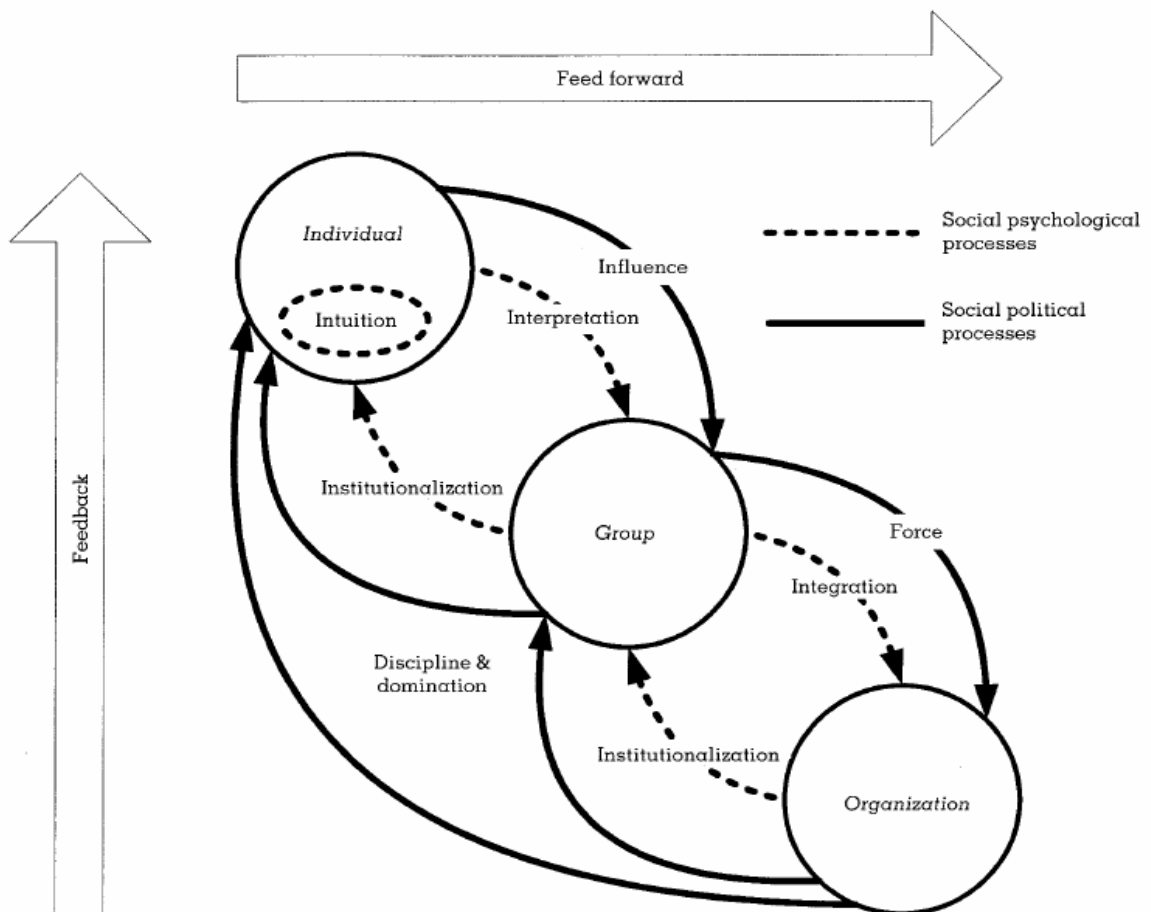
Politics is the process for decision-making within groups and is a behavior observed in human organizations and institutions, including religion, education, government and industry (Sense and Antoni 2003). Politics is the means by which humans organize into groups. As the size and complexity of organizations increase, the path of this development is implemented through projects. Sense and Antoni (2003) observed that the complexity of a project will accentuate the dynamics of interdependencies, interpersonal relations, information sharing, and learning. This observation suggests that the politics between individuals and groups could be managed through a course of organizational learning to lead change and to guide political means to the genuine organizational goals. It also highlights the link between EI, knowledge sharing tendencies and resultant organizational learning.

As shown in Figure 2-6, Lawrence, Mauws, Dyck and Kleysen (2005) explored the political dynamics of organizational learning drawing from Crossan and Guatto's (1996) multi-level model of organizational learning. Lawrence et al. (2005) noted that the Crossan and Guatto model did not take into consideration the role of power and politics in the learning process. The Lawrence et al. (2005) view considers power and politics as the social energy fueling the learning process. Power and politics are a natural part of learning that will require

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additional research in order to develop working frameworks and processes to enable and improve learning events and the sharing of knowledge throughout organizations.

In terms of improved EI, Figure 2-6 demonstrates that project teams and organizations experiencing improved emotional competencies could more positively exercise influence, use power, and that organizations could more positively accept critique or feedback to effect immediate procedural changes and influence strategic change. In this example, the EI improvement leads to procedural and organizational changes that would modify the oppressive cycle of domination and discipline (as Lawrence et al.'s model implies) into a virtuous one.



Based on Gossan et al. (1999).

Figure 2-6 Extracted from *The Social Psychological and Political Processes of Organizational Learning* (Lawrence, Mauws et al. 2005)

2.5.1 Communities of Practice and Learning

COPs, which were discussed in Section 2.1.2, create the capability for connecting practitioners to engage in direct one-on-one learning. A COP is a term first used by Jean Lave and Etienne Wenger in 1991 in relation to situated learning in concert with their work in *rethink learning* for the Institute of Research on Learning. Wenger, McDermott et al. (2002) extended the concept into other contexts and more recently it has become associated with knowledge management.

Knowledge, as discussed in paragraph 2.1.2.2, is a mixture of experience, values, contextual information and expertise that creates a framework for evaluating and integrating new experiences and information. Knowledge used in the workplace has come to be known by the term knowledge management (KM). Some authors would say that the target outcome for KM processes is for it to become part of everything an organization does and that it should be everyone's job (Perseus 2002).

It is becoming recognized in the service and knowledge-based environments that exist throughout public and private industry today that organizations are increasingly dependent upon their employees for success (Ruona and Gibson 2004). The management of knowledge was inspired by IT. However, over time it has become evident that IT can store information but it cannot deliver KM. McDermott (2002) distinguishes the difference between information and knowledge by these six characteristics:

- Knowing is a human act
- Knowledge is the residue of thinking
- Knowledge is created in the present moment
- Knowledge belongs to communities
- Knowledge circulates through communities in many ways
- New knowledge is created at the boundaries of old

These six characteristics create an understanding of leveraging knowledge as a unique combination of human and information systems (McDermott and O'Dell 2001).

It is generally believed that knowledge is something that people and organizations possess (Spender 1996). It must also be accepted that a wide variety of different types of individual and social knowledge are created by people and within organizations. For example, knowledge from the implementation of an enterprise resource planning (ERP) system (as a large IT project) will have relevant knowledge that will benefit similar projects in other parts of the firm. A firm's collective knowledge is strategically the most useful knowledge it possesses and becomes the core competencies of the firm (Spender 1996). Because this collective knowledge is highly contextual and embedded within the organization (as core competencies) other firms find it difficult to understand or imitate it.

Knowledge flow, including creation, transfer and integration is important to organizations. (Cabrera and Cabrera 2005). Organizations create situations for people to share knowledge with each other. These may be informal (e.g., company picnic) or formal events, but it is important to create opportunities for discussion (Davenport and Prusak 2000).

In relation to knowledge management COPs are seen as a way to grow social capital, nurture new ideas, stimulate sharing and innovation, and now is an accepted part of general organizational development methodology.

Within a COP, it is important to have clear coordination and support for developing and commencing activities (Wenger, McDermott et al. 2002). Intellectual development within organizations will require a level of thinking in step with the project complexities of the 21st century. Wenger (1999) views learning as being closely associated with social participation and how the individual understands their role within a community. Sustaining the connections between communities becomes the central issue of learning. Recognizing and

enforcing the importance of this connection promotes the effective, fluid negotiation of knowledge components to the benefit of the organization.

According to Wenger, McDermott et al. (2002), each organization that pursues the development of COPs discovers that each is unique with respect to the knowledge-related issues with which they deal. The elements used for instance within this reference are:

- Connect local pockets of expertise and isolated professionals,
- Diagnose and address recurring business problems with root causes that cross team boundaries,
- Analyze the knowledge-related sources of uneven performance across units performing similar tasks and work to bring everyone up to the highest standards, and
- Link and coordinate unconnected activities and initiatives addressing a similar knowledge domain(Wegner, et al., 2002).

Within the USTRANSCOM community (introduced in paragraph 2.4), there is no unified approach to learning or information sharing between projects or participation within COPs. The backbone of professionals to any defense operation is generally believed to be the structure of GS civilian personnel that constitute a large percentage of the staff members of each organization. Initiatives aimed at information sharing and information management may be viewed by the GS civilians as threatening to their career as many such initiatives are unfortunately associated with business process reengineering. Many examples of process modernization and automation, staff streamlining, outsourcing and reductions in defense spending that have resulted in reductions in force provide an historical backdrop of fear in relation to management or leadership improvement forays.

Walker and Christensen (2005) proposed that COPs would do well and be a strong conduit for knowledge transfer if they could be incorporated or leveraged under the oversight of a project management center of excellence (COE). The COE theory adds the coordination,

knowledge capture and transmission role to the COP structure enhancing the personal knowledge held within the COP into corporate and organizationally held and managed knowledge (Walker and Christensen 2005). Walker and Christenson (2005) used a case study to show how a COP that evolved into a COE positively influenced project management effectiveness in a public sector organization that also used an EC-type training process.

2.5.2 Communities of Practice and Knowledge Management

Knowledge management research originally concentrated on that knowledge that is quantified and can be captured, codified and stored. Knowledge management is confused by some as information management, but effective knowledge for innovation and decision making is actually generated from information (Choo 1999). Recent attention has recognized that some knowledge cannot be captured, codified and stored. Hildreth and Kimble (2002) argue that an approach is needed to recognize that knowledge resides in people and that the current approach to knowledge management does not fully take this into consideration. Hildreth and Kimble (2002) view COPs as an avenue for capitalizing on the value of knowledge within people. COPs could provide an environment for interaction between people where knowledge is fostered.

2.5.3 Learning from Experience

Looking at Table 2-6, It can be seen that information is gained through many different means from both formal and informal information sources.

Table 2-6 Information Model

Formal Information Sources	Information Sources
<ul style="list-style-type: none"> • Required Information Use 	<ul style="list-style-type: none"> • Information Gained through Participation
<ul style="list-style-type: none"> • Information from Error 	<ul style="list-style-type: none"> • Information from Observation

This approach is similar to Schindler’s and Eppler’s (2003) discussion of debriefing methods being either process-based or documentation-based. Without the recognition that information is accessible for use, many projects forge new paths of learning without the benefit of what may be available for their use, either formally or informally. Just as Hall and

Andriani (2003) discovered, the importance of communication is significant in completing work effectively and succeeding through processes. Emotionally intelligent people communicate effectively thus potential exists for EI to contribute to organizational and project team learning through improved communication.

2.6 How the Learning Approach Relationship Relates to the Project Political Environment

Just as Buchel and Raub (2002) observed, the government/contractor IT project management community see COPs and knowledge management as just another flavor-of-the-month management fad. They fail to see the potential for retaining, sharing and acting-on the value in their most important resource: the personnel. The continued existence of boundaries that defeat the sharing of key knowledge hampers the flexibility and productivity of all members of that community. As Wenger, McDermott et al. (2002) pointed out, throughout industry, learning across corporation boundaries has become more common in the interest of market advantage. The defense contracting community is no exception. Loose teaming agreements are routinely established between contract firms to achieve greater appeal to possible government clients. Building a team resume with the breadth of demonstrated competencies is, on occasion, strongly supported by the ability to offer an integrated product or service package. Without the complete merger of firms, however, the sharing of knowledge is limited to the duration of the teaming effort. Though there may be some transfer of knowledge, in most cases, teaming arrangements are generally constructed to limit this possibility and therefore minimize the ability of a teammate to gain a competitive advantage for future contract renewal outside of the teaming arrangement.

2.7 The Defense Community

The defense community has a highly identifiable culture defined by symbols, heroes, rituals, practices and values (Spencer 1993). The strong, autocratic hierarchy of management that characterizes the defense industry encourages a strict authoritarian approach. The soft skills that make the mark of an emotionally intelligent manager are perceived in part as

beneficial to the defense manager (military officer or government official), but a line appears in the sand when team collaboration and empathic skill applications materialize (Goleman 1998). The application of authority is a constant; based on highly structured standards, instructions and doctrine. Indeed, the elimination of abstract thought is the goal of the established military culture. In a defense industry journal from 2001, established analyst and author David M. Keithly observed that by establishing doctrine the resulting context and framework assuaged the need to examine leadership style. It appears that the strict observation of doctrine alleviates the need for leaders to seek EI or to realize the power it contains (Keithly 2001).

In recent years, there have been some informal internal inquiries by members of the military involved in studies with the Defense Acquisition University (DAU) or those involved in advanced studies with other institutions that consider the impacts of the authoritarian style of leadership today. The evolution of war and the technologies applied is one area explored. Technology insertion requires the ability to be highly flexible and maneuverable as the rate of change in technology, during the last 20 years, has resulted in major technological improvements being made available in as little as six month intervals. The US Joint Chiefs of Staff (JCS) recognized the limitations of the authoritarian style in meeting the demands of the technological pace, noting that it obstructed flexibility and sapped the initiative needed at lower command levels to practice maneuver warfare in a conventional war (JCS 1997). Military training techniques continue to reinforce the requirements of doctrine rather than introduce the changing need for effective leadership reform to keep pace with technology (Vandergriff 1998).

2.7.1 Comparing Complimentary Communities

Entering the defense contracting community could seem much like travelling to a foreign country to some. The defense community, as an organization, has a long history and well established culture. Visible products of this culture are easily observed in the clothing

style, the stories told and the nuances within language (Schein 1992). Knowing the culture, anyone can approach the subject community in relative comfort. It makes sense that if you can speak the language relatively well and understand the traditions and cultural norms, your ability to comprehend and enjoy the differences between this and other cultures is going to be heightened. Ulmer (1998), in his look at military leadership, makes some very interesting comparisons. He first points out that there are three assumptions to be made before examining the comparison. Ulmer states that first a supportive, rational organizational climate is essential to attract, motivate, and develop high-quality people. Second, that such organizational climates are greatly influenced – for better or worse – by the values, insights, skills, and behaviors of the senior leadership of the organization. Last, that competition for high-quality people in business and industry, as well as the armed forces, is becoming increasingly stiff. Ulmer (1998) also acknowledges that affecting these assumptions is the ever-changing social mores making short-term employment arrangements more acceptable and the organizational instabilities in rapid up and down-sizing are all “conspiring to undermine long-term commitment to any organization” (Ulmer 1998, p. 14). Table 2-7 illustrates the break-out of this generalized view of the military community *best practice* in comparison to those of the corporate world.

Table 2-7 Contemporary Best Practice Comparison adapted from (Ulmer 1998)

Best Practice Standard	Ahead	In line with	Behind
1. Early opportunities for varied responsibilities can support leader development.	X		
2. Produce and articulate precept for leader behavior.		X	
3. Use developmental feedback and mentoring.			X
4. Measure organizational climate.			X
5. Educate leaders in the techniques for assessing the effectiveness of individuals in groups.		X	
6. Use multiple sources of input as the basis for promotion decision.			X
7. Provide systemic support for continuous learning.		X	

Looking at Ulmer's comparison information as a baseline for discussion, the military environment falls behind in some areas where this would be expected based on the lengthy history of authoritarian leadership and with some indication more recently of a changing trend. It does seem reasonable that the trend away from an authoritarian style would have a limit, as Ulmer observes, "obedience is correctly entwined with sacrifice and loyal commitment, and because warfare demands discipline, the need for hierarchical organization persists even in the shadow of the technological change" (Ulmer 1998, p. 37). St. Denis (2004-2005) concludes that a transformational approach to leadership in the defense community is not possible in an organization based on the practice of war. St. Denis believes that the military model is based on a strong leader follower relationship where independent thought and personal growth of followers is discouraged. Perhaps, the expected compromise will be a continuing trend toward a modified leadership model that will be neither purely authoritarian nor transformational.

It should not be overlooked that the business of defense is unlike that of the other type of business. In times of peace, a less authoritarian leadership practice can be exercised, aimed largely at retaining the high-quality personnel desired. In times of conflict, however, the mission of war requires the application of an authoritarian leadership style to achieve the necessary tempo and sacrifice.

2.7.2 The Defense Community Project Management Practitioner

Most professional military education institutions are focused on using the Blanchard and Hersey Situational Leadership Model (1982) for military management and leadership training (Yeakey 2002). The theory of situational leadership was developed by Hersey and Blanchard and classified the activities of most leaders into two distinct behavioral dimensions: 1) task actions and 2) relationship management. What they discovered was that individuals differ in strength between these two dimensions. Hersey and Blanchard (1982) went on to define maturity (in relation to a specific task performed) as the ability to set high,

attainable goals, the willingness and ability to act responsibly, and the education and/or experience of the members of the group. As shown in Figure 2-7, task members may exhibit high levels of maturity on one task and low maturity on another.

The fundamental nature of the Hersey and Blanchard Leadership Model is that when group members are exhibiting low maturity on task accomplishment, the leader must engage in high-task and low-relationship behaviors (one-way directive in nature).

The extensive use of this model was reviewed (US Air Force Air University Leadership and Management Program Advisory Group, 1994) with results indicating that, “While most were happy with the model as presented in the various schools, the group decided to review other models to see if they might better portray military leadership” (Waddell 1994 , p. 1). As Waddell points out, the leadership style of the military has been an on-going evolutionary process.

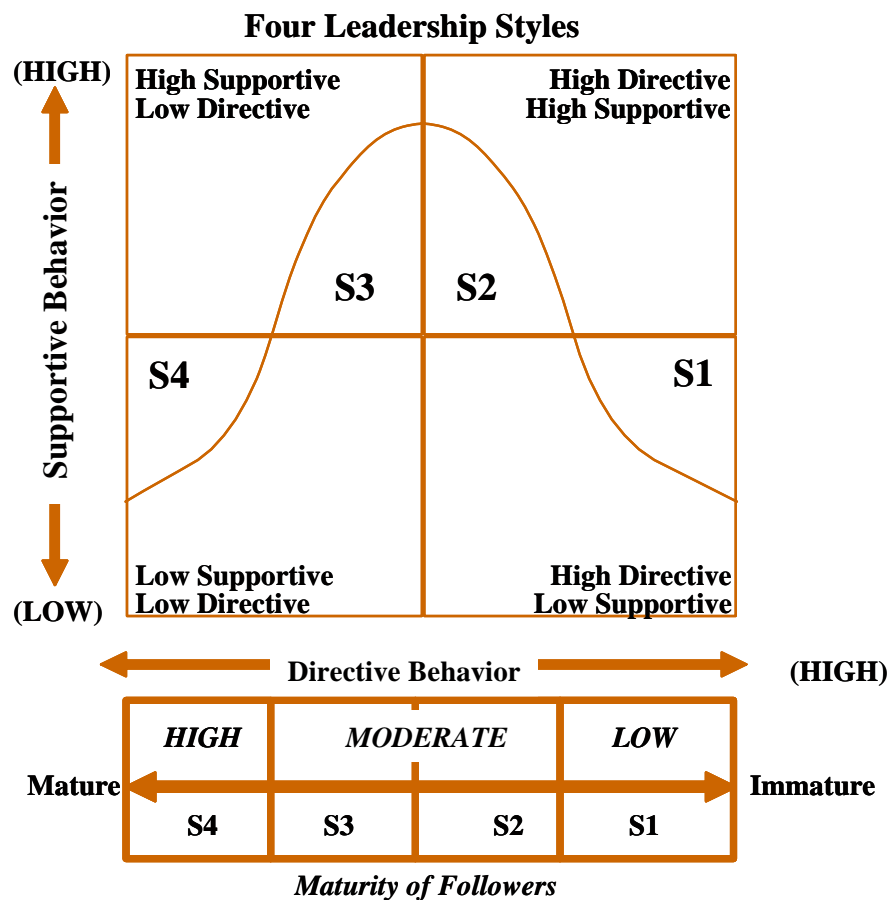


Figure 2-7 Hersey and Blanchard Leadership Model (1982, p. 200)

Just as Hersey and Blanchard (1982) concluded, the US military has come to realize that no one theory of leadership is wholly correct.

Hersey and Blanchard describe how leadership theory has evolved beginning with Frederick Winslow Taylor, whose scientific management movement in the early 1900s sought to improve production by increasing worker productivity through time and motion studies. In their book, Hersey and Blanchard observe that under classical theory the main focus of a leader is the needs of the organization not the employee. In the 1920s, Mayo (1995) examined the needs of the employee as a way to increase product output. A gap in leadership studies occurred between the periods of the US Great Depression and the end of World War II.

Following World War II and into the 1960s there were studies at Ohio State University, the University of Michigan, and the University of Iowa that addressed task orientation and relationship behaviors based on the leadership role. Each study developed unique descriptive terms, but fundamental to each was the relative authority given to the employee (follower). Also in the 1960s, D. MacGregor's Theory X and Theory Y provided a framework for examining the attitude of the leader concerning their followers.

The US DoD sought a method to further empower productivity in employees through Total Quality Management (TQM) in the early 1990s. TQM was approached as a comprehensive and structured method to organizational management, seeking to improve the quality of products and services through ongoing refinements in response to continuous feedback. More recently the DOD has been using an Integrated Product Team (IPT) approach to projects, attempting to have multi-functional teams work toward decisions based on timely input from all members of the team.

These leadership trends encourage the employee to become an active participant in the work effort rather than the passive individual expected only to follow senior leadership

direction from the purely authoritarian model. The model (Figure 2-8, adapted from Waddell (1994, p.1)) shows how the dominant leadership style is being gradually changed over time within the military under the influence of these new approaches to managing, with IPT the most recent of these influences. This changing management style, influencing changes in the total work environment, requires more input by employees. This in turn demands of defence force personnel that they act accordingly. EI will assist defence force personnel to operate more effectively within the new culture.

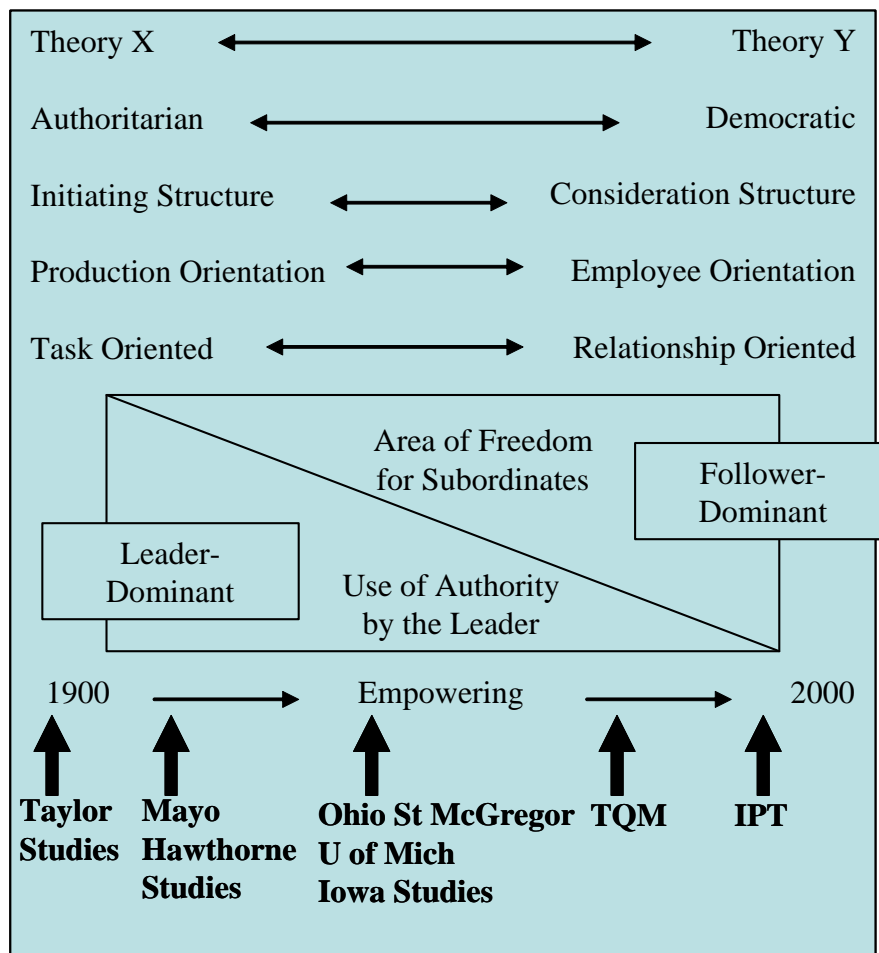


Figure 2-8 Generalized Leader-Dominant to Follower-Dominant Chronology adapted from (Waddell 1994)

Figure legend: IPT = Integrated Product Team TQM = Total Quality Management U = University

IPTs were introduced into the US defense acquisition community beginning in the late 1995 timeframe and continue to be the processes basis for acquisition in the community

today. These cross-functional work groups are seen as having four key components for success:

- They must capitalize on the strengths of all participants in the process to develop projects with the highest opportunity for success
- They must foster early and active team member participation
- They are intended to transform historically adversarial roles into productive partnerships
- They will place renewed emphasis on the importance of working as a cross-functional team to maximize overall performance (Ferrara and Johnson 1995)

Training specifically for military officers scheduled to perform as a PM is generally provided through the US Secretary of Defense sponsored DAU. A strong emphasis is placed on all junior level officers attending the primary training (Acquisition 101 – Fundamentals of Systems Acquisition Management) before being assigned as a PM. As prerequisites, students must have completed the second level of Acquisition training (ACQ 201 – Intermediate Systems Acquisition) before entering the Program Management related training courses (DAU 2002).

2.7.3 Authoritarian Carryover in the Defense Contracting Project Management Environment

The authoritarian leadership style is not as easily discarded as the uniform when military members leave their active military status, generally through resignation or retirement. Many prior military members enter the defense contracting workforce. Defense contracting companies find it advantageous to bring the influence and corporate knowledge of prior military personnel into their corporate community for the potential new business and to take advantage of sympathetic camaraderie. Acting in terms of an authoritarian leadership driven culture for as many as 20 years, these new defense contract community PMs or team members tend to bring their military culture with them. The commanding leadership approach tends to be very ineffective in many situations. The organization's climate takes on

the characteristics of the military climate from which it originated. Employees act in standard, instructed and established patterns that result in repeated errors, inefficiencies and lack of economy. Employee attitudes reflect the costs of a destructive management approach. The resulting culture is one in which people stop questioning how and why things are done and follow a prescribed pattern, driven by inflexible rules and policies (Goleman, et al., 2002). Indeed, employees are expected to operate in a non-EI manner.

2.7.3.1 Cultural Breakdown

One key dimension in identifying an organization that imports a military legacy by hiring former military members is the internal struggle caused by the emergence of individualist cultures. The military legacy establishes a masculine, low uncertainty avoidance expectation within the community, or a collectivist culture (Hofstede 1991). Hofstede says that collectivism communities base their societies on extended families; social networks define the people's identities, and everything is organized in terms of groups. With succeeding generations of management from the military community, a profit motivated, non-military organization (such as the defense contracting community) falls prey to insecurity and loss of identity. The *self* becomes the focus of all decisions and impact of all actions. This loss of identity is likely the result of the falling-away of strict doctrine from which to base the continuing authoritarian leadership. The military environment had for many years prior to moving to defense contracting organizations provided a measurable degree of security, a relatively low level of competitive pressure and, although there has been a migration of leadership doctrine, many military leaders continue, to a large extent, to micro-manage and over-control subordinates in the organizational structure (Matthews 1998).

2.7.3.2 Resistance to External Influence

Another dimension that appears to be identifiable as a symptom within the defense contracting community and a legacy of military style management within a non-military organization is a strong resistance to new ways of doing business. Managers with leadership

skills that have been focused or limited to a largely authoritarian style could face a lack of style flexibility, otherwise possible through EI competencies, to guide their team through continual change that characterize a competitive, for profit, business driven organization (Goleman 1998). Competitive pressures continually raise the bar for service and/or product providers. A lack of flexible leadership ability to set the pace and example for the organization to follow effectively results in a failure to adapt to new directions. Many organizations successfully operate at status quo for a long period. Others face continual pressure to achieve the desired state with varying degrees of success depending on the ability of the organization to learn through the process rather than concede to direction. Those that learn from the process are likely to benefit from the change and face less disruption from future changes.

2.8 Supporting Theories

The retention of an authoritarian leadership style in the military environment is reinforced by the cultural requirement to *win* the conflict, battle or war. Focusing on succeeding in crisis motivates a sense of reaction within crisis. A continuing sense of superior strength or sense of power may hold up the saying that *power tends to corrupt*. An interruption in feedback lends itself to a lack of discovery and growth in leaders. As leaders gain power, they may begin to screen out negative feedback. At the same time, those around them seeking to share in their power begin to filter out the negative and enhance the positive. The end-result is a leader with an inflated positive feedback loop and little or no negative feedback for balance. All powerful, this leader takes on what Chaleff (1995) refers to as the *King's disease*. According to Chaleff, power will tend to interrupt feedback loops (positive and negative) with an increasing tendency for people to censor information to ensure the leadership hears what they want to hear, rather than more honest and open communication to round-out reality. EI would make leadership aware of the benefits of honest and open

communication with its ability to identify causes of potential problems upon which action may be taken before negative effects are felt.

2.8.1 Defining Steps toward Cultural and Leadership Change

The process of culture and leadership change requires the application of change management processes. Several things affect the change management style: these primarily being the size of the organization, the drive behind the desired change, and the level of sophistication that is either affordable or appropriate to the organization (Greenwood and Hinings 1996; Tchokogue, Bareil, Duguay 2005). Kotter expressed the opinion that leadership is a life long endeavor requiring the development of skills and that management is about coping with complexity while leadership, by contrast, is about coping with change. He explored the thought that our time invested in the workplace is so significant that the investment made in developing our skills ultimately determines whether individuals live up to their professional potential (Kotter 1996).

One way to turn around an organization populated with an individualist culture and maladaptive behavior toward change is to affect a general shift in the established cultural norms. In order to achieve this shift of organizational norms, the norms must first be identified and understood (Kanter, Stein and Jick 1992). This identification and understanding is the first step toward a cultural and leadership change. Recognizing that people are a product of their skills, experience, attitude, and motivation allows definition of the second step toward change. Exercising a combination of participative (see Figure 2-9) and directive (see Figure 2-10) change, depending on the characteristics of the norm under consideration, provides the leadership some choice with respect to the leadership tool or styles. As there is no single best approach for managing, the strategies chosen must fit the environment to be successful. Just as with leadership approaches, the appropriate strategy for change management depends on the situation (Hersey and Blanchard 1982).

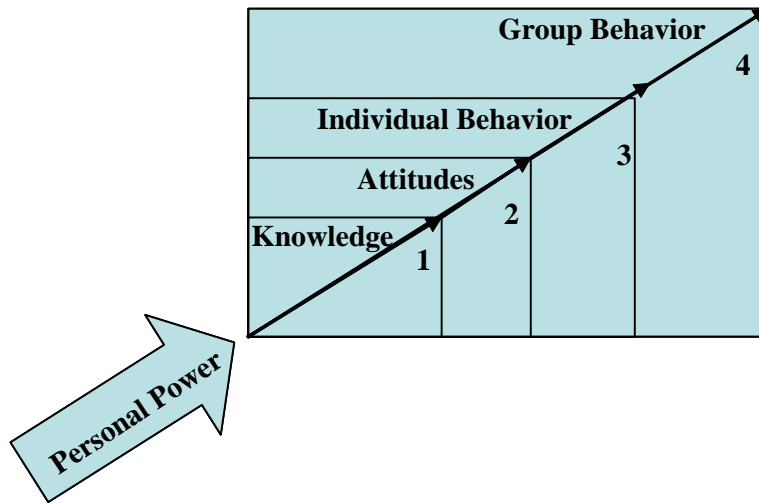


Figure 2-9 Participative Change Cycle adapted from (Hersey and Blanchard 1982)

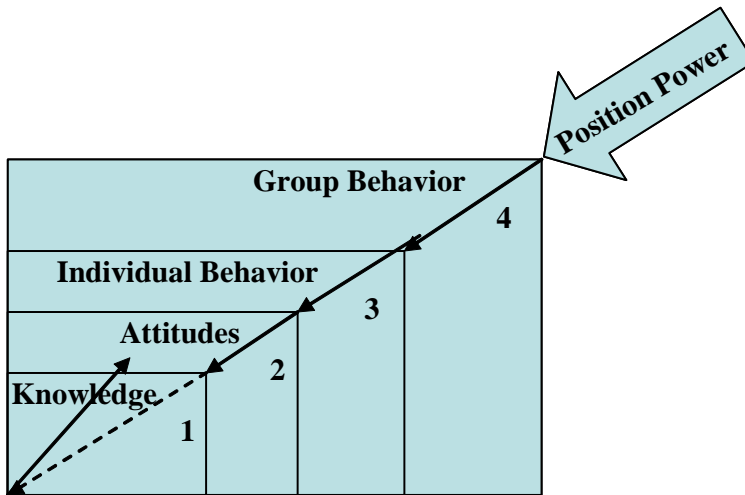


Figure 2-10 Directive Change Cycle adapted from (Hersey and Blanchard 1982)

Perhaps the most important step is change reinforcement support. Continuation of the new and more positive norms is important to effect change. Supporting the new culture must be an on-going practice or the groups involved will discount the cultural shift. Creation of some positive impact on a majority of the organization’s members is necessary to begin the desired long-term change in culture and leadership. It would be beneficial to incorporate a reflective learning technique such as *action learning* to measure any change (Walker 2001a). Affecting this type of cultural change in the defense contracting industry could be especially helpful as their competitive survival will depend on the ability to bring about change from the autocratic, inflexible military management style to leverage the many management styles

available to achieve the level of performance excellence of a for-profit organization in a highly competitive contracting industry. This will demand of individuals' new and different ways of acting.

2.8.2 Introducing Emotional Intelligence to the Organization

Studies have been performed that reveal a strong relationship between superior performing leaders and emotional competence (Cavallo and Brienza 2002). Based on the theory that emotional competence differentiates successful leaders from unsuccessful poor leaders, I believe that this theory can be expanded to the statement that - - emotionally competent cultures differentiate successful organizations. Spurred on by the research and writings of Daniel Goleman in *Working with Emotional Intelligence* (1998) and *Primal Leadership* (Goleman, Boyatzis et al. 2002), my research will examine the potential improvement in terms of job satisfaction and work performance within the context of a defense project management setting, measuring these elements prior to and after the introduction of the concept of EI.

2.8.3 Linking Emotional Intelligence Theory with its Impact upon Project Management and Job Performance

The ability to manage feelings and handle stress is an aspect of EI that can be important for success. EI has as much to do with knowing when and how to express emotions as it does with controlling them. Empathy is a particularly important aspect of EI, and research has shown for years that it contributes to occupational success.

There is a compelling argument that EI is important for success in work and in all other areas of life. However, this notion is somewhat simplistic and misleading. As a recognized expert in this area, Goleman, et al. (2002) argued that by itself, EI is probably not a strong predictor of job performance, rather it provides the bedrock for competencies that are strong predictors. Goleman, et al. tried to represent this idea by making a distinction between EI and emotional competence. Emotional competence refers to the personal and social skills that lead to superior performance in the world of work. Goleman, et al. (2002) argue that

emotional competencies are linked to and based-on EI and that a certain level of EI is necessary to learn the emotional competencies. In some cases, the ability to recognize accurately what another person is feeling enables one to develop a specific competency such as influence. Similarly, people who are better able to regulate their emotions will find it easier to develop a competency such as initiative or the drive behind achievement. Ultimately, it is these social emotional competencies that people need to identify and encourage in our defense community project management cultures if people are to improve measurable performance and general job satisfaction.

2.8.4 Emotional Intelligence and the 4 I's in the Bass Avolio Model of Leadership⁹

The Bass Avolio Model of Leadership identified four components of transformational leadership – *charisma, inspirational motivation, intellectual stimulation and individualized consideration* - and describes the characteristics of each of these components and the environment in which they are likely to occur (Bass 1998). In terms of practice, Bass' (1998) transformational leadership inspires others to excel, giving individual consideration to others, and stimulating people to think in new ways. The transactional leader, in comparison, tends to maintain a steady-state situation and generally gets performance from others by offering rewards (Bass 1998).

Transformational leaders (motivating followers by exchanging rewards for services) apply something more than a structure of simple exchanges or agreements. They behave in ways to achieve superior results by employing one or more of the four (4 Is) transformation leadership components such as charismatic leadership (or idealized influence), inspiration motivation, intellectual stimulation and individualized consideration as shown in Table 2-8 on the next page (Bass 1985).

Transformational leaders act to improve their followers' understanding of the situation, strive to raise their awareness of what is good for the whole group by taking

⁹ The number "4" is not spelled out to reflect accurately the Bass Avolio referenced information.

proactive measures, and motivate followers to perform tasks beyond their own expectations. Inspirational motivation takes place when transformational leaders behave in ways that motivate and inspire those around them in ways that give meaning and challenge to the work (Bass 1998). When a transformational leader stimulates a follower’s efforts to be innovative and creative by questioning assumptions, reframing problems and approaching an old situation in new ways; they provide intellectual stimulation. The practice of individualized consideration happens when new learning opportunities are created along with a supportive climate (Bass 1998).

Table 2-8 4Is Transformational Leadership Components taken from (Bass 1985)

Transformational Leadership Component	Characteristics	Fostering Situation
Charisma (Idealized influence)	<ul style="list-style-type: none"> • Depends on the follower as well as the leader • May have an emotional impact for followers beyond the norm • Requires that followers endow the leader with great loyalty 	Acute and chronic crisis
Inspirational Motivation	<ul style="list-style-type: none"> • A subcomponent within charismatic leadership • Often inspired by a collective attitude • Leader focuses on the arousal and heightening of common motivation 	Situations of low morale, need for action orientation or confidence building
Intellectual stimulation	<ul style="list-style-type: none"> • Stimulates followers to give more effort • Leaders ability to forecast and visualize a long-term strategy (imagine non-existing states) 	Periodic crisis. Serious problems or deficits impacting performance or effectiveness.
Individualized consideration	<ul style="list-style-type: none"> • Encourages responsibility to get maximum performance • Selection of subordinates who can take responsibility • Testing for performance or for consensus building 	Periods of development. Promoting familiarity or contact

Looking at the qualities of the transactional and transformational models, the best form of leadership is perhaps both. Transformational leadership styles augment the effectiveness of transactional leadership; they do not replace transactional leadership. It seems reasonable to believe that most leaders could benefit from the full range of leadership abilities that includes both transformational and transactional factors.

2.8.5 Leadership Styles

According to Goleman, et al. (2002), the most effective leaders exercise one or more of a collection of six distinctive approaches to leadership. The ability of a leader to move between the various styles allows for leadership flexibility in varying situations. Creating performance-boosting resonance is stimulated by the visionary, coaching, affiliative, and democratic styles (see Table 2-9). While the remaining two styles, pacesetting and commanding, provide necessary tools that, Goleman points out, “must be used with caution for best effect” (Goleman, et al. 2002, p. 71). An emotional intelligent leader will possess the understanding and empathy necessary to know when to use any one of the styles to achieve desired goals.

Table 2-9 Leadership Styles in a Nutshell (Goleman, Boyatzis, and McKee 2002)

Leadership Style	How it Builds Resonance	Impact on Climate	When is it Appropriate
VISIONARY	Moves people toward shared dreams	Most strongly positive	When changes require a new vision, or when a clear direction is needed
COACHING	Connects what a person wants with the organization’s goals	Highly positive	To help an employee improve performance by building long-term capabilities
AFFILIATIVE	Creates harmony by connecting people to each other	Positive	To heal rifts in a team, motivate during stressful times, or strengthen connections
DEMOCRATIC	Values people’s input and gets commitment through participation	Positive	To build buy-in or consensus, or to get valuable input from employees
PACESETTING	Meets challenging and exciting goals	Because too frequently poorly executed, often highly negative	To get high-quality results from a motivated and competent team
COMMANDING	Soothes fears by giving clear direction in an emergency	Because so often misused, highly negative	In a crisis, to kick-start a turnaround, or with problem employees

2.8.5.1 The Visionary Leadership Style

The visionary leader is able to share and direct others toward an end state. A leader gives meaning to the work being performed and with a strong degree of transparency is able to draw in others to share that vision and achieve company goals. Depending on the emotional competencies of a visionary leader they could combine levels of self-confidence, self-awareness and empathy to fine tune their approach in projecting direction and inspiring

commitment. The research performed by Goleman et al. (2002) suggests the visionary leadership approach is the most effective in terms of working through shared objectives and the creation of inspired work.

2.8.5.2 The Coaching Leadership Style

The coaching leader attempts to bring out the best in their staff by tying the daily work routine to the team's long-term performance goals. A coach will leverage the concept that people will gravitate toward the work that they like the most and motivate the employee to improve their unique strengths and eliminate their weaknesses to further personal performance. Coaches establish personal communication links with members of their staff and enjoy more open performance feedback. Employees tend to see this as beneficial toward their own career objectives rather than being directed solely at the interests of their supervisor (Goleman et al. 2002).

2.8.5.3 The Affiliative Leadership Style

The affiliative leader places emphasis on the emotional needs of the employee. Affiliative leadership is based on maintaining and enhancing harmony, good morale, and strong personal relationships. These leaders foster and nurture their people, valuing the downtime in the work place as the time when needs and feelings can be shared (Goleman et al. 2002). This style is very effective in building team resonance.

2.8.5.4 The Democratic Leadership Style

Democratic leadership is a shared-leadership style. When the leader is either not clear on the direction to be taken or not empowered to make the decision without team backing, the democratic style works to achieve direction and gain support. The democratic style will also work in soliciting ideas and realigning work vision. According to Goleman et al. (2002), the democratic style is useful but has a down-side if overused. Democratic leaders may tend to

delay critical decisions awaiting yet another idea. Too many meetings to discuss or review information may tie-up resources unnecessarily.

2.8.5.5 The Pacesetting Leadership Style

The pacesetter leader sees high performance (working better and faster) as the end goal. This leader can quickly identify anyone who is not performing up to expectations and if they do not correct the issue, will step-in to save the performance from failure. The pacesetter may not clearly state guidelines and expectations, leaving employees to guess. A low morale level can result when the pacesetter leadership style is overly applied. Goleman et al. (2002) observe that although the pacesetter style is very effective in driving teams toward a deadline, the anxiety this style generates may result in the need to perform damage control once the goal is achieved to retain high-performing employees.

2.8.5.6 The Commanding Leadership Style

Sometimes referred to as the coercive style (Goleman et al, 2002), the commanding leadership style is one of issuing direction and expecting immediate performance that meets the direction given. Of all the leadership styles presented, the commanding leadership style is the least effective according to Goleman et al. (2002). The commanding leader is not approachable and is unconcerned about the emotional well-being of the employee. The morale of the team in a normal work environment is, over time, likely to spiral downward. Commanding leadership is based on the top-town military model of leadership, generally viewed as most appropriate for the battlefield.

2.8.6 Emotional Intelligence and the Application of Power

Transactional leaders gain power, as their subordinates learn what they must do to gain rewards or avoid punishments. Transactional leadership is based largely on positional powers. The transformational leader works to induce the performance of followers through negotiating an exchange relationship or reward for compliance with the goal of attaining higher levels of satisfaction and effectiveness among those being led (Bass 1985).

Transformational leadership is based on the use of referential, information and expert forms of power (Walker 2001b).

Power is the influence or potential influence over things or events (including attitudes and behaviors). According to Yukl (2002), the target (thing or event) must be understood before the power being exercised can be understood. Power is dynamic and the way it is used influences the dimensions of power achieved or the degree of influence upon the target behaviors and attitudes. Table 2-10 provides a taxonomy to classify the different types of power according to (Yukl 2002).

Table 2-10 Power Taxonomy (French and Raven 1959)

Forms of Power	
Positional	
Coerce	- Based on fear. Failure to comply results in punishment
Connection	- Based on connections to networks or people with influential or important position inside or outside organizations
Reward	- Based on ability to provide rewards through incentives to comply is expected that suggestions be followed
Legitimate	- Based on organizational or hierarchical position
Referent	- Based on personality traits such as being likeable, admired, etc., thus being able to influence
Information	- Based on possession or access to information perceived as valuable
Expert	-Based on expertise, skill, knowledge, which through respect influences others

Beyond the definition of a leader’s style and the type of power, there remains the added dimension of *emotion*. Leaders have always had the ability to compel their followers emotionally. When people are pushed emotionally in a positive direction toward feelings of enthusiasm, performance can soar. On the other hand, for people that are driven negatively, the rancor and anxiety cause performance to move in the opposite direction (Goleman et al., 2002). When leaders drive performance in a positive manner, it is called *resonance*; a drive to the negative is called *dissonance*.

2.8.7 Emotional Intelligence and its Impact on Trust and Commitment

Creating an environment where leadership begins with the communication and joint ownership of mutual objectives begins the process of building the other essential elements necessary to grow a trusting and committed organization (partnership). Anchoring an

organizational strategy to achieve tactical and strategic project goals based on a cooperative teamwork partnership creates a foundation for success. Beginning with a simple model for partnering, Figure 2-11 illustrates those elements that surround the core of partnership (team spirit).

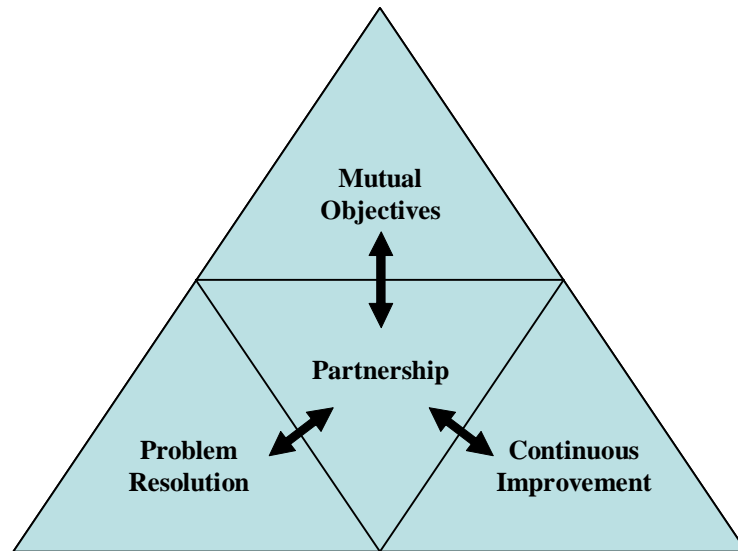


Figure 2-11 Three Essential Features of Partnering (Walker and Hampson 2002) based on Bennett and Jayes (1995, p. 5)

All three of the surrounding elements require trust, commitment, honesty, integrity, good communications skills and use of technologies between the partners (McAllister 1995). As explained by Walker and Hampson (2002), the element of mutual objectives invites discussion on trust and commitment. Problem resolution leads to *discussion of trust and commitment through trust*, based upon performance certainty (given that the problem resolution is not adversarial in nature). This element also invites conversation regarding the application of power through management or leadership. The last element, continuous improvement, allows for organizational growth through performance measurement and learning without fear of repudiation or falsification.

2.8.8 Emotional Intelligence and its Influence on Leadership/Followership Styles

Flexibility in the application of EI is required to meet individual differences. People are driven by many different influences. Money may drive some, while others are more

concerned with job security. Understanding what elements of the environment are predominant in motivating better performance is difficult. A continual process is needed to provide performance assessment for leaders to better understand the reactions and feedback from their subordinates. In addition to analyzing and understanding the conditions involved, leaders need to bring with them a number of skills for the purpose of directing, changing and controlling behavior. Blanchard and Hersey (1982) contend that an adaptive leadership style allows a leader to avoid the trap of a one-best-way management practice, recognizing that leadership hinges on ever-changing situations and resources.

2.9 Summary of Chapter

A current literature review of project management including the concepts of success and failure, the function of a COP as a politically-based method for learning, and the benefits of connecting pockets of expertise is provided. Literature defining and exploring emotional intelligence is summarized within this chapter and the potential for impact to the areas of job performance and job satisfaction considered. Literature was referenced to establish the basis for exercising concepts and theories ranging from sharing information within and across communities to the recognition of innate human behaviors to effect change within project environments. Understanding the political and cultural aspects associated with the case study environment helps to develop a framework for effecting cultural and leadership changes through the introduction of behavioral information and techniques. The environment in which the study was conducted is described in Chapter 3.

3 THE STUDY ENVIRONMENT

Project Management in the context of the US defense industry is reviewed in terms of the leadership, followed by the development of a model representing the study environment in this Chapter. Learning and information sharing are discussed including the limitations within the environment being studied.

3.1 Project Management in the US Defense Industry

Most defense PMs adhere closely to the project management context defined by a variety of military standards and the PMI PMBOK. In my experience, defense contracting firms support the defense business operating base practice and follow a similar style of project management. These professionals work in a competitive (for profit) industrial sector as vendors of products, technologies, and professional services in support of defense programs.

3.2 Leadership in Defense Industry Projects

The leadership hierarchy of the US defense industry operates more frequently under an authoritarian style of leadership by design (Waddell 1994). As such, it is understandable that the defense contracting community, known for hiring large numbers of former or retired defense employees, would foster an authoritarian style more so than firms in non-defense related industry. Within the defense community, former military personnel hired to fill the role of PM are likely to expect their staff members to do what they are told without question. As Waddell (1994) points out, the military model is that of the leader directing the progress of the followers to do the work and accomplish the mission – a unidirectional model. This unidirectional communication flow tends to focus on blame in the event of undesirable outcome rather than working to correct processes and events based on lessons learned. It is not surprising that the defense community (supported by an industry populated largely by former or retired military personnel) would tend to perpetuate authoritarian management and

leadership practices. My own experience as a US defense contractor supports this observation.¹⁰

The process by which the impact of leadership is measured tends to be in terms of economic loss or gain. The tax-paying stakeholder has the ability to influence the economics of the defense industry. However, the mission of defense is unlike that of any entity in the commercial sector. Affecting a management renaissance for economic efficiency, strikes at the core of national defense. Therefore, it is unlikely that the military-machine customer of the defense contracting industry will be establishing a new management model (Ulmer 1998).

3.3 The Project Management Team

Politics, in terms of this research, relate to the diversity of personnel within the defense community. Within project teams, it is commonplace to find staff members that are:

- Military government members (active duty officers [commissioned] and enlisted [noncommissioned]/reserve officers and enlisted) from any of the three military services (Air Force/Army/Navy),
- US government service employees (including GS and Senior Executive Service personnel for the larger, higher risk program), and
- Defense contracts personnel from multiple services and products providing vendors.

The model in Figure 3-1, illustrates the complexity created as a result of this broad staffing mix. The political affiliations created by the cultural differences of each of these staffing resources create boundaries. Managing knowledge, sharing information and the entire learning process are unlikely to survive the legal and cultural boundaries. Financial goals and the protection of intellectual and relationship capital are strong participants in this model as well. This model highlights only a few of the political boundaries that impact the success of USTRANSCOM programs/projects.

¹⁰ Project Manager for CACI/CMS Information Systems Inc. and Doctor of Project Management candidate at RMIT University, Melbourne, AUS. Email contact returmer@caci.com

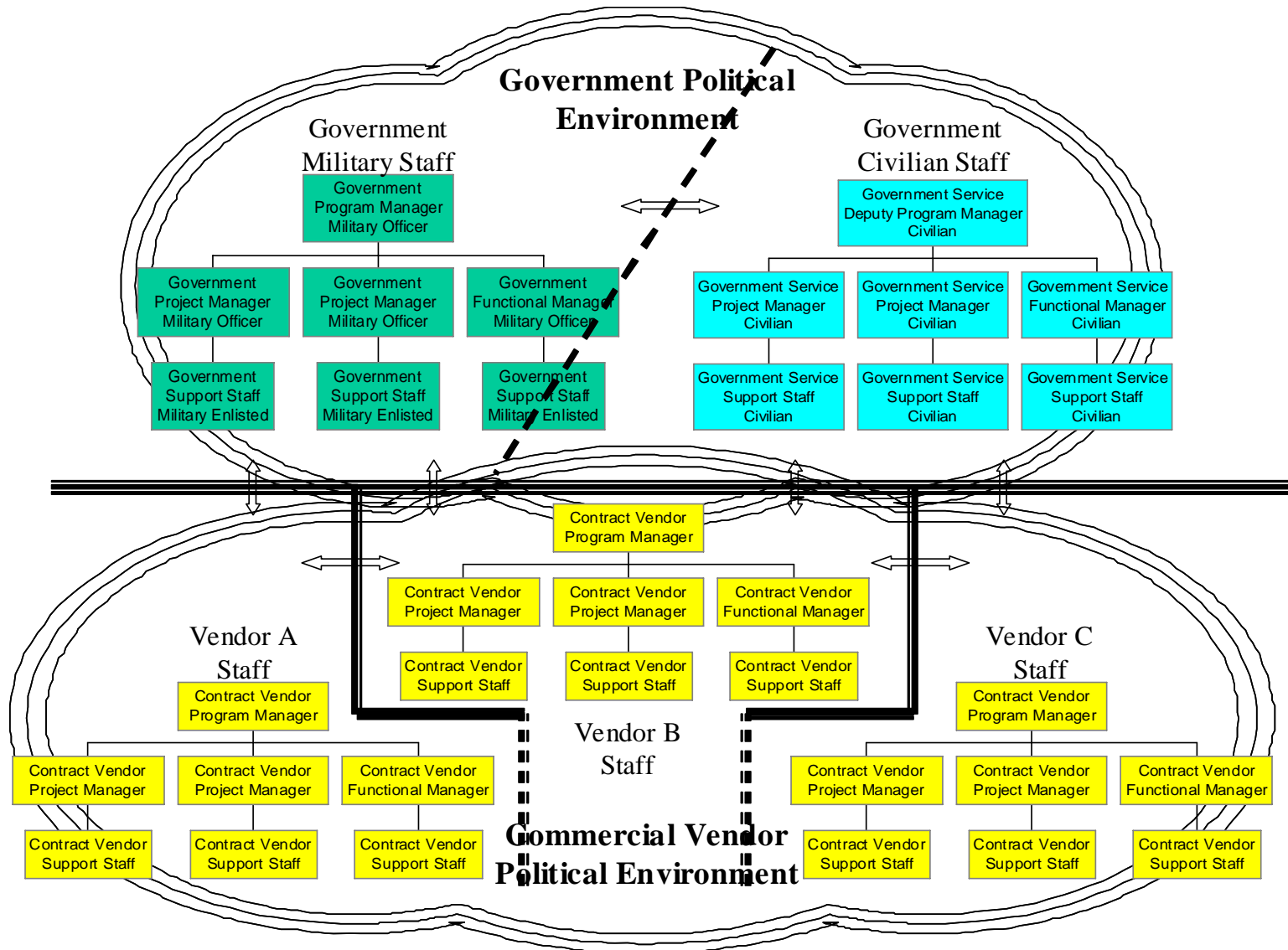


Figure 3-1 The Notional Defense Project Model

Working within these boundaries to achieve context of defense contracting; only those contract vehicles specifically exercised to supplement the immediate workforce of the government staff are allowed to share internal government and vendor information. There are two prominent drivers for this exclusionary behavior: 1) fear of the loss of job security and 2) protection of intellectual capital/proprietary information.

3.3.1 Researcher's Experience in Modelled Environment

As demonstrated in the Figure 3-1 model, the boundaries between government agencies, as well as those between contracting vendors, prevents open and cooperative dialogue. In my experience, explicit sharing of information or providing insight beyond the strict organizational boundaries is through professional connections maintained within small intimate networks. The overarching intent of this limited, cross-boundary release of information is to secure the future for the members of the specific group.

Based on the researcher's personal observations, adding and possibly supporting this back-drop of unsupportive staff structure are the innate qualities of the defense culture.

Exploring only a few:

- Government organizations are not motivated by profit, while the contracting companies that support them compete for business,
- Government staff (military and civilian) are appointed to program management positions to expand their experience as a professional rather than because they are well-trained program managers with a history of success, and
- The defense contracting personnel hired to provide services or augment program teams are often retired, former military and government personnel without benefit of commercial project experience or additional project management training.

3.3.2 Conceptual Model of Learning and Information Sharing with the US Defense Contracting Community

Several characteristics of the US defense community make the business of project management unique compared to the commercial community. Although the US government has made many inroads to cost savings, the strong motivators involved in a profit making industry are absent. The rotation of military members from combat to non-combat work locations can result in untimely turnover of personnel in management assignments. Information sharing is stifled by competition and a lack of focus on financial benefit.

3.3.2.1 Addressing Recurring Business Problems

Considering the second of multiple types of value addressed by Wegner (2002), boundaries across teams is the name of the game in the defense industry both within the government and the contracting communities. Without the strong motivator of increased corporate profit, the government environment suffers from the prodding of initiatives and directives, with the intent of improving the productivity, and lowering the cost associated with projects across the board. Military officers routinely fill the PM role for government programs within the defense community. Professional development of these military officers and the military mission drive the routine rotation of this management experience and skill to come and go, often at a critical time in the project. It is certainly to the benefit of the defense contracting industry to adopt sound repeatable management practices to support management transitions. Of significant value in this area, is the Carnegie-Mellon System Engineering Institute (SEI) Capability Maturity Model (CMM) concept (Paulk, Curtis, Chrisses, Weber 1993). The CMM provides a basis for establishing process models and operational frameworks against which many organizations have defined their operational core competencies.

3.3.2.2 Raise Working Units to the Highest Standard

The accuracy of professional performance information sources is a highly political and emotionally charged topic. Within the government environment, the civilian sector is supported by a union organization which dictates performance evaluation factors and strictly controls the use of performance information with respect to impact on union members (all government civil service personnel) (Friel 2003). This knowledge related issue could be addressed within the defense contracting community through Capability Maturity Modeling (CMM) assessments or changes to the evaluation criteria for performance across working units. The standardization of processes is aimed at bringing others up to the highest standard.

CMM refers to a process improvement approach based on a family of process models. The Capability Maturity Model was published by Watts Humphrey (1989) in *Managing the Software Process*.¹¹ These CMM process models are a structured collection of practices that identify characteristics of effective processes. The SEI CMM is used to assess an organization on a scale of five process maturity level that assigns a rank for the organization in line with its standardization of work processes within work areas (SEI 2007).

When a model is complete it provides:

- A place to start
- The benefit of a community's experience history
- A common language and a shared vision
- A framework for prioritizing actions
- A way to define improvement for the organization (SEI 2007)

3.3.2.3 Link and Coordinate Activities and Initiatives with Similar Knowledge Domains

Each branch of US military service has taken on a unique evolutionary path for IT service. Within recent years, the proliferation of technology and associated increase in

¹¹ The CMM is no longer supported by the SEI and has been superseded by the more comprehensive Capability Maturity Model Integration ([CMMI](#)), of which version 1.2 has now been released.

security threat has resulted in the recognition of a need for standardization. The benefits of establishing this link between and coordination of products is most profoundly driven by the need to lower the Total Cost of Ownership (TCO). The defense hierarchy has taken the approach of establishing common operating environments and uniform information assurance approaches to streamline the cost and lower the operational threats that challenge this common domain (Defense 2003).

3.3.3 Discussion of the Model – Learning Approach Options

The model shown in Figure 3-1 is unlikely to change due to the complexity of politics and business competition involved. The benefit of knowledge sharing through communities of practice is unlikely to be effectively driven by a shared knowledge framework that would allow the US defense IT development community to gain a competitive advantage. Advocates for COPs and the added value of information sharing are looking for the benefits of backing the effort such as:

- Holism and humanism: the priority is to make better use of human potential rather than to downsize it
- A concern with growth and new possibilities by developing new knowledge
- Support to creative management practices, which result in new competencies
- Making good use of important technological developments such as networks
- Political and social support because knowledge drives economic growth (Drew 1999)

3.3.4 Reflecting on Defense Projects as Examples of Learning

The government, as a government (not for profit) entity, has little impetus to seek backing for the benefits of knowledge sharing explained in the previous paragraph. The enormity of the defense IT community is bound by the full scope of bureaucratic shackles. Incentives for performance, strategic objectives and competitive advantage all become diluted with time, lack of strong financial motivation and over-burdened leadership.

Beyond the bureaucracy, the ability to retain and reuse information is still a goal of USTRANSCOM. Recognizing the inefficiencies involved, there continue to be many initiatives built around the need to have good data resources for enabling decision support. Using my personal project management experience within the defense community for insight, three projects were considered. Each project was based on the need for knowledge, the recognition of a need for information sharing, and a drive for standardization. Despite their distinct similarities, one of the three experienced a significantly larger degree of general community-wide acceptance.

Table 3-1 provides a synoptic view of the three examples used for reflective comparison.

Table 3-1 USTRANSCOM Reflective Examples

Project	Project Type	Deployment of Application	Number of Staff Assigned (during development phase)	Approximate 15 year Lifecycle Value	Schedule History	Degree of Politically Driven Oversight
Project A *partial application	Information Technology	world-wide	200 – 300	\$650M	Significantly behind original schedule	Very high
Project B	Information Technology	world-wide	100 – 150	\$400M	On schedule through Full Operational Capability	Low to Moderate
Project C	Information Technology	world-wide	250 – 350	\$1,100M	Significantly behind original schedule	Very high

Note: * The scope of Project A goes beyond the boundaries of USTRANSCOM. Only that portion of the application associated with USTRANSCOM is considered.

All the projects listed in Table 3-1 continue to be in either a state of development or are in operation with on-going maintenance. I worked as a project management advisor for no less than two years on all three projects when each was in the development phase and during the first year of operation for projects B and C. Entering its third year, Project A

remains in the development phase. Each project met the characteristics described in paragraph 1.3 in that a PM was given:

- An assignment with scope still undergoing definition, with a
- Defined set of resources, and the
- Completion date was predetermined before resourcing

3.4 The Limitations of Learning and Information Sharing in the Defense Community

The limitations of the defense contracting community for information sharing strongly impede the possibility of successful COP implementation. However, many of the benefits of a COP can be realized in those projects that experience domain, community and practice. In other words - those projects where the members recognize the particular problem they are working toward resolving with the effort involved; where the development of a common vision allows for the building of trusting relationships; and where a common or complementary foundation of knowledge allows team members to work together effectively to create a synergistic effect to move forward. These qualities of domain, community and practice as defined by Wenger, McDermott et al. (2002), *Cultivating Communities of Practice*, need not be isolated to the realm of communities of practice. Perhaps in rare circumstances, these qualities can be successfully exercised to benefit the field of project management.

3.5 Summary of Chapter

This chapter provided detailed information on the research setting. The nuances of project management in the US defense contracting industry create some complex challenges. The trust and openness in the sharing of information can be defeated by the competitive nature of and between commercial vendors supporting the government and the lack of appreciable incentives within the government personnel structure. The case study conducted, and the manner in which it was carried out, will be explained in full in the next chapter.

4 CASE STUDY PREPARATION AND FRAMEWORK

This chapter describes the case study that forms the basis of this thesis. Information covered includes the way in which the case study was planned and conducted.

4.1 Case Study Environment and Planning

The research case study environment documented within this dissertation was conducted within a program that is representative of an acquisition of advanced commercial technology for the purpose of upgrading management capabilities within one or more departments of the US federal government. The Commander, USTRANSCOM, provided authorization for the completion of this research and in accordance with that authorization, the actual name of the program and any specific information on participants is being treated with strict confidentiality.

The overarching program will be referred to as *Project A* when referenced in the body of this dissertation. Project A is a joint service undertaking involving elements of the USTRANSCOM and two partner organizations.¹² Within this environment, the acquisition of a large-scale automated information system requires the involvement of a myriad of oversight and acquisition authorities. The organizational structure of Project A becomes rather complex in broad scope and difficult to illustrate when considering the entire project framework. The assigned staff is located in many government and contractor offices across the US. To limit the complexity of the study, boundaries were drawn to focus on those elements of functional management that are within the scope and control of the USTRANSCOM effort and the associated program partners. Figure 4-1, illustrates the complexity of Project A. That portion within the octagon identifies the boundaries of case study data collection. Agent #1 reflects the USTRANSCOM functional manager, the USTRANSCOM deputy to the functional manager, and agents #2 - 5 represent the deputy manager for each of the partner organizations, and a representative of a secondary division of USTRANSCOM involved in

¹² Program acquisition was still evolving at the time of this study and the actual project construct expansion was expected to continue.

the technical aspects of the project. External to the octagonal boundary, the project framework includes agents for acquisition and contract management, product providers, and the breadth of project stakeholders for all participating project partners.

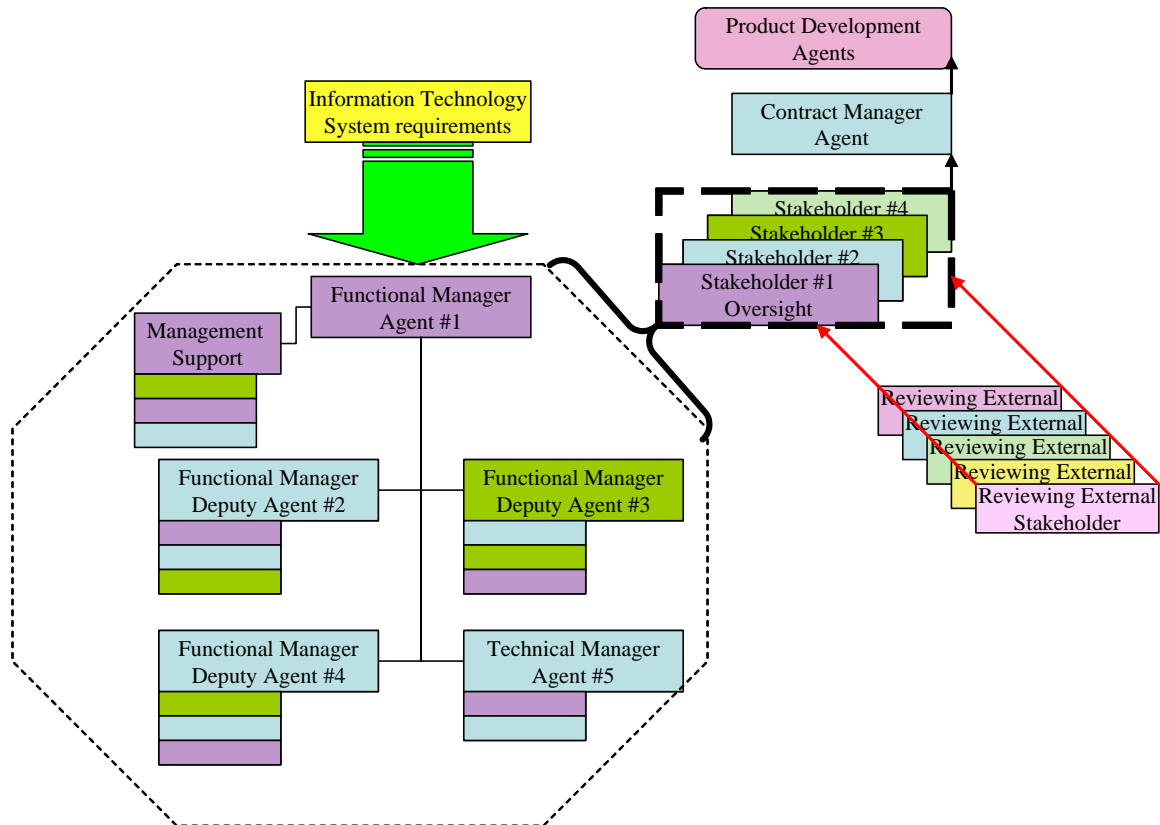


Figure 4-1 Project A - Complexity Illustration

Figure note: The illustration of the organizational elements outside the octagonal boundary is simplified to the management level.

4.2 Ethics and Host Organization Approvals for Case Study

Preparation for case study execution began with the statement of hypothesis as captured in paragraph 1.4.4. Prior to pursuing case study activities, the various approvals and agreements were prepared and processed for approval, as described in the following subparagraphs.

4.2.1 Ethics Approval

A Research Case Study Ethics Application titled *Determining the Impact of Emotional Intelligence in Project Management Leadership as a Measure of Performance Improvement* was approved as a Category 2 (Minimal Risk). A copy of the ethics application and e-mail approval dated 21 September, 2004 is provided as APPENDIX D.

4.2.2 Host Organization Approval of Research

Working through the appropriate legal representatives of USTRANSCOM, a Memorandum of Agreement (APPENDIX E - 1) with an addendum of a Non-disclosure Agreement (APPENDIX E - 2) were prepared and received the appropriate, authorizing signature before any research was performed.

4.3 Selection and Requests for Instrumentation

Instrumentation for measuring EI from the perspective of *self* and *peer*, job performance from the perspective of peer and job satisfaction from the self perspective were required. The idea was to gather information from a full circle of people in the test environment based on familiar work-groupings. These circles include the participant, their supervisor, subordinates and peers. As such, a 360-degree assessment is obtained.¹³ For those non-supervisory personnel participating, the measurement is considered a 270-degree assessment as the participant will not have subordinate raters. The tools were ultimately selected for their ease of use, proven validity and reliability, suitability for the study, and availability to the researcher (McEnrue and Groves 2006). The desired result was to collect a behaviorally-based picture of how others viewed participant competencies, while ensuring that the most suitable EI measures were selected that suited the operational and development environment of the organization being studied (McEnrue and Groves 2006).

4.3.1 Measuring Emotional Intelligence

Three general ways to measure EI were considered. First, the self-report is the most common way to measure things such as personality traits (Aiken 2002). Personality traits include warmth, empathy, anxiety, and so on. An example of a self-report test of personality question might be:

I feel overly criticized frequently.

¹³ 360-degree feedback systems collect performance information from all around the employee including their supervisor, subordinates, peers, team members, and internal and external customers as well as self Dessler, Griffiths, et al. (2004). Human Resource Management. P. Education. Frenchs Forest.

The ratings to select from for these items would be expressed using a response scale such as [Not True / Somewhat True / Very True].

Second, if a measure of people skills is desired, external sources of information can be queried from other people with whom the participants work to gather a peer-report. In this type of report, individuals were given a form to complete about a peer. An example of a question statement that they may be asked would be:

Manages emotions effectively?

Respondents are expected to provide answers using a response scale such as [Not at all / A little / A lot]. The categories of feelings may include items like [Angry / Sad / Accepting / Happy] that can be rated. And lastly, the data from self and peer-reports are combined to form a 360-degree assessment. As shown in Table 4-1, EI is tested or measured generally in terms of feelings and behavioral tendencies. There are several tools available for measuring EI including those listed in Table 4-2.

Table 4-1 Comparison of Different Emotional Intelligence Tests adapted from (Mayer, Salovey et al. 2002)

TEST	Mayer, Salovey, Caruso Emotional Intelligence Test (MSCEIT)	BarOn EQ-I	Emotional Competence Inventory (ECI)
Definition of Emotional Intelligence	Involves the ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth.	An array of non-cognitive capabilities, competencies, and skills that influence one's ability to succeed in coping with environmental demands and pressures.	Emotional competence is a learned capability based on EI that results in outstanding performance at work.
Testing Method	Ability measure	Self Report	Observer/Self

4.3.1.1 Tool Selection for EI Measurement

The EI measurement tool selected for this research dissertation is the Emotional Competency Inventory (ECI) 360: An all-around assessment of EI competencies. This tool was selected as the one that best met the needs of the research in terms of design, spectrum of coverage and ease of completion for participants.

The ECI 360 is designed to assess emotional competencies as defined by Dr. Daniel Goleman (1998) in *Working with Emotional Intelligence*, in Hay/McBer's Generic Competency Dictionary (1996), and in Dr. Richard Boyatzis' Self-Assessment Questionnaire (SAQ) (Sala and Boyatzis 2002).

The ECI 360 is based on an EI framework for recognizing our own feelings and the feelings of others, for managing those emotions and motivating ourselves (Goleman 1998). A competency is a set of related skills, attitudes, behaviors and knowledge that are:

- ❖ observable and measurable
- ❖ can be measured against accepted standards
- ❖ can be correlated with performance on the job, and
can be improved in training and development over time (Goleman 1998)

The instrument chosen, therefore, included all elements discussed in 4.3.1

Table 4-2 Emotional Intelligence Measurement Tools

Tool Name	Basis of Measure	Scale of Measurement	Method of Measure	Rating Types		
				self	peer	team
Mayer-Salovey-Caruso Emotional Intelligence Test™ (MSCEIT)	Total EI Score 2 area scores 15 Main Scores: - 4 branch scores - 8 task scores - 3 supplemental scores	Ability Based	Interval level response 141 items 30 - 45 minutes	X		
BarOn Emotional Quotient Inventory – EQ-i™	5 Composite Scales: - Interpersonal Scales - Interpersonal Scales - Adaptability Scales - Stress Management Scales - General Mood Scales	Preference/Ability Based	Interval level response 133 items 30 - 45 minutes	X		
Emotional Intelligence Appraisal™	4 Main Scores and a total EQ score: - Self Awareness - Self Management - Social Awareness - Relationship Management	Competency Based	Frequency based response 28 questions 7 – 10 minutes	X	X	X
Emotional Intelligence View 360 (EIV360)	Key competencies: - Self Management - Relationship Management - Communication	Interpersonal Behavior and Emotions	Frequency scale 70 Questions 30 minutes	X		
Emotional Competence Inventory 360	Full spectrum EI competencies	Competency based	Interval level 72 questions 20 – 30 minutes	X	X	

Note: Sources of tool information (1) The Emotional Intelligence Consortium, (2) Hay Group, (3) Consulting Tools USA, (4) Multi-Health Systems, and (5) TalentSmart

4.3.1.2 ECI 360 Research Application Request Process

The ECI 360 is a tool offered through the Hay Group. Hay Group is a management consulting and research firm offering customer service and consulting support in the areas of leadership and management. On-the-job performance is a specialty area for Hay Group, founded in the firm's long association with Dave McClelland (founder of McBer), which was acquired by Hay Group in 1985. I contacted the Hay Group in March 2005 and received the application materials to request the use of the ECI 360 for research purposes. The process of completing the application took several weeks, with submission of the package to Hay Group for consideration on May, 2 2005. A copy of the application, conditional use agreement, and e-mail acceptance are provided as APPENDIX F.

4.3.1.3 Hay Group ECI Criteria for Acceptance of Research Proposals

The request to use the Hay Group ECI 360 tool required that an application be submitted for consideration specifically addressing the following criteria and questions:

- ❖ The research is an important addition to the body of knowledge concerning EI.
- ❖ The proposed research method is considered sound.
- ❖ Will the method result in useful outcome in which there is high confidence?
- ❖ Is there an adequate sample size?
- ❖ If measuring change in ECI as a result of an intervention, can you clearly show the effect is related to the intervention and not other random effects?
- ❖ Have you allowed enough time for observers to notice a change in EI behaviors (typically a minimum of six to eight months)?
- ❖ Is the study linked to performance?
- ❖ Does the research have the potential to be published?

4.3.1.4 ECI 360 Overview

The ECI 360 is based on four EI clusters: Self-Awareness, Self-Management, Social Awareness, and Relationship Management. Table 4-3 illustrates how these four clusters are deconstructed into their associated emotional competencies.

Table 4-3 ECI 360 Cluster Descriptions

Cluster	Associated Competencies
Self-Awareness	<ul style="list-style-type: none"> • Emotional Awareness: Recognizing your own emotions and their effect • Accurate Self-Assessment: Knowing your strengths and limitations • Self-Confidence: Knowing your self-worth and capabilities
Self-Management	<ul style="list-style-type: none"> • Self-Control: Maintaining calm and clear-headed under stress • Transparency: Authentically open to the feelings of others • Adaptability: Adjust easily with change • Achievement: Set attainable goals and constantly seeking improvement • Initiative: Seize opportunities rather than wait • Optimism: Rolls with the punches and sees the glass as half-full
Social Awareness	<ul style="list-style-type: none"> • Empathy: Attuned to emotional signals. Good listener able to get along well with a diverse set of people • Organizational awareness: Politically astute • Service: Monitor customer or client satisfaction carefully, highly available to the client
Relationship Management	<ul style="list-style-type: none"> • Inspiration: Inspire and create resonance; Embody what they ask of others • Influence: Adept in influence • Developing others: A natural mentor or coach • Change catalyst: Recognize the need for and strong advocate for change • Conflict management: Able to draw parties together, understand all perspectives and identify common ground • Teamwork and collaboration: Committed to the collective effect, team spirit, and identity

The ECI 360-Self version (0) and Peer version (APPENDIX H) were used.¹⁴ Self and Peer ECI surveys were performed in both the *pre* and *post* treatment phases for all participants (active and control groups).

4.3.2 Measuring Job Satisfaction

A variety of tools for measuring job satisfaction that had been tested for validity and reliability were available for use. The tool offered by the Ball Foundation appealed to me from the perspective of being structured for professionals interested in gaining insights into increasing their success through a higher level of satisfaction from their career. The Ball Foundation framework promotes self-knowledge as essential in the task of career management.

The job satisfaction survey selected has two broad dimensions: Organization-provided satisfiers and job-related satisfiers. The organization-provided satisfier dimension consists of four sub-dimensions and the job-related satisfier dimension has two sub-dimensions as shown in

Table 4-4.

Table 4-4 Ball Foundation Job Satisfaction Dimensions

Dimension	Sub-dimensions
Organization-provided	<ul style="list-style-type: none"> • Culture • Supervision • Co-workers • Salary/Benefits/Incentives
Job-related	<ul style="list-style-type: none"> • Skill variety • Sense of control/role

¹⁴ The contents of Appendices F and G will be removed after completion of examination to protect proprietary data or trademark rights.

The job satisfaction survey managed by the Ball Foundation is available through web-based technology. In order to take advantage of the tool in this electronic format, I contacted the Ball Foundation tool administrators and requested permission to use their job satisfaction survey for my research project. The Ball Foundation tool web-based feature eliminated paper volume and the requirement to manually collect a participant's completed survey. Full and free access for research purposes was granted on 6 July 2005 (APPENDIX I).

Using a four digit alphanumeric random number previously assigned to each volunteer, the Ball Foundation administrators approved the use of their four digit alphanumeric *birth year* field within the survey for individual identification purposes. As the random number assigned to each participant was unique in construct, the data for my study participants was easily extracted from the Ball Foundation database and passed back to me for analysis. A sample of the job satisfaction survey taken is provided at APPENDIX J. A full job satisfaction survey was performed in both the pre and post treatment phases for all participants (active and control groups).

4.3.3 Measuring Job Performance

The third measure (job performance) was measured using a conglomerate survey created from commercially available job performance questionnaires found online or drawn from personal experience of job performance surveys used in a similar work environment to that in which the research was conducted. As such, the job performance survey was well suited to the responding participants' work experience and environment (see APPENDIX K).

4.4 Emotional Intelligence Treatment Tools

The first tool used for the EI treatment was a PowerPoint briefing developed by TalentSmart Inc. (2004) that provided a description and video examples of personal and social competencies (APPENDIX L).¹⁵ The treatment was completed using select exercises from a commercially available product by Adele B. Lynn (2002). Exercise items from the collection

¹⁵ The content of appendix will be removed after completion of examination to protect proprietary data or trademark rights.

of activities were first sorted for appropriate content and ability to be effective within the research environment and the 18 activities selected were then ranked against the breadth of exercise values (EQ Target Areas), defined by the author (Table 4-5), to ensure coverage in all competencies.

Table 4-5 Emotional Quotient Exercise Initial Selection

Competency EQ Exercise	Self-awareness and Control	Empathy	Social Expertness	Personal Influence	Mastery of Vision	Total Targets
EQ #17 Yes, But . . .					X	1
EQ #1 Champion or Chump	X		X			2
EQ #35 Advice From the Pros	X				X	2
EQ #9 Coming Through	X	X				2
EQ #20 Dumped On		X			X	2
EQ #6 Picture Yourself			X		X	2
EQ #27 You Expect Me to What?	X	X		X		3
EQ #43 Interior Power	X			X	X	3
EQ #23 Action/Reaction	X	X		X		3
EQ #26 Contribution Spirit Killers	X	X		X		3
EQ #25 I Value, We Value		X		X	X	3
EQ #13 Tuning in to Our Team	X	X	X			3
EQ #11 Listening Habits	X	X	X			3
EQ #7 Personality Contest	X	X	X	X		4
EQ #16 Gifts			X	X		2
EQ #28 Great Vision	X			X	X	3
EQ #43 Interior Power	X			X	X	3
EQ #37 Advice from Team	X			X	X	3

Based on a sorting for identifying those exercises with the highest number of EQ targets affected, the 10 that encompassed the most exercise value were structured in groupings of two to offer five exercise opportunities to the Group A (active group) participants (Table 4-6). All exercises offered to participants are provided in APPENDIX M.¹⁶

¹⁶ The content of this appendix will be removed after completion of examination to protect proprietary data or trademark rights.

Table 4-6 Emotional Quotient Exercise Final Selection

Competency							
Workbook Location	EQ Exercise	Self-awareness and Control	Empathy	Social Expertness	Personal Influence	Mastery of Vision	Total Targets
EQ #23 Action/Reaction	Exercise 1-A Action/Reaction	X	X		X		3
EQ #26 Contribution Spirit Killers	Exercise 1-B Contribution Spirit Killers	X	X		X		3
EQ #25 I Value, We Value	Exercise 2-A I Value, We Value		X		X	X	3
EQ #13 Tuning in to Our Team	Exercise 2-B Tuning in to Our Team	X	X	X			3
EQ #11 Listening Habits	Exercise 3-A Listening Habits	X	X	X			3
EQ #7 Personality Contest	Exercise 3-B Personality Contest	X	X	X	X		4
EQ #16 Gifts	Exercise 4-A Gifts			X	X		2
EQ #28 Great Vision	Exercise 4-B Great Vision	X			X	X	3
EQ #43 Interior Power	Exercise 5-A Interior Power	X			X	X	3
EQ #37 Advice from Team	Exercise 5-B Advice from Team	X			X	X	3

4.5 Culture of Case Study Environment

As stated earlier in this section, this case study was performed within a US Defense automated information system development project environment. With an ever-shrinking budget for defense programs, project management professionals must continually find ways to do more with less. In order to succeed, the benefit from the energy of emotion will become increasingly valuable.

Recognizing the authoritarian legacy of the host organization and its partners, discovering the quantifiable benefits from the introduction of emotional competencies has the potential to create new avenues for team productivity and perhaps shift the focus for performance improvement of this specific project management community. A long-term expectation from such an effort is an altruistic cultural shift, resulting in an organizational environment of shared leadership with increased growth in the emotional competencies, first at the individual level and eventually at the organizational level.

4.6 Request for Volunteers

Following the procedures prescribed in the approved ethics application, a request for participation (APPENDIX P) was provided to each member for the organizations identified in Figure 4-2.

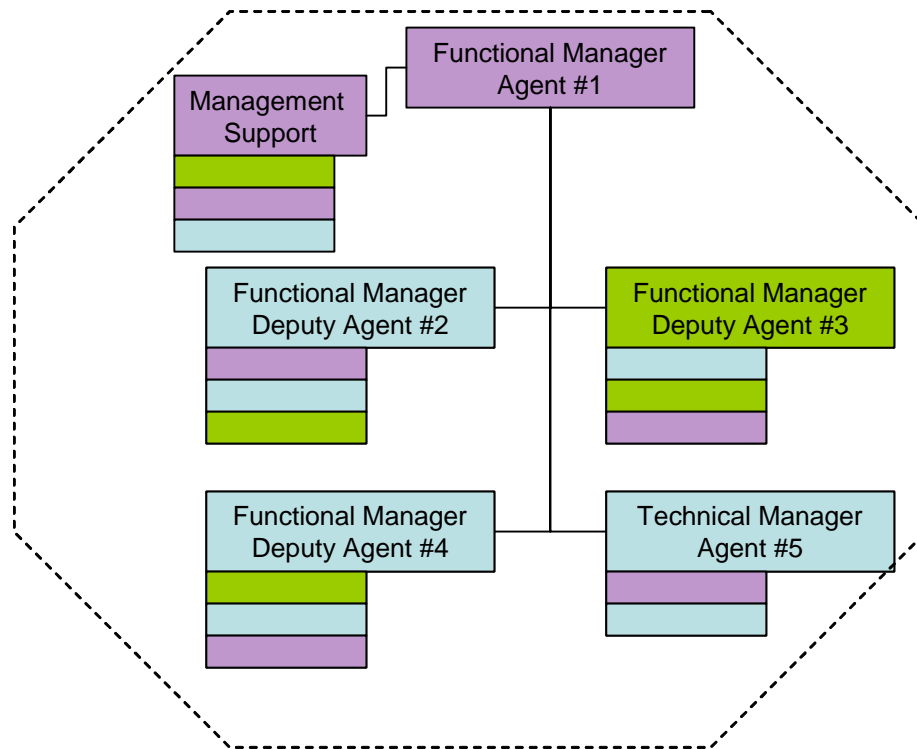


Figure 4-2 Target Population for Case Study Participants

An end date for volunteering was established to ensure that the beginning size of the case study group was firm and that materials required for the initial phase of the case study were prepared accordingly.

4.6.1 Participant Identification

Each participant was given an alphanumeric code to identify their work rather than using any personal information (see APPENDIX N). This unique code was also necessary for participant identification when taking the web-based Ball Foundation job satisfaction survey. This on-line tool was described in detail in Section 4.3.2.

4.6.2 Group Assignments

On the date that the request for volunteers ended, a letter was given to each study volunteer thanking them for their participation. In addition, each participant was assigned to be a member of two groups. The work group was the first assignment given. This assignment of participants for the work group was not random. The nonrandom assignment was necessary to ensure that the members of this group had a working familiarity with all the other members of their group to competently complete the survey. The label for this grouping was

that of a color. Each member of a work group was asked to provide peer EI and performance survey input on at least two members of the same work group. Participants were not told who was assigned to provide their peer evaluations (see APPENDIX O).

The second team assignment sorted participants into one of two possible test groups. All participants were assigned to either the *active* or the *control* group. Assignment of participants to the test groups was done by means of a simple random construct, based on the timing of their response to volunteer.

4.6.3 Active Test Group

Following the initial survey series (Phase 1 – described in paragraph 5.5.2), active test group members were asked to complete a series of exercises (Phase 2 – described in paragraph 5.5.3) where information and activities concerning the concept of EI were explored. The treatment materials were available electronically or in hardcopy (as appropriate) to allow for maximum flexibility for individual participation and convenience. Following the treatment exercises, members of the active groups were asked to participate in a second series of surveys (Phase 3 – described in paragraph 5.5.4) to conclude their participation.

4.6.4 Control Test Group

Following the initial survey series, there were no activities related to the study requiring control test group participation for the interim between Phases 1 and 3. Following the completion of Phase 3, the control group participants were invited to review the Phase 2 treatment materials.

4.7 Summary of Chapter

The study concept, selecting and obtaining the study tools and the organization of study groups were described in this section. The basis of the case study was described in the ethics application and sent to RMIT University for consideration. Once approval for the study was in place, a variety of tools for measuring job satisfaction, job performance, and emotional

intelligence were reviewed and those that were the best suited for the case study were selected. The 4.2 ethics approval section confirmed the process adopted, i.e. that the job satisfaction and emotional intelligence measurement tools required that applications be submitted for permission to conduct the case study within the desired project environment together with the required agreements between parties. It also established that while the approvals were pending, a treatment approach was selected and the materials were prepared to be available to the study participants. It noted that once approvals were received to conduct the case study for use of the selected case tools, the request for participants was conducted and as volunteers came forward they were sorted randomly into an active and control group. In the next chapter the methodology of the case study is described.

The research design used is described in the next chapter and the theoretical and empirical considerations that drove the design are also explored in Chapter 5.

5 RESEARCH METHODS

This chapter describes the research design used and explores the theoretical and empirical considerations that drove the research design, recognizing that the design decisions are influenced by the views of the researcher and by the direction of the research proposition and related questions. The techniques adopted for this research are concerned with the importance of three data measures (job satisfaction, job performance, and emotional competency) and observations to gain triangulation across the multiple data sources to gain a better understanding of what was happening in the study environment.

The research strategy was approached in the form of a single, exploratory case study following a set of preestablished procedures spelled out in Section 5.4. According to Benbasat, Goldstein, and Mead (1987), a cast for study may be a person, a group of people, an organization, a process, or an information system. Benbasat et al. (1987, p. 370) state that “a case study examines a phenomenon in its natural setting, employing multiple methods of data collection to gather information from one or few entities (people, groups or organizations)”. As described in Chapter 1, this research combines quantitative and qualitative research methods. Regression analysis was used to aid interpretation of case study observations, for the purpose of eliminating bias, and to support validity.

Table 5-1 Interpretive Approach Assumptions

Assumption	Interpretivism Quality
Ontology	Researcher and reality are inseparable (life-world)
Epistemology	Knowledge of the world is intentionally constituted through a person’s lived experience
Research object	Research object is interpreted in light of meaning structure of researcher’s lived experience
Method	Hermeneutics, phenomenology, etc.
Theory of truth	Truth is intentional fulfillment: interpretations of research object match lived experience of object
Validity	Defensible knowledge claims
Reliability	Interpretive awareness; researchers recognize and address implications of their subjectivity

An interpretive approach was taken for this research. As defined by Cepeda and Martin (2005, p. 856), interpretivism is defined by the metatheoretical assumptions described in Table 5-1.

5.1 Related Qualitative Research

This research included the study of behaviors in their natural setting and it also used statistical procedures (regression analysis) to produce findings. Hypotheses developed were tested using the results of these analyses. According to Shank (2002), studies of processes and behaviors in their natural settings can be considered qualitative research. Qualitative research is defined by Strauss and Corbin (1998) as research that produces findings not arrived at by statistical procedures or other means of quantification. The research documented here began with the researcher's observation, within my role as a PM, of project members' day-to-day behaviors and project outcomes. Based on my growing understanding of the benefits of EI on individual experience, I recognized a potential for individual job satisfaction and performance to improve (Goleman 1995; Goleman 1998; Cherniss 1999), which could then lead to improvement in overall project performance (team performance). As stated in the introductory section of this dissertation, twenty years of observation had revealed to me a pattern of group behavior between project members. This pattern triggered my desire to discover why some, but not all, project management employees contributed to improving potential project success.

From these observations, I had reason to believe that the improvement of employee job satisfaction and individual performance would lead to improved team performance and further to improved project performance as the basis for the research hypothesis.

This research is also a quantitative study as surveys were used to gather data; pre and post test (treatment) levels were measured; and regression analysis was performed, as described in the next paragraph. The setting was within the researcher's workplace, providing the researcher with the opportunity to observe changes during the process from before the

treatment until after the treatment of both those who participated in the treatment (active group) and those in the control group. The combination of quantitative and qualitative research approaches formed part of an overall case study. This took the form of a study over time of employees in a particular setting, some of whom underwent training and some that did not, and the impact of this training on employee behavior/performance supporting the exploratory nature of this study (Darlington and Scott 2002).

The research focused on the subjective experiences and interpretations of individuals, as they interpreted them (self report measurements of job satisfaction, job performance, and emotional competencies), and is therefore considered to be a phenomenological perspective (Trochim 2001). Ueltzhoffer and Ascheberg (1999) suggest that the aim of qualitative research is concerned with the sociological and psychological orientation as it pertains to the individual's subjective interpretations of patterns and experiences. Along the same argument, Denzin and Lincoln (2003) put forth that qualitative research is interested in the meanings and processes that are not examined experimentally. As such, a qualitative approach does allow for research participants to provide personal input through self-reported examination. This type of approach is consistent with the goals of this research in that it explores and explains the individual participant's reactions to the treatment and that of their peers. The research was conducted in phases explained in detail within paragraph 5.5.

5.2 Related Quantitative Research

To measure the phenomena under study, ranking scales were used to measure the change in participants' pre and post treatment. The changes in these measurement quantities formed the findings from which conclusions were drawn. The regression analysis used in this research is a method of quantitative analysis, used to assist in interpretation of the observations which formed the qualitative component of this research.

This statistical method allows for the possibility of critically analyzing the phenomenon of individual behavior demonstrating use of EI principles (competencies) under study and its impact on team and overall project success. As previously described in paragraph 1.5, quantitative and qualitative approaches were used in this research to provide triangulation. This was achieved by collecting data using multiple methods and from multiple sources (Burton and Steane 2004).

Additionally, survey data was analyzed using regression analysis and this provided measures of change in relation to a range of factors as outlined in Table 5-2, which provides a profile of the research group. As the research hypotheses stated - improvement/change is expected. I reasoned that this expectation could best be measured using the survey and statistical analysis, along with my personal observation as a participant in this action research project.

Table 5-2 Participant Profile Data

Category	Possible responses
Gender	<ul style="list-style-type: none"> • Male • Female
Age Group	<ul style="list-style-type: none"> • 18-25 • 26-35 • 36-45 • 46-55 • 56-65 • 65 and older
Education (indicating highest level of completion)	<ul style="list-style-type: none"> • High School Diploma (or equivalent) • Associates • Bachelor's • Master's • Doctorate
Professional Experience (years in workforce)	<ul style="list-style-type: none"> • 2-5 • 5-7 • 8-12 • 13-18 • 19-25 • > 25
Number of years in current profession	<ul style="list-style-type: none"> • Numeric value
Ethnic description	<ul style="list-style-type: none"> • Not used

5.3 Approach to Action Research

This research is also an example of action research as it involved the researcher joining with respondents in a process of researching themselves. In keeping with Burton and Steane's (2004, p. 171) description, the researcher collaborated with organizational actors on a specific project; in order that they (and the researcher) could diagnose, design, supplement and evaluate planned changes. Burton and Steane (2004) maintain that this is done in iterative cycles, with the intention of improving the actors' and the organization's processes.

As this research was based in the researcher's workplace, it provided the opportunity for the researcher to observe processes and behaviors in their natural setting (Shank 2002). In this way this research combined quantitative and qualitative research approaches, providing greater depth of analysis, to achieve the stated research aims. This action research, took the form of a case study because the researcher was in the research environment, both observing and participating in the activities of the project team to which the participants and control group also belonged (Burton & Steane 2004, p. 169) and it was supplemented with regression analysis to measure change following treatment. Coghlan (Coghlan 2001) argues that participative action research can lead to researchers bringing added depth to the study through their tacit knowledge and established relationships with research subjects.

5.4 Components of the Case Study

Restating the empirically-based hypothesis from Chapter 1:

Made aware of emotional competencies; through knowledge area skill development and trial scenarios as applied within a project setting, a project team will experience a higher degree of job satisfaction and performance and therefore, achieve a greater potential for success.

As illustrated in Figure 5-1, a basic pre-post randomized experimental design was employed to determine the theoretical and empirical relationship between emotional competency development and the qualities of job satisfaction and job performance. The research tested the theory that an introduction of emotional intelligence into a project team would have a measurable impact on individuals that could be observed and measured in real terms with the expectation that the impact on individual participants (applying a bottom – up perspective) could be inductively reasoned as having potential impact to the research project team’s performance overall. This Chapter presents a theoretical and conceptual framework that determines the direction of a defined case study. An extensive review of literature in Chapter 2 assisted in building theory and understanding (Carson, Gilmore, Perry, Gronhaug 2001).

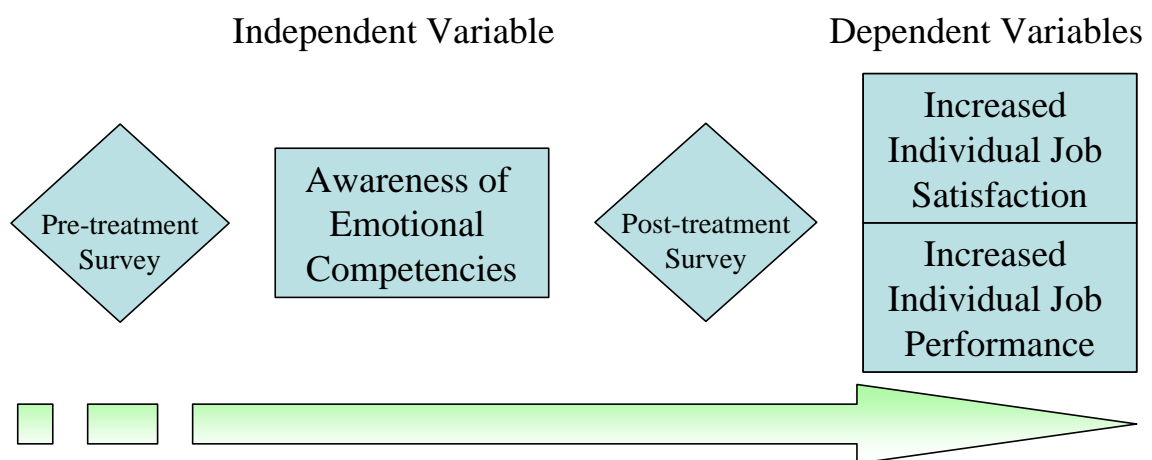


Figure 5-1 Research Process Model

5.4.1 Research Objective

The objective of this research was to explore the cause and effect relationship between the introduction of a set of competency-based behaviors and the performance of individuals assigned to a project team as operationalized within a research theory (see Figure 5-2). The cause and effect construct enabled the theory to be translated operationally into a treatment and measurement method.

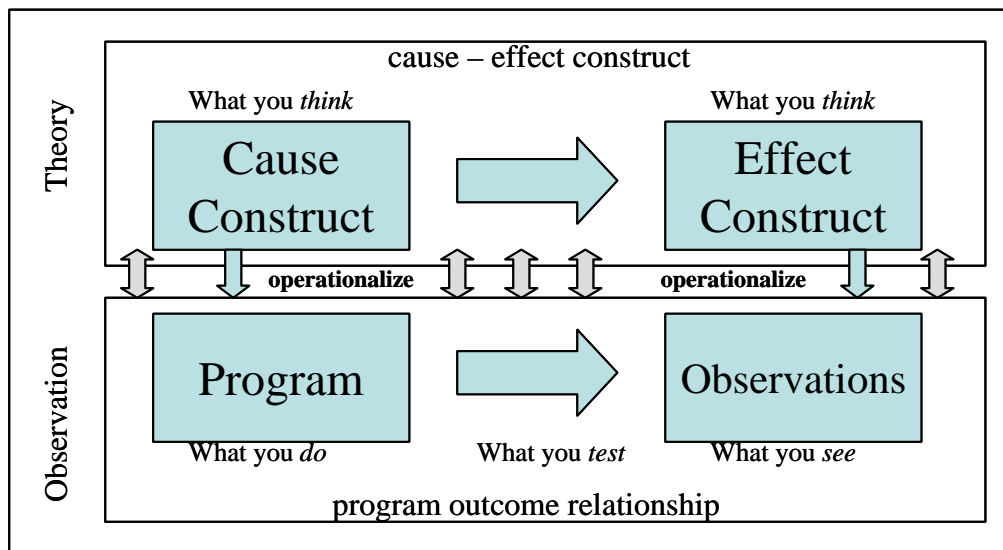


Figure 5-2 Major realms and components of research (as adapted from Trochim (Trochim 2001))

In Figure 5-2 the theory being illustrated is that increased EI (or inverse - current lack of EI) will cause (lead to) increased job satisfaction and job performance (or inverse - reduced job satisfaction and job performance) establishing a cause construct. This leads to the effect construct - - or what the researcher thinks the effect of introducing EI (treatment) will be on (1) individual project members, (2) a specific project team, and (3) overall project process success.

Moving to the observation level of the model, the treatment conducted in this research was the emotional competency program described in detail in paragraph 4.4 that took place following the pretest phase of the study. What was observed, related to both quantitative findings of the regression analysis (post phase 3 retest) and the researcher's personal qualitative observations.

5.5 Research Setting

As described in detail in Chapter 3, this research took place in a US government sponsored project management environment. This study was experimental in nature and involved a mix of US military members, US government employees, and defense industry contractor employees from multiple companies.

The case study was undertaken in a single organization structured in three distinct phases following a formal research introduction. Phases 1 and 3 required all participants to respond to a series of questionnaires to measure emotional competencies for themselves and two peers, personal job satisfaction, and their perception of job performance of two assigned group members. Phase 2 consisted of the administration of a treatment plan to introduce EI competencies to the active group participants as shown in Figure 5-3. The selection of the survey and treatment tools is discussed in paragraph 4.3 and copies of the tools are provided as appendices F, G, H, I and J.¹⁷ The following subparagraphs describe the research process, from beginning to end, and provide detailed information on the participants.

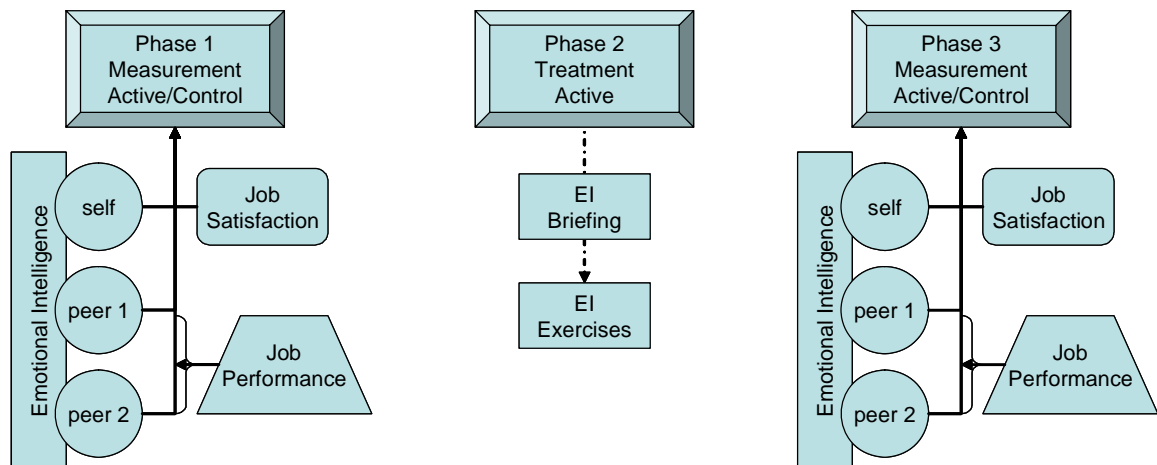


Figure 5-3 Case Study Methodology

¹⁷ The contents of these appendices will be removed after completion of examination to protect proprietary data or trademark rights.

5.5.1 Introduction of Case Study

All individuals in the case study (active and control group members as described in Chapter 4) were given a letter of introduction to ensure that participation was purely voluntary. The letter was constructed to provide full disclosure and to obtain receipt of proof of informed consent from all (see APPENDIX P and APPENDIX Q). Where information was handled by any other person beyond me, the results of individual participation was treated with complete anonymity by applying an alphanumeric coding to shield participant identities. To ensure time for treatment effect to be fully realized, phased measurements were conducted approximately six months apart to allow for treatment affect (Lynn 2002).

5.5.2 Components of Case Study - Phase 1

To begin Phase 1, all case study participants (active and control group members) were asked to provide the general demographic information listed in and as compiled in APPENDIX R.

5.5.2.1 Phase 1 Self Evaluation

Phase 1 required participation by all case study group members (active and control) and included two elements of self evaluation. Participants first evaluated themselves by completing the ECITM (self version) and second by taking the job satisfaction survey. Attached to the letter of introduction, each participant received basic instructions and an electronic copy of the ECITM (self version) as shown in 0. The method of ECITM questionnaire delivery provided the participant the flexibility of completing either an electronic or hardcopy response. The instructions contained an online electronic link to access the job satisfaction survey (APPENDIX J), with a reminder to each participant to use their alphanumeric identification in taking the survey (Figure 5-4).

A. Please go to this web site to take a Job Satisfaction Survey: [SUSPENSE: 29 JULY 2005]
http://www.ballfoundation.org/cv/jobsurvey2003.htm
Where you see this on the web site:
Please indicate the year of your birth: <input type="text"/>
ENTER YOUR PARTICIPANT NUMBER. The entry area will only accept four characters. Your participant number is four characters long. If you don't remember your participant number, just ask, I'll give it to you. PLEASE make sure that you enter this properly. It's important.
Proceed by answering the question in the survey following the directions given. When you have answered all questions, make sure you submit the survey by clicking on the button that says: Submit form & See Your Results.

Figure 5-4 Directions to Participants for Job Satisfaction Survey

5.5.2.2 Phase 1 Peer Evaluation

Following the self evaluation, the participants were asked to evaluate two work group pre-assigned peers. The peers that each participant was to evaluate were identified in the letter of introduction provided to each participant. For peer evaluation, two tools were provided. The first was the ECITM tool (peer version) as shown in APPENDIX H and the second was a general job performance survey APPENDIX K. The participant was required to answer the questionnaires (one of each type) for each of the peers assigned.

5.5.3 Components of Case Study - Phase 2

At the conclusion of Phase 1, Phase 2 began as the treatment phase for only those participants in the active group, previously described in section 4.6.3. Each member of the active group was invited to attend a lunch-time session where they received a Phase 2 briefing package APPENDIX S. An Emotional Intelligence (TalentSmart 2004) briefing package was electronically presented (APPENDIX L) and each participant received an exercise package (APPENDIX M) containing the exercise selections discussed in section 4.4. Following the EI briefing, the attending active group participants voted to select either exercise 1A or 1B to work through together, allowing everyone to understand the response expectations for the exercises. Participants were then asked to complete one exercise in each of the five categories

(completing a total of five exercises, including the one completed with the group) within a defined performance period of approximately two weeks.

The briefing package provided during this phase was a Microsoft Office PowerPoint style presentation that gave a general review of:

- ❖ The definition of EI
- ❖ Why the emotional quotient (EQ) matters
- ❖ Goleman's Model of EI
- ❖ How EQ skills can be used
- ❖ Relevant research pertaining to EQ and work
- ❖ The Business Case for EI

The discussion following the briefing and preceding the exercises focused on distinct emotional and social competencies in the areas of self awareness, self regulation, empathy and basic social communication skills. The first exercise (as a practice) was guided by the researcher acting as a facilitator and was unstructured in terms of the ability for all group members to voice insights or share experiences. Group A (active group) participants were briefed that the discussions were not to be shared with other project groups. Group B (control group) members did not participate in these sessions. To minimize the multiple-group threat to internal validity, participants in the control group were invited to participate in similar treatment sessions at the conclusion of Phase 3.

Active group participants were encouraged to be creative and bold when completing the treatment exercises as they were not required to share their responses. An exercise completion sheet was provided to allow participants to record the exercises they completed. These sheets were returned by the participants to me to record their choices as part of research data. All active group participants receiving the treatment returned a completed exercise sheet and were thanked for their time with a bar of chocolate.

5.5.4 Components of Case Study - Phase 3

As mentioned in 5.5.1, the case study approach allowed six months to elapse from original data gathering to comparison data gathering. It is maintained that a time lag of four to six month from treatment to impact on performance is required (Lynn 2002). Phase 1 and Phase 3 were basically identical; comprised of two types of ratings, self and peer. As in Phase 1, this Phase included two categories of activities: self and peer evaluation for all active and control group participants. Participants were reminded of the identities of the peers they were assigned to evaluate and the identification numbers to be used on the evaluation forms for each.

5.5.5 Coaching Through Completion

All participants were full-time employees and received no compensation for the time they spent in completing the survey questionnaires for this case study. I provided periodic verbal encouragement to all participants toward the end goal of data collection completion. To allow sufficient time for Phase 1 input to be completed by all participants without pressure, 15 days were given to meet the performance suspense. A checklist at the end of the introduction letter worked well in helping participants to ensure that they had successfully completed all aspects of the survey process.

5.6 Completion of the Case Study

The research design was tailored to minimize threats to validity through the use of a control group and by taking the preventive action of offering the treatment materials to the control group at the conclusion of the study to alleviate curiosity crossover. Survey results were recorded for each participant from the ECI 360 and job performance surveys. Results of the online job satisfaction survey were compiled and provided for further analysis by personnel at the Ball Foundation. All results were then reviewed for anomalous data, which was corrected based on a review of the original response material. No anomalous data were found in the job satisfaction survey. The data reported by participants in Phase 1 that did not

complete Phase 3 was removed from the body of data to be analyzed. All project personnel, whether they participated in the case study or not, were invited to a pizza lunch to close out the final phase.

5.7 Case Study Concept

Project teams are affected by both endogenous and exogenous factors as shown in the operational concept model in Figure 5-5. Project teams are constantly processing information (cognitive drive) as individuals and as members of groups within the project environment. This information is communicated from leadership, exists in the organizational identity and in the general work environment, is shared knowledge, and resides in individual's motivation and commitment. Project teams are also influenced by drivers external to the project, happening in their personal lives, and in the world in general.

This research was directed at measuring the potential of managing these internal and external influences by improving the emotional competencies of the project team, with the expectation that this would lead to more successful project results.

Through the case study process, the research seeks to discover the possible affect on project outcome when project team members are introduced to the concept of emotional intelligence. As shown in Figure 5-6, EI is added to the team model to enrich the environment of project team members, driving an improvement to individual job satisfaction and job performance.

Figure 5-5 Project Management Team

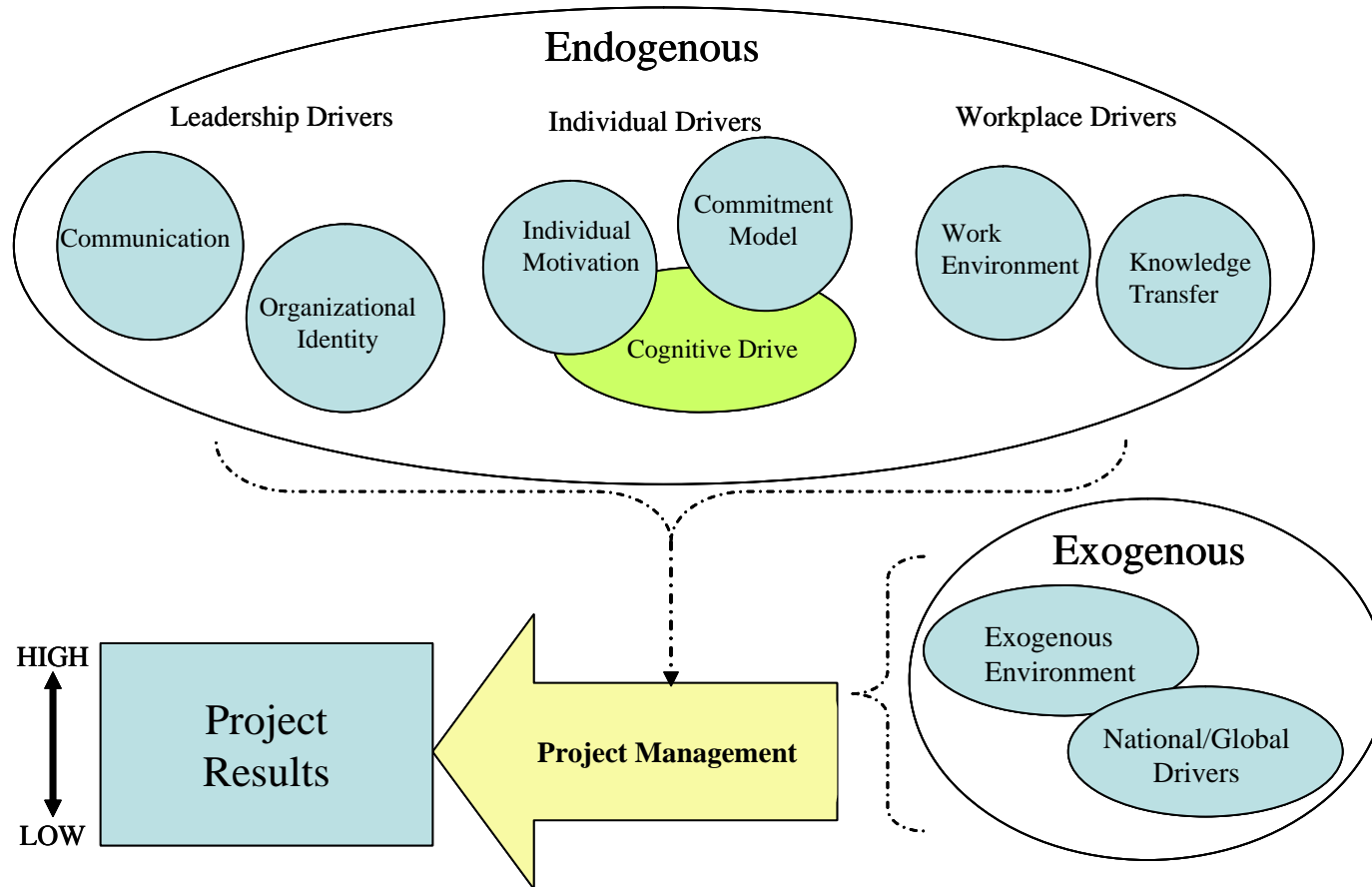
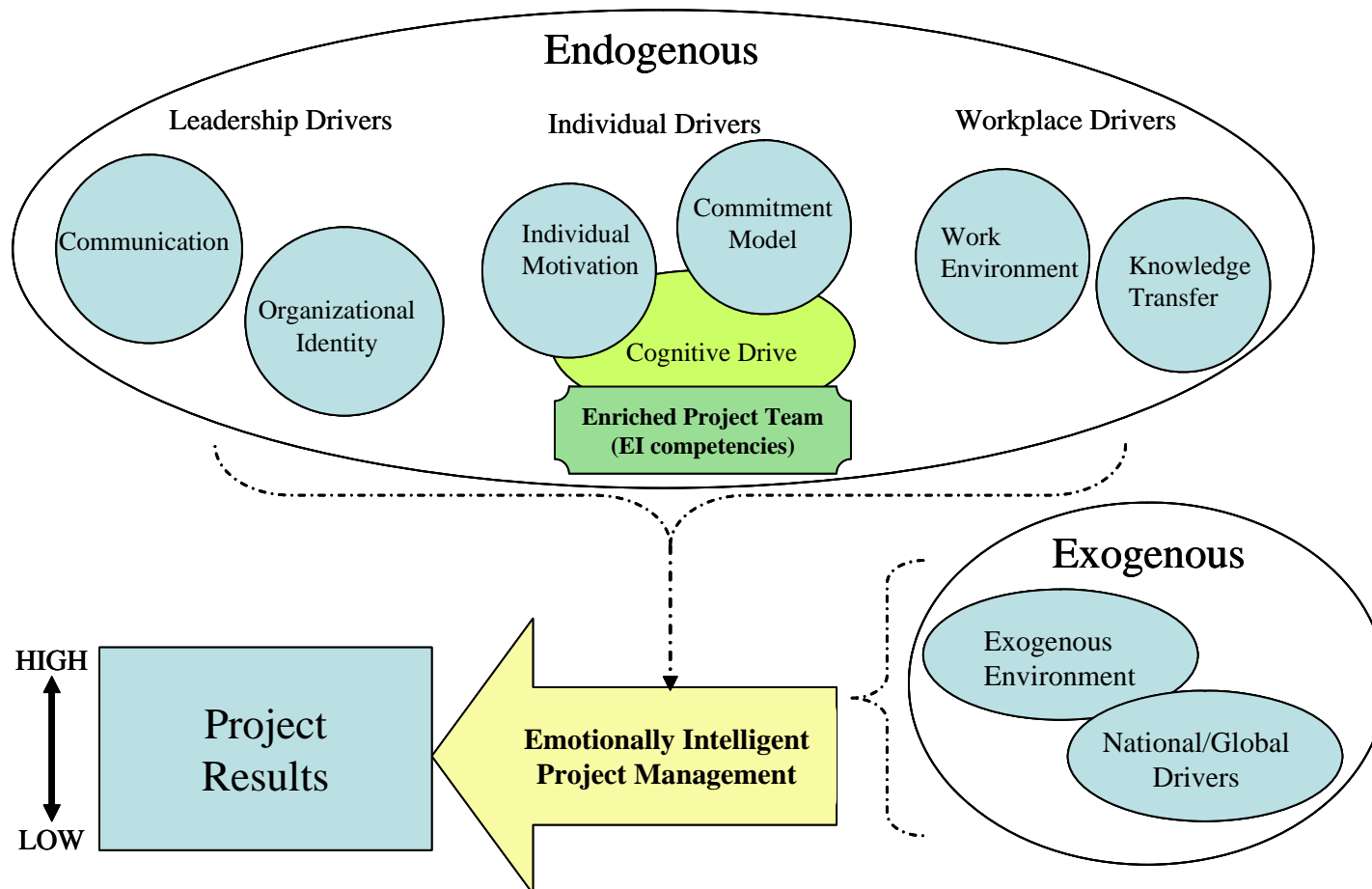


Figure 5-6 EI Enriched Project Management Team



Enriching the work experience could then be measured in terms of project outcome/results. The work experience is influenced by a variety of complex events viewed by Gibb (1998) as being at the core of career development. As such, a qualitative design was required to analyze the work experience and related complexity of issues that would be expected to affect the individual participant and their assigned team. Particular attention was paid to the concepts of credibility, transferability, dependability, and confirm-ability as they relate to the parallel conceptual counterparts in the tenets of research design for objectivity, reliability and validity (Guba and Lincoln 1994).

5.8 Study Attrition

The sample population is further described in paragraph 5.10. Out of the original body of 52 participants, 10 failed to complete the study, forcing some reassignment in peer reviews for Phase 3. In these instances, replacements for peer reviews were identified whenever possible within the original work group. There were only a few instances where peer reviews had to be assigned outside the original work group to ensure an informed response. No reassignment between study groups was done, in other words, no participants were changed from the active to the control group between survey phases.

5.9 Approaches to Case Study Research

This study sought to determine the relationship between job performance, job satisfaction, and emotional competencies. The author proposed that the data collected would support a significant relationship between the introduction of EI and the general performance and overall satisfaction of project team members, through the research question: Will an awareness of emotional and social competencies promote an increase in overall EI, such that individual job satisfaction and performance increases project success? Based on the finding of Moorman (1993), the researcher anticipated that an awareness of EI would enhance actual individual performance and have a measurable impact on the job satisfaction experienced.

5.9.1 Qualitative versus Quantitative Study

Trochim's view is not held by all, but I concur with Trochim (2001) in stating that there is little difference between qualitative and quantitative data with regard to how each is valued by others. Trochim acknowledges that qualitative data typically is represented by words while, quantitative data is represented by numbers. While those are different representations, they are not fundamentally different in that all qualitative data can be coded quantitatively and all quantitative data is based on qualitative judgment (Trochim 2001 p. 154).

In terms of this research, a case study was conducted to intensively consider the effect of emotional competency changes within the context of an IT project. This case study was conducted using an approach that collected qualitative data (e.g., strongly agree to strongly disagree) that was then coded quantitatively for statistical analysis. The meaning of the qualitative data remains linked to the numeric values assigned ensuring that the basis for good research remains intact, using both the qualitative and quantitative measurement (Trochim 2001).

The approach adopted emphasized a desire to focus on the participant's experience and their interpretation of the project culture. As suggested by Grisham (2006), there are several sound reasons for using a qualitative approach. The reason for my making this choice includes the following:

- To become more experienced with the phenomenon of interest.
- To be able to draw out the details of the phenomena is detailed richness.

The qualitative approach facilitates the collection of study data in a project setting using a set of standardized and commercially proven measurements tools allowing for a practical approach to the research. The results of the measurement tools were codified for statistical analysis creating a substantial body of quantitative data.

As Grisham (2006) noted, the DPM program capitalizes on reflective learning and the direct personal involvement of the student as a practitioner. To ensure the data collected was meaningful, I used commercially available and proven tools, originally developed using the Delphi technique. Where no suitable tool was found for job performance, the researcher used an amalgam of questions resulting from a review of the performance ratings systems of the US Government and three defense contracting companies of those defense contracting personnel represented in the research. As each rating system was different, common elements were identified to ensure that participants would have a common thread of established performance requirements whether task or contextually oriented (Arvey and Murphy 1998).

Table 5-3 Breadth of Job Performance Threads

SKILL:	QUALITIES:
COMMUNICATION	<ul style="list-style-type: none"> • Listens to others • Processes information • Communicates effectively
LEADERSHIP	<ul style="list-style-type: none"> • Instills trust • Provides direction • Delegates responsibility
ADAPTABILITY	<ul style="list-style-type: none"> • Adjusts to circumstances • Thinks creatively
RELATIONSHIPS	<ul style="list-style-type: none"> • Builds personal relationships • Facilitates team success
TASK MANAGEMENT	<ul style="list-style-type: none"> • Works efficiently • Works competently
PRODUCTION	<ul style="list-style-type: none"> • Takes action • Achieves results
DEVELOPMENT OF OTHERS	<ul style="list-style-type: none"> • Cultivates individual talents • Motivates successfully
PERSONAL DEVELOPMENT	<ul style="list-style-type: none"> • Displays commitment • Seeks improvement

Table 5-3 identified the breadth of job performance threads that were identified from all performance evaluation tools reviewed. The final job performance survey (APPENDIX K)

was comprised of elements viewed as common and applicable to all assignments and levels of participants.

5.9.2 Sampling Method

A joint government/military/commercial sample was utilized to realize a broad cultural consideration. The Commander of the joint program authorized the research, based on voluntary participation. A total of 52 individuals volunteered to participate with 42 actually completing the full study. Of the 10 participants that did not complete the study, seven were contract employees involuntarily separated from the program as the result of changes in contract awards by the government and three were government employees who accepted other positions away from the target study program. All participants succeeded in completing all surveys and all met the qualifications required for participation. As previously indicated in Section 4, informed consent was attained from each participant using the form shown in APPENDIX P.

Final participant data was completed on a sample of 24 men and 18 women with the majority being between the ages of 36 - 55 years old (76%). There were 10 supervisory and 32 non-supervisory participants. On the average, participants had been in their current work assignment 12 years. Of the members completing the study, 9.5% had completed their high school education, 4.8% had completed a two-year Associate's degree, 52.4% had attained a Bachelor's degree and 33.3% had graduated from a Master's or Doctoral level program.

Of the supervisors that participated, eight were men and two were women. Age was grouped in the 36 - 65 range with no participants under the age of 36 or over the age of 65. Of the non-supervisors that participated, 15 were men and 17 were women. Age was grouped in the 26 - 65 range with no participants under the age of 26 or over the age of 65. All participants in this study were either a project team supervisor or member of a functioning project team assigned to the overarching program. This participant population was selected based on the team approach to project assignments, providing a sound example of project

management practice. All participants had a direct role in the success of the overarching program and were able to see the results of their individual team contributions. The research sample was taken through a request for participation at the convenience of the individual. The on-line method was preferred for obtaining participant response to increase convenience and therefore, participation (Ornstein 1998). The paper version was also acceptable, but would have required additional logistic preparation. Participants were grouped based on project group assignment. These “probabilistically equivalent” (Trochim 2001, pg. 194) groups were randomly assigned to either an active or control group. Probabilistic equivalence means that it is impossible to ever say that two groups of humans are equal. Rather, it means that the type of equivalence achieved is based on the notion of probabilities, acknowledging that the two groups are not equal (Trochim 2001). All group members participated in the ECI measurement. Group A (active group) participated in an introductory level briefing regarding EI and series of short exercises with an identical follow-on measurement administered through data collection survey. The design structure used is illustrated in Table 5-4, showing that Group A (active group) was pre-tested and post-tested with the introduction of EI through treatment phase activities. Group B (control group) was pre-tested and post-tested without the EI treatment.

Table 5-4 Group Assignment and Phase Participation

Group Assignment	Participated in Phase 1 Survey Set?	Participated in Phase 2 Treatment?	Participated in Phase 3 Survey Set?
Group A (Active Group)	Yes	Yes	Yes
Group B (Control Group)	Yes	No	Yes

5.9.3 Constraints on Participation

Individuals that volunteered to participate in the case study were required to meet some minimum qualifications:

- ❖ Management participants were required to have a minimum of one year of project management experience, with a minimum of 90-days in current assignment.
- ❖ Non-management participants were required to have a minimum of 60-days working on the current project. Due to the nature of the workplace, all participants had experience in a range of project leadership styles.

5.10 Case Study Research Sample Information

The research sample was obtained through measuring the EQ of randomly assigned project groups comprising eight groups of three to five individuals each. The overarching program was comprised of approximately 85 individuals, with all individuals working one or more project assignments. All project groups were drawn from the same overarching program with the following considerations:

- All individuals were between 21 and 65 years of age
- All groups were randomly assigned from a program personnel staff with individuals of mixed gender, race and culture
- Members had between one and 30 years of project related experience
- Only those project groups considered successful in terms of total program performance were selected for participation, as those not meeting that criterion were not made available for participation by the organization. A project is considered successful if:
 - Predefined outcomes are realized
 - Outputs are delivered on time and of a mutually agreed quality, and costs are within an established budget

The information in the following subparagraphs explains the two groupings of participants from the research case study and additional demographic information associated with each of the two groups.

5.10.1 Active Group

Figure 5-7 illustrates the gender composition of the active group with 11 males and 10 females for a total of 21 participants fully completing the research series of activities. The majority of the active group participants were between the ages of 36 and 55 with two below that range and four above as shown in Figure 5-8.

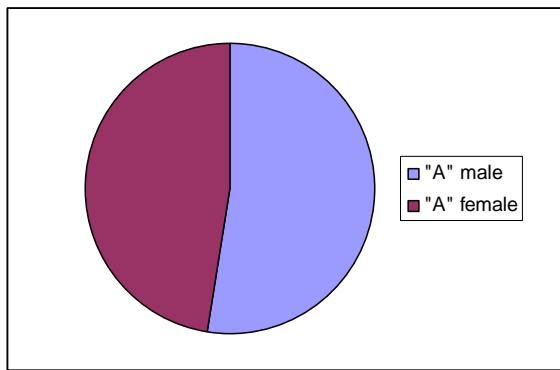


Figure 5-7 Active Group: Gender Composition

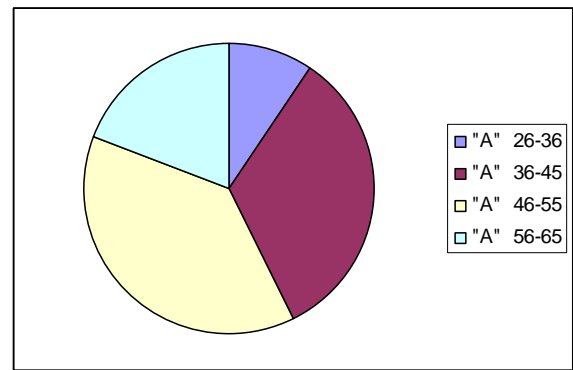


Figure 5-8 Active Group: Age Composition

The education profile of the active group shown in Figure 5-9 shows that of the 21 members, 18 had completed a Bachelor's degree and eight had completed a Master's degree. Three had not completed a four year degree or an advanced degree. Ten of the 21 members report having more than 25 years of work experience (see Figure 5-10).

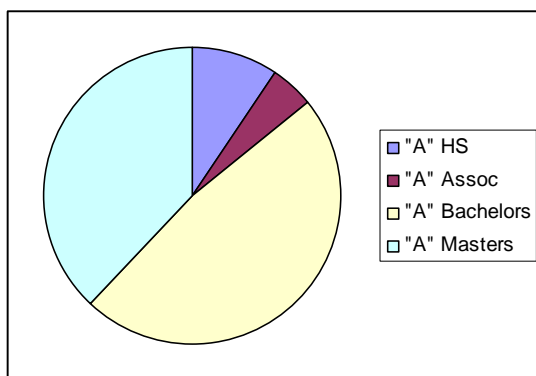


Figure 5-9 Active Group: Education Composition

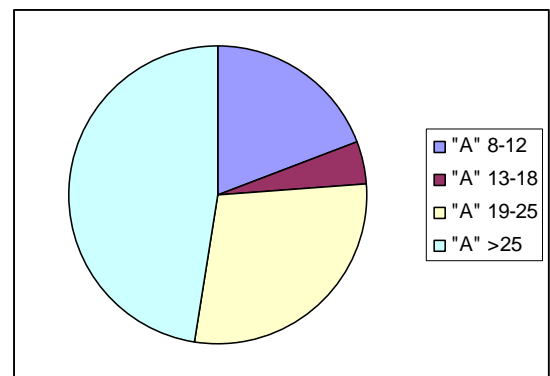


Figure 5-10 Active Group: Experience

5.10.2 Control Group

Figure 5-11 illustrates the gender composition of the control group with 13 males and eight females for a total of 21 fully completing the research series of activities. The majority of the control group participants were aged between 36 and 55, with two below that range and two above as shown in Figure 5-12.

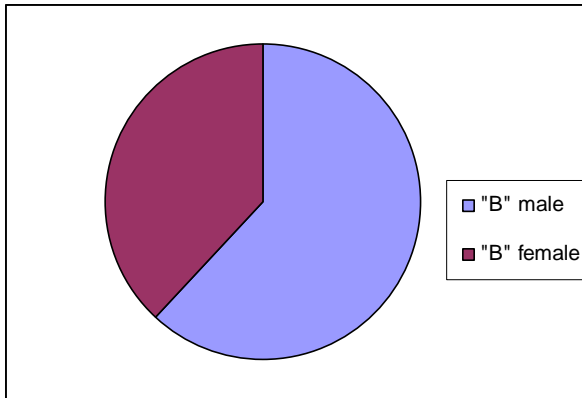


Figure 5-11 Control Group: Gender Composition

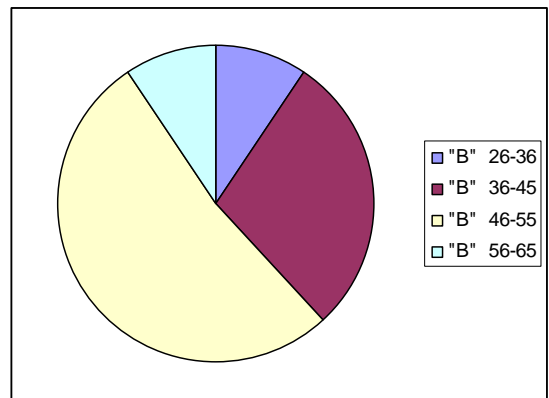


Figure 5-12 Control Group: Age Composition

The education profile of the control group shown in Figure 5-13 reveals that of the 21 members, 12 had completed a Bachelor's degree, five had completed a Master's degree, and one had completed the requirements for a doctoral level education. Three had not completed a four year degree or an advanced degree. Nine of the 21 members reported having more than 25 years of work experience (see Figure 5-14) with a reported average of 11.42 years of work experience across the team.

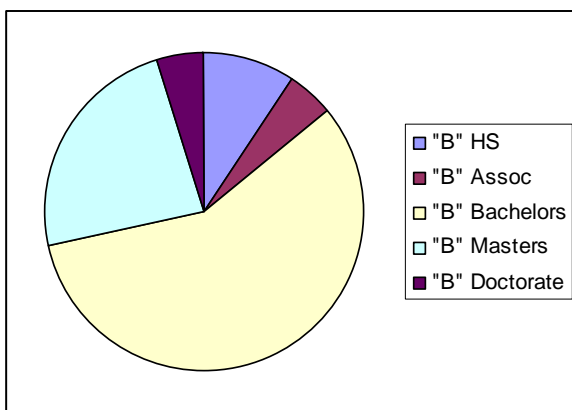


Figure 5-13 Control Group: Education Composition

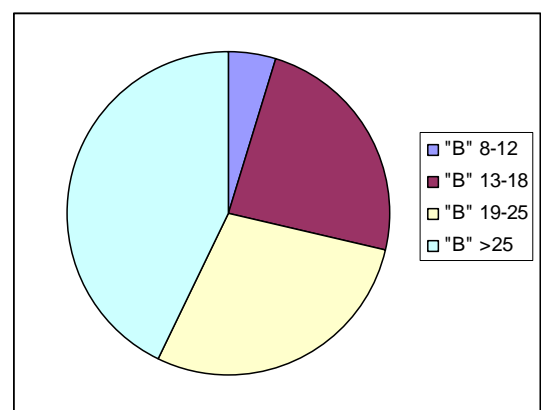


Figure 5-14 Control Group: Experience

The next section discusses the quantitative component of the mixed methods research approach chosen.

5.11 Discussion of Quantitative Data Analyses

A general statistical analysis was conducted through modeling relationships in data to test for treatment effects. As the number of observations was relatively small, a regression analysis was conducted to test the true (or unbiased) effect of the EC treatment. The regression equations used are shown in Table 5-5.

Table 5-5 Regression Equations

Data Set	Equation
Job Satisfaction Equation	$JS_i = c + aTreat_i + bX_i + dX_i*Treat_i + e_i$
Job Performance Equation	$JP_i = c + aTreat_i + bX_i + dX_i*Treat_i + e_i$
Emotional Competency Equation	$ECI_i = c + aTreat_i + bX_i + dX_i*Treat_i + e_i$

$JS_i / JP_i / ECI_i / =$ The Phase 3 minus the Phase 1 difference of the specific survey score for the *ith* individual in the project. The first regression result is the overall average survey score across all 37 questions for each participant. For the other 37 regressions, the score on each question was analyzed separately.

$Treat_i$ takes the value of “1” if the participant is in the active group and “0” if the participant is in the control group.

X_i is a set of variables describing the profile of the participant ‘*i*’ including gender, education level and tenure.

$X_i*Treat_i$ is a set of interaction terms between X_i and $Treat_i$, to see what features of the individual magnify or diminish the treatment effect.

The main coefficient of interest is a , where a positive measure indicates that the EC treatment had an effect on the participant’s job satisfaction, job performance, or EC values holding other factors (in X_i) constant.

5.11.1 Interaction Terms

The interaction terms used in data analyses were derived from the participant profile data as shown in column three of Table 5-6.

Table 5-6 Interaction Term Description and Abbreviation

Category	Possible responses:	Abbreviation
Gender	<ul style="list-style-type: none"> • Male • Female 	gender
Age Group	<ul style="list-style-type: none"> • 18 – 25 • 26 – 35 • 36 – 45 • 46 – 55 • 56 – 65 • 65 and older 	(not used)
Education (indicating highest level of completion)	<ul style="list-style-type: none"> • High School diploma (or equivalent) • Associates • Bachelor's • Master's • Doctorate 	Broken into: <i>ba</i> = bachelor's and below <i>gr</i> = master's and above
Professional Experience (years in workforce)	<ul style="list-style-type: none"> • 2 – 5 • 5 – 7 • 8 – 12 • 13 – 18 • 19 – 25 • > 25 	<i>tenure</i>
Number of years in current profession	<ul style="list-style-type: none"> • Numeric value 	(not used)
Ethnic description	<ul style="list-style-type: none"> • Not used 	(not used)

5.11.2 Participant Profile

Data gathered from participants who later withdrew from that study was not analyzed. Participant profile information was summarized and separated between *active* and *control* group status to observe any differences in composition of gender and/or professional experience between the groups.

5.11.3 Job Satisfaction Summary Statistics

In the job satisfaction survey, all answers were available (no “0”s) resulting in no missing data. For each participant (active and control groups) the average score was calculated on each of the 37 questions or the survey for both Phases 1 and 3. The correlated

interaction variables in Table 5-7 were calculated repeatedly for each of the 37 questions, thus the definition below corresponds to 37 values.

Table 5-7 Correlated Interaction Definitions

Interaction Calculation	Definition
Active Group _ Job Satisfaction/Performance/Emotional Competency Value	This is the change in specific survey scores for the active group between the Phase 1 survey measurement and the Phase 3 survey measurement, averaged across participants.
Control Group _ Job Satisfaction/Performance/Emotional Competency Value	This is the change in specific survey scores for the control group between the Phase 1 survey measurement and the Phase 3 survey measurement, averaged across participants.
Active Difference-in-Difference Active Group _ Control Group	This is the measure of difference when comparing the average results between the two study groups by taking the measure of active group change and subtracting the control group job change.

5.11.4 Job Performance Summary Statistics

For each participant (active and control groups) the average of the peer rating was calculated on every question (12 total) in the questionnaire for Phases 1 and 3. Null responses (“0” meaning “I don’t know” or “not applicable”) were considered a missing value and omitted in calculating the average. The correlated interaction variables in Table 5-7 were calculated repeatedly for each of the 12 questions.

5.11.5 Emotional Competency Summary Statistics

For each participant (active and control groups), the average scores were calculated on the 18 ECI categories from the inventory questionnaire for both Phase 1 and Phase 3. Self and peer-based data were analyzed separately. In those few instances where survey responses were left blank by the participant, the total number of responses for calculating individual survey question responses was decremented accordingly to ensure an accurate average score for each question. The variables in Table 5-6 were calculated repeatedly for each of the 18 ECI categories (short names defined in Table 5-8), thus each definition in Table 5-9 corresponds to 18 values.

Table 5-8 ECI Category Definitions

ECI Category	Associated Acronym	General Context of Category
Self-Awareness/Accurate Self Assessment	SAASA	Ability to receive and respond to criticism
Self-Awareness/Emotional Self Awareness	SAESA	Ability to recognize emotional reaction and response
Self-Awareness/Self Confidence	SASC	Self presentation
Self-Management/Achievement Orientation	SMAO	Goal orientation
Self-Management/Adaptability	SMA	Adaptability and Flexibility
Self Management/Emotional Self-Control	SMESC	Control of emotional expression
Self-Management/Initiative	SMI	Inclination to Initiate or Improve
Self-Management/Optimism	SMO	Level of optimism exhibited
Self-Management/Transparency	SMT	Ethical presence
Social Awareness/Empathy	SAE	Attentive and aware of others
Social Awareness/ Organizational Awareness	SAOA	Political perception
Social Awareness/Service Orientation	SASO	Personal sense of responsibility
Relationship Management/Change Catalyst	RMCC	Change driver
Relationship Management/Conflict Management	RMCM	Ability and desire to manage conflict
Relationship Management/Developing Others	RMDO	Ability to provide constructive feedback and direction
Relationship Management/Influence	RMI	Ability to command and persuade
Relationship Management/Inspirational Leadership	RMIL	Motivation and creativity
Relationship Management/Teamwork and Collaboration	RMTC	Team building and cooperation

Table 5-9 ECI Variable Calculations

Variable Name	Measure	Definition
ECI Change – Self – Active	Self rated ECI score in Phase 3 minus Self rated ECI score in Phase 1 for the active group participants	This measure is averaged across all participants in the Active Group.
ECI Change – Self – Control	Self rated ECI score in Phase 3 minus Self rated ECI score in Phase 1 for the control group participants	This measure is averaged across all participants in the control group.
ECI Self DID	ECI Change in Self rated score for active participants (from first listed variable above) minus the ECI Change in Self rated score for control participants (from second listed variable above)	This is a Difference-in-Difference measure.
ECI Change – Peer – Active	Peer rated ECI score in Phase 3 minus Peer rated ECI score in Phase 1 for the active Group participants	This measure is averaged across all participants in the Active Group.
ECI Change – Peer – Control	Peer rated ECI score in Phase 3 minus Peer rated ECI score in Phase 1 for the control Group participants	This measure is averaged across all participants in the control group.
ECI Peer DID	ECI Change in Peer rated score for active participants (from first listed variable above) minus the ECI Change in Peer rated score for control participants (from second listed variable above)	This is a Difference-in-Difference measure.

5.12 Confidentiality and Consent

An application for approval of a project involving human subjects was completed and approved as of 21 September 2004 by the Royal Melbourne Institute of Technology (RMIT) University Business Human Research Ethics Sub-committee (APPENDIX D). Appendix 2 of the application contains the guidelines for provision of written information and the prescribed form for informed consent of subjects participating in the research project.

5.13 Summary of Chapter

This chapter described the design and the structure of the research. The concept for the set-up of a research case study was reviewed including the structure for conducting a series of phases explaining the iterative approach to data analysis. Qualitative and quantitative approaches to research were explained in terms of this specific case study. The

sampling method employed was provided and described, along with the constraints placed on selecting study participants.

Study group profiles for the active and control groups were provided with detailed demographic information as part of the process for coding the data, as well as, the process of validating description categories in context of the sample population. Each of the group constructs were determined to be probabilistically equivalent for application of the quantitative data analyses. Summaries of the data analysis approaches were reviewed with an explanation of interaction terms uses and personnel profiles established. Job satisfaction, job performance, and emotional competency category details were outlined to further detail data collection and analytical approaches involved to support a transparent account of the research process.

Chapter 6 presents the results of the effect of EC treatment on the active group in the areas of job satisfaction, job performance, and change in EC inventory.

6 FINDINGS

This chapter provides effect of EC treatment analysis on the active group in the areas of job satisfaction, job performance, and change in EC inventory.¹⁸ All tables representing statistical results contain only data elements that are statistically significant at the 10% level or better. For the reader's reference in understanding differences identified by the analysis conducted, it is important to note that all survey tools used were based on a five-point scale

Table 6-1 Basis of Statistical Terminology

Terminology	Definition
Coef = Coefficient	A measure that allows us to determine how certain one can be in making predictions.
P-val = P-value	The smallest significance level at which a null hypothesis may be rejected.
<i>1% significance level</i>	Color coded pink
<i>5% significance level</i>	Color coded yellow
<i>10% significance level</i>	Color coded blue
Basic Characteristic	
<i>treat</i>	A dummy variable used to distinguish between study participants that did receive the study treatment (value of 1) and those who did not receive the study treatment (value of 0).
<i>gender</i>	A dummy variable used to distinguish between study participants that were male (value of 1) and those that were female (value of 0).
<i>ba</i>	A dummy variable used to distinguish between study participants with an undergraduate degree (value of 1) and those with a high school level of education (value of 0).
<i>gr</i>	A dummy variable used to distinguish between study participants with a graduate degree (value of 1) and those without (value of 0).
<i>ethnic</i>	A dummy variable used to distinguish between Caucasian study participants (value of 1) and those of other ethnic background (value of 0).
<i>tenure</i>	A dummy variable used to distinguish between study with eight or more years of tenure (value of 1) and those with less than eight years of tenure (value of 0).
Interaction Term	
<i>gen_treat</i>	This interaction term refers to the effect (based on treatment) of the term <i>gender</i> .
<i>tenure_treat</i>	This interaction terms refers to the effect (based on treatment) of the term <i>tenure</i> .
<i>ba_treat</i>	This interaction terms refers to the effect (based on treatment) of the term <i>ba</i> .
<i>gr_treat</i>	This interaction terms refers to the effect (based on treatment) of the term <i>gr</i> .

¹⁸ All statistical results can be review in Appendices S - U.

Table 6-1 provides an explanation of the terms used to represent statistical results in following sections.

Most observations and all data results are post Phase 3 and related specifically to changes in active group (the group that received the EI treatment in Phase 2) participants.

6.1 Analysis of Hypotheses

An empirically-based working hypothesis has been presented to the effect that a greater potential of project success can be realized by introducing information on emotional competencies to enhance the degree of job satisfaction and performance toward meeting project goals.

6.2 Effect Findings of EC Treatment on Job Satisfaction

All participants answered all questions in the job satisfaction survey providing an excellent body of information. Regression analysis was used to examine the interaction of the basic demographic characteristics and the job satisfaction survey.

Table 6-2 shows the regression results of the average score across all 37 questions.¹⁹ As explained in Table 6-1, the basic characteristic *treat* is a dummy variable taking the value of 1 when the study participant received the EI treatment (active group) and a value of 0 when the study participant did not receive the EI treatment (control group). Overall, the active group participants increased 1.148 points (on a 5-point scale as shown in Table 6-2) on the job satisfaction survey than did those in the control group (untreated group), holding other individual characteristics constant. The estimated coefficient is statistically significant at the 1 percent (1%) level.²⁰ To allow for different treatment effects for individuals with different educational backgrounds,²¹ regression interactions between education status and the variable dummies were included. In looking at the interaction terms, the results for *ba_treat* indicate

¹⁹ Specific detail or restatement of survey questions is avoided to prevent violation of proprietary information related to the commercial products used with permission as research tools.

²⁰ Coefficient = 1.148431 with a P-value of 0.000

²¹ Three categories were considered: high school graduate, individual's with an undergraduate degree and those with a graduate degree.

that based on receiving the treatment and holding all other variables constant those participants with a high school level of education benefited more (increase of 1.013 points) when compared to those participants with an undergraduate education. It may be that individuals with a high school level of education have had less exposure to the concepts provided in the treatment materials than those individual participants with more education. It is worth noting that additional research that would evaluate previous education and training of participants may provide additional insight into this particular result.

Table 6-2 Overall Job Satisfaction Survey Regression Analysis Result for all Survey Satisfiers

Survey Question:		Overall
treat	Coef	1.148
	p-val	0.000
gender	Coef	
	p-val	
ba	Coef	
	p-val	
gr	Coef	
	p-val	
ethnic	Coef	
	p-val	
tenure	Coef	-0.023
	p-val	0.054
gen_treat	Coef	
	p-val	
tenture_treat	Coef	
	p-val	
ba_treat	Coef	-1.013
	p-val	0.004
gr_treat	Coef	
	p-val	

Independent variable: Individual average job satisfaction score.

The data was constructed into individual level observations, on the change in score, for each of the 37 job satisfaction questions before and after the treatment. The construction enables the creation of 37 separate regressions, scientifically revealing how the treatment affected 37 separate aspects of job satisfaction. Looking first at the effect of the treatment; 37 measures provide 20 significant results, including:

- ❖ 9 at the 1% level,
- ❖ 7 at the 5% level, and

❖ 4 at the 10% level.

Table 6-3 provides more detail on these results.

Table 6-3 Job Satisfaction Regression Analysis Results for Statistically Significant Impact, based on Effect of Treatment

Question #	Coefficient	P-value
1% level		
Q8	2.027561	0.000
Q23	1.936205	0.000
Q29	2.333069	0.000
Q11	2.157358	0.002
Q16	2.25851	0.003
Q19	1.663438	0.004
Q12	1.264203	0.005
Q10	1.44164	0.008
5% level		
Q36	1.243713	0.015
Q17	1.106547	0.018
Q37	2.395463	0.022
Q20	1.588412	0.025
Q27	1.406398	0.027
Q21	.9958723	0.028
Q3	1.67324	0.036
Q26	1.339372	0.037
10% level		
Q25	.9519708	0.051
Q22	1.167311	0.054
Q33	.9740329	0.067
Q14	1.466803	0.079

Individual characteristics, such as gender, education, and job tenure were included in the regression analyses provided in APPENDIX T.

6.2.1 Job Satisfaction Dimension Breakout

As previously detailed in Section 4.3.2, the construct of the job satisfaction survey is based on two dimensions. The first dimension is *organization-provided* and consists of those policies, operational norms, and culture upon which an organization operates. Such things as policies and processes are included in this dimension in relation to how they impact and operate in conjunction with the employee. These culture-related norms can have a strong influence on the way in which workers interact.

The second dimension is for *job-related* satisfiers including such things as the day-to-day task assignments in a job. These satisfiers relate to the appropriate and fulfilling utilization of employee skills and abilities that lend themselves to an individual's sense of accomplishment. These elements are independent of any related compensation or rewards external to job performance.

Each of the dimensions is further constructed of sub-dimensions (refer to Table 4-4). The following paragraphs examine the regression analysis results for each dimension, based on sub-dimensions.

6.2.1.1 Organization-Provided Sub-Dimension – Culture and Climate

As stated within the Ball Foundation documentation regarding the sub-dimension elements,²² the culture satisfier is a complex contributor. This element is indicative of the tenor of cultural norms, played out in personal interactions that enable people to feel safe, valued and respected within their work environments. The regression analysis results for this specific survey satisfier item are shown in Table 6-4.

²² Ball Foundation survey, as managed through Career Vision (www.careervision.org), provides information concerning each of the sub-dimensional elements as part of the survey response following survey completion.

Table 6-4 Job Satisfaction survey Regression Analysis Result for Survey Satisfier items related to Culture and Climate

Survey Question:		30	33	34	37
treat	Coef		0.974		2.395
	p-val		0.067		0.001
gender	Coef				
	p-val				
ba	Coef		0.951		1.441
	p-val		0.021		0.011
gr	Coef				1.171
	p-val				0.042
ethnic	Coef				
	p-val				
tenure	Coef				-0.037
	p-val				0.089
gen_treat	Coef			-1.727	
	p-val			0.018	
tenture_treat	Coef				
	p-val				
ba_treat	Coef		-1.078		-3.029
	p-val		0.069		0.000
gr_treat	Coef				-2.168
	p-val				0.018

Independent variable: Individual job satisfaction scores related to Culture and Climate.

The following observations are drawn from the results for the Culture and Climate related satisfier items illustrated in Table 6-4:

- a. The EI treatment had a statistically significant effect on three (questions 33, 34, and 37) of the four satisfiers.
- b. Question #30 addresses the comfort of the work environment on work productivity. No statistically significant results were noted within any of the participant response characteristics (treat, gender, ba, etc.).
- c. Valuing work contribution (question #33) showed statistically significant positive change with those participants having an undergraduate degree experiencing an increase of 0.951 points (statistically significant at the 5% level) between measurement phases.

- d. Analysis on question #34, related to fairness of recognition given by the company, shows a gain of 1.7 points (at the 5% level) for female participants²³ (on a five point scale) following the treatment, when compared to men. This would appear to indicate that the female participants view their respective lead organization as being more fair when giving recognition than do the male participants.
- e. The treatment had a very significant effect for question #37 (related to the amount of time the individual is given to perform work), indicating that the treatment shifted the perspective of participants about the schedule associated with performing work assignments and this was demonstrated by an increase of 2.395 points (at the 1% level of statistical significance). A statistically significant effect is shown for those with lower education levels who were found to have benefited more from treatment when compared to those with undergraduate and graduate levels of education. The term *ba_treat* increased 3.029 points (1% level) for those with high school education (when used as the reference group) in and for those without a graduate level education the results show an increase of 2.168 points (5% level) in *gr_treat*.

6.2.1.2 Organization-Provided Sub-Dimension – Supervision

The Supervision sub-dimension is related to the expectations an employee and supervisor have for each other and the degree to which their work styles are compatible. Comfort is generally conveyed in the frequency of feedback as it relates to communications, work instructions and plans, and progress evaluations/feedback. The regression analysis results for this specific survey satisfier item are shown in Table 6-5.

²³ Female participants are the reference group (= 0) resulting in a negative result. All negative results are based on the assigned reference group. See Table 6-1 for Character and Term definitions.

Table 6-5 Job Satisfaction Survey Regression Analysis Result for Survey Satisfier items related to Supervision

Survey Question:		17	20	22	23	29
treat	Coef	1.106	1.558	1.167	1.936	2.333
	p-val	0.018	0.025	0.054	0.000	0.000
gender	Coef				0.548	
	p-val				0.034	
ba	Coef					
	p-val					
gr	Coef					0.764
	p-val					0.072
ethnic	Coef				0.596	0.751
	p-val				0.086	0.035
tenure	Coef				-0.063	
	p-val				0.003	
gen_treat	Coef				-0.774	
	p-val				0.097	
tenture_treat	Coef					
	p-val					
ba_treat	Coef				-1.827	-1.715
	p-val				0.001	0.026
gr_treat	Coef					-1.354
	p-val					0.085

Independent variable: Individual job satisfaction scores on supervision.

The following observations are drawn from the results against the Supervisor sub-dimension related satisfier items:

- a. The EI treatment had a statistically significant positive effect on all five satisfiers associated with *treat*, with two at the 1% level, two at the 5% level and one at the 10% level.
- b. Ratings of the fairness and reasonableness of supervisor from question #17 had an increase of 1.106 points between treatment phases, with statistical significance at the 5% level. Question #20, which related to the participant's satisfaction with the direction received from their boss, recorded a 1.558 point gain. Question #22 inquires on the ability of the individual to improve work skills based on feedback given on the job, which shows an increase of 1.167 points following the EI treatment. Question #23 addresses the amount of discretion the individual has over their work, reveals an increase of 1.936 points (at the 1% level).

Question #29 asks the participant how comfortable they are with how closely their boss tracks their work with a resulting increase of 2.333 points (at the 1% level).

- c. Negative and statistically significant effects are seen from responses to questions #23 (-1.827) and #29 (-1.715 and -1.354) points concerning discretion over individual work and comfort with how closely the boss tracks individual work, respectively. The comparison of *ba_treat* reveals that those with a high school level of education benefited more from the treatment on both of these questions than did those with a higher (undergraduate or graduate) level of education.

6.2.1.3 Organization-Provided Sub-Dimension – Co-workers

This sub-dimension is related to job satisfaction as it is influenced by the working relationships the employee has with co-workers. This measurement is for personal preferences and expectations related to the level of social interaction among office personnel. The regression analysis results for this specific survey satisfier item are shown in Table 6-6.

Table 6-6 Job Satisfaction Survey Regression Analysis Result for Survey Satisfier items related to Co-worker Relationships

Survey Question:		21	24	32
treat	Coef	0.996		
	p-val	0.028		
gender	Coef			
	p-val			
ba	Coef	1.099		
	p-val	0.001		
gr	Coef	0.996		
	p-val	0.007		
ethnic	Coef			
	p-val			
tenure	Coef			
	p-val			
gen_treat	Coef			
	p-val			
tenture_treat	Coef			
	p-val			
ba_treat	Coef	-1.032		
	p-val	0.045		
gr_treat	Coef			
	p-val			

Independent variable: Individual job satisfaction scores on co-worker relationships.

The following observations are drawn from the results against the Co-worker

Relationships sub-dimension related satisfier items:

- a. The EI treatment had a statistically significant positive effect on one of three satisfiers.
- b. Question #21 asks the participants to respond to the statement – I enjoy my coworkers.

Over all, the treatment resulted in an increase of 0.996 points at the 5% level of statistical significance (on a five point scale) for this satisfier item indicating an overall increase in enjoyment of working with their coworkers. Participants with an undergraduate and graduate level of education experienced point increases for this satisfier of 1.099 and 0.996 (both at the 1% level), respectively. When compared to those with an undergraduate level of education, individuals with a high school education appear to have benefited more from the treatment, as indicated by the negative coefficient of -1.032 (5% level) for the interaction *ba_treat*. Those individuals with a high school education seem to have benefited more than others. This could be an indication that pursuing further education helps individuals to mature and become more emotionally intelligent, or perhaps is simply a side benefit of further education.

6.2.1.4 Organization-Provided Sub-Dimension – Salary/Benefits/Incentives

This satisfier is considered critical in terms of ensuring all aspects of compensation are competitive between positions (internal equity) and within industry (external equity). Variations within compensation offerings have the potential to be satisfactory to some individuals and not others. The regression analysis results for this specific survey satisfier item are shown in Table 6-7.

Table 6-7 Job Satisfaction Survey Regression Analysis Result for Survey Satisfier items related to Salary, Benefits, and Incentives

Survey Question:		13	14	15	31
treat	Coef		1.467		
	p-val		0.079		
gender	Coef				
	p-val				
ba	Coef	0.492	1.028		
	p-val	0.022	0.045		
gr	Coef				
	p-val				
ethnic	Coef				
	p-val				
tenure	Coef	-0.043			
	p-val	0.038			
gen_treat	Coef				
	p-val				
tenture_treat	Coef				
	p-val				
ba_treat	Coef		-1.476		
	p-val		0.09		
gr_treat	Coef				
	p-val				

Independent variable: Individual job satisfaction scores on salary, benefits and incentives.

The following observations are drawn from the results against the Salary/Benefits/Incentives sub-dimension related satisfier items:

- a. The EI treatment had statistically significant positive and negative effects on two of four satisfiers at the 5% and 10% levels.
- b. Questions #13 relates to the quality of the individual's employer benefits package. Participants with an undergraduate level of education experienced an increase for character *ba* of 0.492 points (5% level) indicating that this group may have researched other company benefits packages and found the one they have with their current employer to be competitive or better than others.
- c. For question #14 concerning the ability or advance or availability of lateral moves there was an increase of 1.467 (10% level) points based on the character *treat*. The coefficient of the character *ba* is also positive, increasing by 1.028 points (5% level). There was also a statistically significant result in the interaction term *ba_treat* by -1.476 points (5% level) for the question, indicating that those having an undergraduate

degree felt more positively about these opportunities for advancement within the organization. The negative coefficient for *ba_treat* is, once again, an indication that those who have had less education benefited the greatest from treatment in satisfiers related to salary, benefits, and incentives.

6.2.1.5 Job-Related Sub-Dimension – Skill Variety

Individual aptitude patterns drive individual differences. This sub-dimension is related to a good pattern match between the employee and job higher levels resulting in job satisfaction. The regression analysis results for this specific survey satisfier item are shown in Table 6-8.

Table 6-8 Job Satisfaction Survey Regression Analysis Result for Survey Satisfier items related to Skill Variety

Survey Question:		1	2	3	4	5	6	7	8	9	10	27	28
treat	Coef			1.673					2.028		1.441	1.406	
	p-val			0.036					0.000		0.008	0.027	
gender	Coef						0.884						
	p-val						0.069						
ba	Coef				0.837				0.858			0.909	
	p-val				0.097				0.029			0.057	
gr	Coef								1.011				
	p-val								0.015				
ethnic	Coef			-0.895									
	p-val			0.028									
tenure	Coef	-0.600							-0.028		-0.052	-0.071	
	p-val	0.028							0.082		0.030	0.034	
gen_treat	Coef	-1.629					-1.456						
	p-val	0.027					0.074						
tenture_treat	Coef	0.074											0.088
	p-val	0.012											0.032
ba_treat	Coef			-1.378					-2.130		-1.192	-1.723	-1.733
	p-val			0.098					0.001		0.053	0.030	0.025
gr_treat	Coef								-2.247				
	p-val								0.000				

Independent variable: Individual job satisfaction scores on skill variety.

The following observations are drawn from the results against the Skill Variety sub-dimension related satisfier items:

- a. The EI treatment had a statistically significant positive and negative effect on two-thirds (eight out of 12) of the satisfier items, with four at the 1% level, thirteen at the 5% level, and seven at the 10% level; including interaction comparisons.

- b. Question #3 addresses the individual's satisfaction with how often new information is learned. The treatment had a statistically significant positive effect of an increase of 1.673 points (at the 5% level). This indicates that the treatment may have caused participants to pay more attention to their learning opportunities or perhaps it encouraged inquiring into what opportunities were available when they were previously unsure, with positive results.
- c. Question #8, involving satisfaction with how often the individual works with or creates visual information, gained 2.028 points (1% level) as a result of treatment. Interaction term analysis reveals that those individuals with a high school level of education gained the greatest benefited with results indicating a -2.130 (indicating a 2.130 point increase for those with high school diploma) when compared to those with an undergraduate level of education and a -2.247 (indicating a 2.247 point increase for those with high school diploma or undergraduate degree) when compared to those with a graduate degree.
- d. Satisfaction in how often individuals are able to share knowledge with others is the subject on question #10. A statistically significant positive result at the 1% level (1.441 point increase) occurred as a result of treatment.
- e. Question #27 concerns the individual's view about the job using the best of their abilities. The results show a positive effect increasing by 1.406 points (5% level) overall as the result of treatment. This may indicate the participants were able to reevaluate their work assignments with a new perspective as a result of the treatment and felt better about their skills fit with their assignment.
- f. Five negative coefficients for *ba_treat* provide a strong indication that participants with lower education level (high school) gained the greatest benefit. There are also gender differences in the results for the treatment effect. *Gender_treat* has negative coefficients for two of the regressions performed. Given that gender = 1 for males and

0 for females, the result suggests that females benefited more from the treatment than did males.

6.2.1.6 Job-Related Sub-Dimension – Sense of Control and Role

Understanding how an employee's role fits into the overall organizational picture can be a driver of job satisfaction. Providing a clear understanding of how the elements of an employment position contribute to the greater objective may enable an employee to feel a greater sense of control over their professional success and work choices. The regression analysis results for this specific survey satisfier item are shown in Table 6-9.

Table 6-9 Job Satisfaction Survey Regression Analysis Result for Survey Satisfier items related to Sense of Control and Role

Survey Question:		11	12	16	18	19	25	26	35	36
treat	Coef	2.157	1.264	2.259		1.663	0.952	1.339		1.243
	p-val	0.002	0.005	0.003		0.004	0.051	0.037		0.015
gender	Coef	0.727		1.155						
	p-val	0.033		0.012						
ba	Coef		0.894	1.034						
	p-val		0.034	0.096						
gr	Coef		0.859							
	p-val		0.021							
ethnic	Coef		0.566							
	p-val		0.058							
tenure	Coef		-0.040						-0.460	
	p-val		0.055						0.060	
gen_treat	Coef			-1.492						
	p-val			0.018						
tenture_treat	Coef									
	p-val									
ba_treat	Coef	-2.000	-1.200	-1.375				-1.507	-1.769	
	p-val	0.012	0.036	0.067				0.077	0.048	
gr_treat	Coef							-1.282		
	p-val							0.087		

Independent variable: Individual job satisfaction scores on sense of control and role.

The following observations are drawn from the results against the Sense of Control and Role sub-dimension related satisfier items:

- a. This sub-dimension had the second highest instance of a statistically significant (positive and negative) effect of the EI treatment on participants.
- b. Those satisfiers that are statistically significant at the 1% level are related to questions #11, 12, 16, and 19 concerning the degree of freedom in work approach, the benefit of work performed by others, learning opportunities, and the importance of the

participant's job to the overall organization. These areas experienced an increase of 1.2 – 2.3 points (on a five point scale). Three other areas also show statistically significant positive increases at either the 5% or 10% level as related to questions about how their work affects other successes – question #25, participant's ability to understand how their work contributes to the larger project – question #26, and the level of responsibility they are given – question #36.

- c. As in other sub-dimensions, the negative coefficient for *ba_treat* (questions #11, #12, #16, #26, and #36) indicates that those with a lower educational level benefited more from the treatment.

6.2.2 The Effect of Emotional Competency Treatment on Job Satisfaction

The effect of the EC treatment on job satisfaction was a statistically significant increase of 1.15 points for those participants who received the treatment in how they relate to the organization-provided and job specific qualities of their job.²⁴ The organization-provided satisfiers related to policies, operational norms, and culture upon which an organization operates and the job related dimension satisfiers included such things as the day-to-day work assignments.

The two outcome variables that were examined through regression analysis are explained in further detail in the follow subparagraphs and all results are provided in APPENDIX U.

6.2.2.1 Job Satisfaction Scores Averaged

Change in job satisfaction scores averaged across 30 of 37 possible questions reveal a positive and very significant (at 1% level) coefficient on character *treat*. Moreover, participants with more tenure (in the organization) and a lower educational level (high school) benefited more from the EC treatment.

²⁴ Overall job satisfaction survey results were provided in Table 6-2.

6.2.2.2 Job Satisfaction Scores Evaluated Independently

Changes in job satisfaction scores for each question in the job satisfaction survey were evaluated independently. These results are represented in 37 separate regressions.

Coefficients on *treat* vary in size and level of significance. Thirty-five of 37 regressions exhibited positive coefficients on *treat* (the two with negative coefficients being extremely insignificant). In addition, 20 out of the 35 positive coefficients are significant at the 10% level.

6.2.3 Summary of Job Satisfaction Regression Results

In summary, the EC treatment improved participants' job satisfaction overall. The treatment had a positive impact on almost all 37 aspects of job satisfaction measured by the survey. Such impacts were statistically significant for 20 of the job satisfaction measures.

How a participant's individual characteristics interacted with the EC treatment was also analyzed through the regression method (by adding interaction terms). While such interaction effects differ across questions, individuals with lower education seemed to have gained the greater benefit more from the EC treatment in terms of job satisfaction.

6.3 Analysis of Job Performance Change Following Emotional Intelligence Treatment of the Case Study Active Group

To determine whether the EC treatment had any impact on an individual's job performance (as rated by peers); the following regression was run with *average job performance* being the outcome variable and individual characteristics being the independent variable.

Average job performance is defined as being a measure for all active group participants, using Phase 3 survey data, averaged across the 12 job performance survey questions; minus the Phase 1 survey data also averaged across the 12 survey questions.

The regression analysis results show that the EC treatment had a positive and significant impact (at 10% level) on average job performance scores. Going through the EC

treatment improved the individual's job performance score by 0.58 points on average (on a 5 point scale as shown in Table 6-10 Table 6-10) compared to individuals in the control group, holding other observable individual characteristics constant. Additionally, the results indicate that females experienced a higher increase in job performance scores compared to male participants.

As shown in Table 6-10, of the 12 regressions analyses performed only one question (#5) demonstrated a negative coefficient on character *treat*. Among the remaining results for *treat*, five positive coefficients with statistical significance are found (questions #7, #8, #10, #11 and #12). Detailed regression results are provided in Table 6-10 Table 6-10. When reviewing the data in Table 6-10, it should be noted that the number of observations differs for each regression. To ensure accurate results, individual data was eliminated from a regression analysis for any job performance element where the participant was not rated (absent response) by the rater on that question.

The following observations are drawn from the results shown in Table 6-10:

- a. Similar to many of the results shown in the evaluation for job satisfaction in Section 6.2, the negative coefficient for *ba_treat* of -0.798 points indicates that participants with a high school level of education benefited more from the treatment overall. This finding suggests that additional research could explore relationship between advanced education and increases in emotional intelligence, perhaps a side benefit of further education.
- b. Whether the individual being rated was able to deliver feedback in a positive way was the question asked of raters in question #5. The treatment resulted in an overall increase in points for females, as the reference group in this case, gaining nearly a full point (0.975). At the 5% level of statistical significance, the response indicates that females (as reviewed by their peers) improved in their ability to provide productive feedback and to more effectively manage their workload after the treatment than

before. The change in performance rating for this question would make an interesting area for additional research. Perhaps this result is related to differences in leadership styles of men and women as found by Eagly and Johnson (Eagly and Johnson 1990)

Table 6-10 Job Performance survey Regression Analysis Results for Impact on Job Performance following Emotional Competency Study Treatment

Survey Question:		Overall	1	2	3	4	5	6	7	8	9	10	11	12
treat	Coef	0.580					-0.809		1.600	0.716		1.050	1.063	1.450
	p-val	0.057					0.068		0.000	0.072		0.047	0.009	0.020
gender	Coef	-0.340					-0.975		0.511	-0.534				
	p-val	0.097					0.019		0.042	0.063				
ba	Coef								0.602	0.430				
	p-val								0.020	0.083				
gr	Coef								0.972					
	p-val								0.000					
ethnic	Coef													
	p-val													
tenure	Coef													
	p-val													
gen_treat	Coef													
	p-val													
tenture_treat	Coef													
	p-val													
ba_treat	Coef	-0.798												
	p-val	0.018												
gr_treat	Coef													
	p-val													

- c. Question #7 relates to how well the person being rated follows instructions.

Following the EC treatment, the rating values show strong positive coefficients with an increase in 1.600 points for character *treat* at the 1% level and an increase of 0.511 points at the 5% level for *gender*, indicating the males were rated as improving more than females for this element. Increases of 0.602 (5% level) and 0.972 points (1% level) for *ba* and *gr* respectively, indicate that participants with an undergraduate or graduate level of education benefited more.

- d. Question #10 inquires on the flexibility of those being rated in anticipating and adapting to change. An increase of 1.050 points (at the 5% level) for character *treat*, indicates that those receiving the treatment were seen as becoming more forward thinking and flexible within the ever changing project environment. Those with more EI are thought to be better able to adapt to change (Goleman 1995).

- e. Point increases were also observed in relationship to participants' ability to proactively resolve problems (question #11) and whether they were likely to ask for help in tackling difficult assignments (#12). Proactive problem solving was rating as improving following the treatment phase 1.063 points (at the 1% level). Mayer and Geher (1996) found that increases in EI improved problem solving ability and created an openness to receiving help.

6.3.1 Summary of Job Performance Regression Results

The effect of the EC treatment on job performance measures was a statistically significant result in six of the 12 responses to the questions answered. Overall respondent point values increased by 0.580 points. This moderate increase is supported by the findings of Bachman, Stein, Campbell and Sitarenios (2000) and the work of Goleman (1995) and (1998), and Cherniss (2000).

6.4 Analysis of ECI Change Following Emotional Intelligence Treatment of the Case Study Active Group

Regression analysis was run on the ECI data with the self and peer ratings separated. All regression analysis results for ECI change are provided in Table 6-11 with all regression analysis results provided in APPENDIX V. The analysis performed focused on the 18 EC clusters within the inventory tool. Each competency cluster is supported by four questions within the ECI tool (see Table 6-11).

Overall, the treatment had a positive and statistically significant impact on self evaluations and no statistical significance based on peer evaluation (averaged across all 72 questions). Looking across the breakout of emotional competency clusters by competency area, there were eight positive and three negative statistically significant results within the self ratings. The peer ratings are nearly the opposite, with three positive and ten negative statistically significant results. These findings will be further examined in the paragraphs that follow.

Table 6-11 Emotional Competency Inventory Cluster Breakout by Competency Area

Category #	Cluster/Competency	Acronym identification
1	Self-Awareness/Accurate Self Assessment	SAASA
2	Self-Awareness/Emotional Self Awareness	SAESA
3	Self-Awareness/Self Confidence	SASC
4	Self-Management/Achievement Orientation	SMAO
5	Self-Management/Adaptability	SMA
6	Self Management/Emotional Self-Control	SMESC
7	Self-Management/Initiative	SMI
8	Self-Management/Optimism	SMO
9	Self-Management/Transparency	SMT
10	Social Awareness/Empathy	SAE
11	Social Awareness/Organizational Awareness	SAOA
12	Social Awareness/Service Orientation	SASO
13	Relationship Management/Change Catalyst	RMCC
14	Relationship Management/Conflict Management	RMCM
15	Relationship Management/Developing Others	RMDO
16	Relationship Management/Influence	RMI
17	Relationship Management/Inspirational Leadership	RMIL
18	Relationship Management/Teamwork and Collaboration	RMTC

6.4.1 ECI Change Following EI Treatment – Self

In examining the results of the ECI Self evaluations (shown in Table 6-12), the treatment effect appears to be predominantly positive. In order to correctly identify the treatment effect, regression analysis was conducted by controlling for the impact of other observable individual characteristics (e.g., gender, tenure, and education).

Table 6-12 Summary of Findings on ECI - Self Ratings

		treat		gender		ba		gr		ethnic		tenure	
		Coef	p-val	Coef	p-val	Coef	p-val	Coef	p-val	Coef	p-val	Coef	p-val
All	All	0.232	0.006										
SAASA	1												
SEASA	2												
SASC	3												
SMAO	4												
SMAO	5												
SMESC	6			-0.020	0.079								
SMI	7			0.449	0.003								
SMO	8												
SMT	9												
SAE	10												
SAOA	11	0.310	0.072			0.725	0.050			-0.571	0.009		
SASO	12												
RMCC	13	2.803	0.000										
RMCM	14												
RMDO	15			0.298	0.053	0.355	0.062	0.353	0.066			0.025	0.004
RMI	16							-0.456	0.071				
RMIL	17												
RMTC	18												

Self rated ECI scores, averaged across all 72 questions reveal that ECI values improved overall by 0.232 points (on a five point scale with statistical significance at the 1 % level, as shown in Table 6-12) for those treated (active group) individuals, holding other demographic factors constant. Looking at the 18 ECI categories separately (Table 6-12); six of 18 ECI categories had statistically significant measurements recorded.

Effects observed in self ratings separated by ECI cluster include the following:

- a. SMI (Self-Management/Initiative). Results here reveal a significant increase of 0.449 points for male participants (males = 1) at the 1% level. This category includes questions concerning personal initiative in approaching and accomplishing work elements.
- b. The area with most change was for basic characteristic *treat* in category RMCC (Relationship Management/Change Catalyst). The questions in this area are related to a participant's ability to accept and respond to change. Following the treatment, it appears that in self-evaluation participants felt more confident in how they viewed their ability to deal with changes in the workplace. Individuals in the treated group on

average experienced an increase of 2.803 points on the RMCC score, the evidence being statistically significant at 1% level. This increase in change tolerance is supportive on findings by Goleman et al. (2002).

- c. RMI (Relationship Management/Influence). Those without a graduate level of education benefited more in this area where holding the attention and support of others is the basis of examination.

6.4.2 ECI Change Following EI Treatment – Peer

The goal of this research was to attain data as close as possible to a 360 degree feedback evaluation. The job performance and emotional competency tools used for this research collected the input of other people with whom the participants worked to provide a peer-report. In this type of report, individuals were given a form to complete about a peer as described in Chapter 4 (group assignment) and Chapter 5 (research techniques).

As previously described, the participants were asked to evaluate two work group peers. The peers, that each participant was to evaluate, were identified in the letter of introduction provided to each participant. The random nature of group assignment resulted in peer feedback coming from individuals that participated in the study, but who may or may not have received the treatment. Participants were not instructed to conceal their group assignments for one another, creating the potential for biased performance expectations on the part of the rater. For peer evaluation, performance data was collected systematically on the assigned individual using two questionnaire tools (Ward 1997). The first was the ECI™ tool (peer version) as shown in APPENDIX H and the second was a general work performance survey (APPENDIX K). The participant was required to answer the questionnaires (one of each type) for each of the peers assigned.

As shown in Table 6-13, the treatment effect appears to have resulted in a number of negative and statistically significant impacts in examining the results of the ECI Peer evaluations. In order to correctly identify the treatment effect, regression analysis was

conducted by controlling for the impact of other observable individual characteristics (e.g., gender, tenure, and education).

Peer rated ECI scores, averaged across all 72 questions reveal that ECI performance, as viewed by the raters, remained generally the same following the treatment phase. Looking at the 18 ECI categories separately (Table 6-11); eight of 18 ECI categories had a significant treatment effect (Table 6-13) with a number of low-scale, negative results as compared to the level of positive effect shown in one (RMDO) of the two of the categories having measurable positive effect. These results are examined in the following subparagraphs.

Table 6-13 Summary of Findings on ECI - Peer Ratings

	treat		gender		ba		gr		tenure	
	Coef	p-val	Coef	p-val	Coef	p-val	Coef	p-val	Coef	p-val
All										
SAASA	-0.369	0.028					-0.368	0.076		
SEASA										
SASC										
SMAO										
SMAO										
SMESC	-0.222	0.092								
SMI									-0.090	0.041
SMO										
SMT										
SAE										
SAOA										
SASO	0.602	0.060							-0.045	0.007
RMCC	-0.363	0.054	-0.429	0.037						
RMCM										
RMDO					1.239	0.001	0.745	0.048	-0.046	0.009
RMI										
RMIL			-0.276	0.064						
RMTC							-0.344	0.048		

Specific effects observed in peer ratings include the following:

- a. SAASA (Self-Awareness/Accurate Self Assessment). This treatment score decreased 0.369 points (on a five point scale – see Table 6-13) for this survey category associated with how well the participant being evaluated is able to hear and deal with feedback/criticism.

- b. SMESC (Self-Management/Emotional Self-Control). The peer-rated scores decreased 0.222 points as indicated by peer evaluation responses. This category includes questions concerning control or impulsiveness in the demonstration of emotion.
- c. SASO (Social-Awareness/Service Orientation). Peer ratings in this category improved after treatment with an increase in 0.602 points at the 10% level (on a five point scale). However, those with less tenure appear to have benefited less in this category with a slight decrease in point value (0.045 at the 1% level).
- d. RMCC (Relationship Management/Change Catalyst). This category is concerned with the peer's ability to deal effectively with change. This cluster rating decreased by .36 points overall and the female participants were rated lower, averaging .43 points less in this category.
- e. RMDO (Relationship Management/Developing Others). Those participants with a bachelor's degree were rated by peers as benefiting from the treatment with an increase of 1.239 points at the 1% level.

Overall three negative coefficient results at the character *treat* can be observed where a statistically significant value (at the 5% and 10% level) resulted when peer rated scores were analyzed. The negatives value are slight (the highest at -0.369) when compared to the statistically significant values recorded in the self evaluation and when compared to the response for the category RMDO (1.239) within the peer evaluation. The difference in the positive-trending self responses and the negative-trending peer responses could be an indication of higher expectations or loss of objectivity by the ECI-Peer rating evaluator following the treatment (Bach 2000) or perhaps the lower ratings are driven by a lack of understanding by the rater of the evaluation process (Kanouse 1998).

6.5 Summary of Chapter

This chapter provided a summary of the statistically significant effects of the treatment phase of the case study on the active group participants Phase 1 survey results as contrasted with the measurement results of those same study participants following a phase of EC treatment. For job satisfaction, it was determined that the EC treatment improved group participants levels overall with an increase of more than 1 point (on a five point scale). It also appears that those of lower education appeared to benefit most in job satisfaction rating improvement. Findings are in line with those of Goleman et al. (2002) and McEnrue and Groves (2006).

For job performance, survey analysis showed that the EC treatment had a positive and significant impact at the 10% level.²⁵ Impact on averaged job performance was evidenced by an increase of 0.580 points (on a five point scale) this was expected, but finding supported by Bachman, Stein, Campbell and Sitarenios (2000) and the work of Goleman (1995), (1998), and Cherniss (2000).

The results for change in EC show an overall positive impact on self rating. Participant survey average revealed an overall increase of 0.230 points (at the 1% level) in the self ratings, while the negative trend for peer ratings may indicate a higher expectation from those performing the ratings or a lack of objectivity (Bach 2000). The participants performing the rating that received the treatment may now understand that the behavior of the peer being rated has an impact on the work environment, causing a more critical review response. The rating participant who did not receive the treatment, but believes the participant being rated did receive treatment, may not be seeing expected changes in behavior and is therefore more critical. This situation is known to arise when raters become defensive or do not fully understand the purpose of the information being collected (Kanouse 1998).

²⁵ Actual p-value of .57 relating the statistical significant close to the 5% level.

Chapter 7 provides conclusions and recommendations based all the findings presented in this chapter. The literature is used to support conclusions and recommendations. The contribution this thesis has made to the body of knowledge and further research suggested by the results of this study are also discussed.

7 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this research was to evaluate the impact of introducing emotional intelligence to a project team in terms of job satisfaction, job performance and overall EC. The research evaluated the connection between emotional competencies and the results of job satisfaction, job performance and EC measurements following the introduction of general EI information and competency development activities (treatment). Specifically, the analysis focused on the survey result differences between a study group (exposed to an EC treatment) and a control group (not exposed to treatment).

This investigation revealed evidence supporting the hypothesis that an introduction of emotional intelligence had a statistically significant, positive impact on treated study participants' measurable levels of job satisfaction and performance. Survey results were statistically examined and regression tested against population characteristics to examine the relation to the responses given. Findings indicate in several areas that those with a high school level of education benefited most from treatment.

As illustrated in Figure 7-1 this research would indicate that elements such as tenure, ethnicity, and gender were less frequently observed to drive statistically significant difference than did level of education, which was frequently found to impact responses.

7.1 Summary of the Research Project

Chapter 1 provided the following statement as the main proposition for research:

Project management practice will be advanced through a body of knowledge and case study framework aimed at developing emotional competencies that will support the effort of the project manager and project team members in achieving improved levels of communication, increased collaboration and creativity, evoking an advocacy for project success.

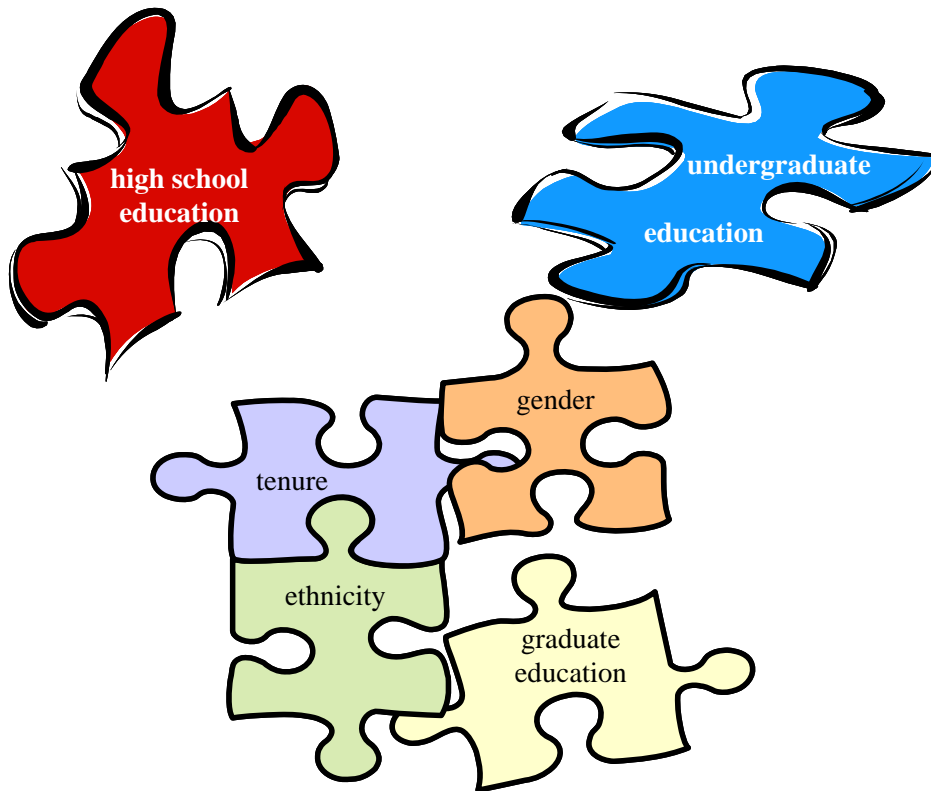


Figure 7-1 Research Population Characteristics Representation

Therefore, this research looked at project team members and the benefits gained through an individual perception of success or failure when influenced by an introduction to information about emotional competencies—Figure 7-1 suggests the context of this study.

The research case study was designed to address project success or failure as it relates to the job satisfaction and performance of the people assigned to the project team. The criticality of accurately communicating expectations (Hartman 1999) and the involvement of people in every project interaction (Cooke-Davies 2002) drew attention to the need for evaluation of tangible and intangible drivers in project performance (Garcia-Ayuso 2003).

The Goleman, et al. (2002) publication was selected as the model for EI for application throughout the research along with other literature by Goleman (2000); Briner, et al. (2001); and Druskat and Wolff (2001a) to associate the role of leadership in group development.

7.2 Conclusions

The results of the case study and the surveys conducted within it support the theory that an introduction to and overview of the theories of emotional intelligence will influence a project team. The treatment provided was managed to an ‘introductory’ level and given that there was little change in the measured ECI results between case study survey phases, it appears that an awareness of emotional intelligence (without a measurable change in participant competency level) can have a measurable impact. The project team used for the research case study demonstrated that project members may be very willing to explore personal EI capabilities and find the treatment exercises to be fun as well as informative. The findings support the potential benefits to be gained in an organizational investment in the development of project team member emotional competencies. The findings also indicate that on-going development and growth opportunities of individual and group competencies are advised to maintain team/project benefits. An EC-based management methodology (an EI trained manager or management team with the objective of enhancing emotional competencies in all team members) would promote the on-going EI activities and behaviors.

7.2.1 Job Satisfaction Conclusions

The EC treatment improved participants’ job satisfaction overall. The treatment had a positive impact on 20 of the 37 job satisfaction measures. Participants with more tenure (in the organization) and a lower educational level (high school graduates) benefited most from the EC treatment in terms of job satisfaction. Results indicate a statistically significant increase of 1.15 points for those participants who received the treatment in how they relate to the organization-provided and job-specific qualities of work. Improvement in overall job satisfaction effected by positive changes in relationships with co-workers and supervisor is supported by the findings of Goldstein and Rockart (1984) in correlations of retaining highly-skilled personnel through identification of the variables driving job satisfaction. This result is also supported by the findings of Ostroff (1992) where regression analysis and correlations confirmed the expected positive relationship between employee satisfaction and performance.

Based on the researcher's observations of this research, 16 hours of training spread out over the course of several months, involving one or two trainers for every 100 people would appear to offer benefits to any organization well beyond the small investment.

Individual participant characteristics were examined for interaction with the EC treatment through the regression method (by adding interaction terms). While such interaction effects differ across questions, individuals with lower education seemed to benefit more from the emotional competency treatment in terms of job satisfaction. This information indicates that an investment to develop EI in project team members with lower levels of education is likely to provide the most benefit to the project team.

7.2.2 Job Performance Conclusions

The regression analysis in Chapter 6 (Table 6-10) shows that the EC treatment had a positive and statistically significant impact on average job performance scores. The EC treatment improved the overall active group job performance score by 0.58 points on average compared to scores prior to the EC treatment, holding other observable individual characteristics constant. The results also indicate that females experienced a higher increase in job performance scores when compared to male participants. The analysis in Table 6-10 shows that participants with a lower level of education (high school) responded better to the treatment. This conclusion is supported by Nuttall (2004) where the importance of a relationship framework provides a coherent model to support level of performance through relationship competencies coordinated with good management and leadership. This result is similar to that documented by Nerkar et al. (1996) who found that social satisfaction works to oversee the relation between skill and performance and when team members do not interact well with one another or within the organization, performance suffers. Similar results were reported by Liu and Walker (1998) in their conclusion that many influences (self-efficacy, project complexity, commitment, rewards, goals, and other environmental variables) were fundamental in understanding an individual's perception of project outcome or performance.

As stated in paragraph 6.3.1, this moderate increase is supported by the findings of Bachman, Stein, Campell and Sitarenios (2000) and the work of Goleman (1995), (1998), and Cherniss (2000).

7.2.3 Emotional Competency Conclusions

The treatment had both positive and negative statistically significant impact on both self and peer ECI ratings. Looking at self ratings; Table 6-10 shows six of 18 ECI categories had a significant and positive treatment effect, with a measurable negative effect in one category. Female participants benefited more in the area of Self-Management/Emotional Self-Control. Male participants benefited more in the EC cluster categories of Self-Management/Initiative and Relationship Management/Developing Others, with those having more tenure and education benefiting most. The Relationship Management/Change Catalyst cluster demonstrated the most significant impact, with individuals in the treated group averaging an increase of 2.800 points, at the 1% level (Table 6-12). Overall group improvement in emotional skills can build the foundation for improved group performance (Ashkanasy and Daus 2002; Yang and Mossholder 2004). These results answer the research questions, concluding that an introduction to the theories of EI will influence the perceptions of project team members and have the potential to benefit project success.

Peer ratings trended slightly negatively, based on treatment with a reduction of -0.369 (5% level) for attentiveness and ability to receive feedback (SAASA), -0.222 (10% level) for degree of patience (SMESC), and -0.363 (10%) for ability to deal with change (RMCC). Peer ratings related to client service and availability to assist others (SASO) showed a statistically significant increase of 0.602 points for those that received the treatment (Table 6-13).

In summary, three statistically significant (at the 5% and 10% level) negative coefficient results for the character *treat* are observed when peer rated scores were analyzed. The negatives values are slight (the highest at -0.369) when compared to the statistically significant values recorded for the category RMDO (1.239) within the peer evaluation. As

previously stated in Chapter 6, the difference in the positive-trending self responses and the negative-trending peer responses could be higher expectations or loss of objectivity by the ECI-Peer raters following the treatment (Bach 2000) or perhaps the lower ratings are driven by a lack of understanding by the raters (Kanouse 1998).

7.3 Addressing Gaps in the Research

Literature addressing project success and failure and a direct link to EI is lacking. Therefore, the focus of individual job performance merged with job satisfaction of project management team members was fused into a single concept for measuring probable changes in performance.

7.4 Contributions of this Research

The research methods used provided a viable combination of tools to measure EI within a project environment. Measurable benefits in job satisfaction and job performance were obtained as detailed in previous sections of Chapters 6 and 7. A variety of EI measurement tools were identified in Chapter 4 that are available for commercial use. In conjunction with these measurement tools, an online computer search easily produces many consulting firms that offer a variety of training methodologies and tools; such as the tool used for this research. A training investment is required (time and dollars) to acquire and use the EI improvements tools and to perform periodic measures for continuous improvement knowledge. My observations indicate that periodic training (reinforcing EI competencies and behaviors) and measurement would be more likely to produce measurable performance changes.

This research took a needed step forward in demystifying the way forward in using EI as a tool for better program management. According to Gale (2006), although EI has been an area of growing interest for more than a decade, the exploration of the benefits of EI within the project management practice is its infancy. Overall, EI is viewed as having great potential in dealing with the business trends of down-sizing, restructuring, reorganization and other

competitive concerns (Ashkanasy and Daus 2005). The next generation of project team members is one of those concerns, as their expectations of work are less personal and more task focused (Hooper 2007). As Hooper (2007) points out, there will be less opportunity to interpret behavior and the younger generations demand for information may catch older managers off guard also see (Loughlin and Barling, 2001). This research supports the overall benefits of improving managers EI. The current generation of project managers will benefit from another weapon in their arsenal in gaining the ability to manage their own approach to emotional situations and to interpret the emotional needs of others (Gale 2007).

7.4.1 Value of Research to the Project Manager

While the boundaries of project management are often defined as cost, schedule and performance; the limitations of a project manager's interpersonal skills and competencies are perhaps the untapped resource. This research supports the hypothesis that an awareness of EI can have a positive impact on both the job satisfaction and performance of a project team (Druskat and Wolff 2001a). Project management is not a science, but rather the art of balancing the project management trilogy (cost, schedule, and performance). While deliberate management of these elements is certainly at the root of successful projects; the involvement of project team members that find satisfaction in their work (organization-provided and job related) can be viewed as no small thing in contributing to the luster and energy associated with a high performing project team.

7.4.2 Value of Research to the Project Team

While literature focuses on the benefits of EI for leadership (Bass 1985; Cavallo and Brienza 2002; Macaleer and Shannon 2002; Ashkanasy and Dasborough 2003; Turner and Muller 2005), there appears to be no reason to limit the exposure and training of all team members in the development of emotional competencies. The research does indicate that levels of education and gender may determine levels of measurable effect. Overall there was evidence that the treatment had a positive impact on the majority of study participants that

received the treatment. Limiting the introduction of EI to leadership would appear to limit the potential team benefit. This research served as a proof of concept in demonstrating that all members of a project team can benefit from the opportunity to expand their emotional competencies (Hess and Kirouac 2000; Druskat and Wolff 2001b; Ashkanasy and Daus 2002). Research results indicate that the lower the level of education of the participants, the greater the benefit (see Tables 6-2 and 6-4 through 6-10). Therefore, the development of EI competencies should begin earlier and should occur at lower levels where employees are likely to have lower levels of education, as that group would appear to have the greatest need and provided potential for the greatest benefit.

7.4.3 Value of Research to the Organization

This research supports the real world problem where project managers and team members may participate in many projects in a single organization. The development of sound, effective working relationships is stressed and limited by the lack of time and resources. Employees that have improved self and social awareness will be able to work more effectively with limited resources. This personal and professional broadening through EI supports corporate cultural objectives, lessening the threat of litigation for intolerance or harassment in the workplace (Gale 2006). Furthermore, individuals with high levels of emotional competence are more likely to understand and practice corporate codes and standards that direct corporate goals (Goleman et al, 2002).

Through the course of this research I found that the vast majority of project team members were curious and ready to explore EI. I observed, during Phase 2, that the emotional competency exercises were given a genuine level of personal attention by those who participated in the treatment.

7.4.4 Value of Research to the Project Management Profession

As stated in Chapter 1, the goal of this research was to determine whether the introduction of EI had merit in impacting project management performance. This thought

includes helping the project manager and project team members in achieving improved levels of communication, increased collaboration and creativity, evoking an advocacy for project success. Toward that end, the development of new management techniques takes a big step forward when couched in terms of selecting, developing or maintaining highly productive project management teams; based on EI competence. Research results indicate improvements in job satisfaction and job performance supporting the use of EC-based management methodologies to increase the effectiveness of project teams.

7.4.5 Value of Research to the Researcher

The PMP credential held by the researcher is viewed as beneficial to the PM and is generally considered an advantage for increased responsibility and job promotion. The PMP is viewed as the most globally recognized project management credential in the world (Abraham and Boetticher 2007). PMI is reporting 233,330 total PMPs with 21,212 newly certified since January 2007 (Project Management Institute 2007). The large increase in the number of individuals passing the PMI project management professional (PMP) exam indicates to me that the designation has become diluted as a discriminator of professional excellence. As with many such certifications, it appears to me that the process has become more about the degree of test taking preparation than a demonstration of competency.

Pursuing the degree of DPM became my personal challenge for continuous improvement as a project management practitioner. The course of study offered through RMIT University offered an approach where professions increase their practical knowledge by reflecting on the environment that influenced their past performance and as a professional doctorate combine coursework and research.

This method of study allowed me to gain command over the related literature and increase my overall expertise in this area. The program has led to my learning about research tools and approaches available for advancement of the project management practice. The research has given me practice in applying these tools to deepen my understanding of the

project management profession and the ability share with others through this thesis.

Presentations made by the researcher containing information about the DPM program and thesis materials within the academic and PMI communities have been well received.²⁶

I have enjoyed learning about emotional competencies and relating it to my continual improvement as a project manager.

7.5 Recommendations for Future Research

The intent of this research was to determine whether the introduction of EI could have an impact in the project management profession in terms of overall project performance. Given the statistical results detailed in Chapter 5, a causal treatment program revealed positive statistical results with the active group participants. There has been a clear ‘honeymoon effect’ from the treatment. On going observation of participants indicates that the demonstration of EI awareness lasted only two to three months (Goleman et al. 2002, p. 98). The literature indicates that, although learning matters, the results tend to last only temporarily.

The difference in results between self and peer ratings is an area requiring further research. Future research could focus on understanding if there are any side effects from EI training that create harsher judgments or higher expectations from peer group members.

Future research could focus on repeated treatment to determine the effects on statistical significance and the length of treatment retention. In addition, repeated treatment could result in other evidence of positive significance in those areas that were generally inconclusive from this research. Future research could focus on a qualitative study group undertaking a similar program of EI improvement such as that by Cicmil and Hodgson

²⁶ Dissertation presentations include 1) October 2006 – St. Louis, MO - Washington University, Center for the Application of Information Technology, *Emotional Intelligence for Project Management* 2) July 2007 – Fairview Heights, IL – Project Management Institute Chapter Meeting, *Study: The Impact of Emotional Intelligence on Project Management*

(2006). Work focused on the individual PM experience with EI intervention periodically spaced before, during, and after specific stages would provide a qualitative aspect to this thesis.

The work environment studied was made up of people employed by the U. S. military, U.S. federal government, or one of many defense industry companies. Other organizations with project team members from non-military or a more diverse range of backgrounds may obtain different results. Future research could be conducted using similar methods across a range of project types with different team personnel make-up to broaden measurement results.

Meaningful performance metrics should be developed against long-term EC training application to better quantify the value added. Such data elements as absenteeism, missed work assignment suspense, attrition, and volunteerism would be beneficial to draw more conclusive results. Additionally, research which examines project teams IC against project outcomes could further expand on findings here and confirm or question the research findings in 1.4.2 relating to increased project success.

7.6 Summary of Chapter

This Chapter concludes the research project. The results of this study indicate that the introduction of EI to the project management profession may have profound performance benefits (Ashkanasy and Daus 2005).

This study was limited to members from the US defense community using proven tools available through commercial resources. Some survey results may have been skewed by unrelated work events, though no overt events are known. Steps were taken to alleviate the impact of external factors, such as performance review periods, allowing participants reasonable windows for survey response.

Hosting the development of EC may begin with the identification of gaps in individual competence, team competence or organizational competence. Novel approaches for the

project management ideal can be undertaken, using the data from this research as a spring board. The theoretical model offered in Chapter 5, proposed a framework for enriching a project team with EI. The content of that enrichment must be tailored to meet the unique gaps of any given project team.

The promise of potential benefit to the project manager, project team, organization and the professional of project management is heighten through the completion of this work. It is recommended that future research may be most beneficial in the area of repeated EI training and strong metric-based performance measure to determine more specific benefit associations (Yang and Mossholder 2004).

This research both sought to test the theories put forward by others in relation to EI and performance and to contribute to theory around emotional intelligence, project member performance and project success.

Triangulated data collection, including the combination of both quantitative and qualitative methods which, was used to provide fuller explanation of the richness and complexity of human behavior (Burns 1994). As this research related to human behavior within project teams, the combination of these methods was used to answer the research questions and provided internal validity. Burns (1994) maintains that reliance on one research method alone may lead to bias or distortion of the researcher's perception of the reality being investigated. By combining statistical data with observations of the researcher it was possible to more deeply understand the affect of the treatment on participants.

Perhaps it is my own observations that provide me, the researcher, with the most promise for future research. Volunteers did not hesitate to step forward to participate in this research. A sense of heightened communication and opportunity for internal sharing was a common thread in participant feedback prior to and during Phase 1 of the research design. The Active Group, Phase 2 (treatment) participants readily attended treatment sessions and returned training materials on time. Several participants (male and female) took the time to

approach me and comment on the value of the treatment exercises. All comments were positive in nature and most expressed their desire for the treatment to create a stronger accord among those participating.

Following Phase 1 (measurement) there was no observable change in behavior. However, following Phase 2 (treatment) there was an increase in personal interaction between project members where there had previously been little or no interface and an increased level of volunteerism in team building activities. During this timeframe, delayed short-term projects were brought to closure through individuals choosing to assist teammates and through an enhanced sense of team responsibility. In all instances observed, a member of the Active Group (received treatment) had been the initiator. The effect lasted only a short while, with observations of improved behaviors dropping off from week to week following the treatment phase.

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GLOSSARY OF TERMS

AFCEA	Armed Forces Communications and Electronics Association
CMM	Capability Maturity Model
COE	Center of Excellence
COP	Community of Practice
C.P.L.	Certified Professional Logistician
DAU	Defense Acquisition University
DPM	Doctor of Project Management
DoD	Department of Defense
EA	Evolutionary Acquisition
EC	Emotional Competency
ECI	Emotional Competency Inventory
EI	Emotional Intelligence
EQ	Emotional Intelligence Quotient
EQ-i	Emotional Quotient Inventory (BarOn)
ECI	Emotional Competency Inventory
ERP	Enterprise Resource Planning
FFRDC	Federally Funded Research and Development Center
GS	Government Service
IEEE	Institute of Electrical and Electronics Engineers
IPT	Integrated Product/Process Team
IT	Information Technology
JCS	Joint Chief of Staff
KM	Knowledge Management
MSCEIT	Mayer, Salovey, Caruso Emotional Intelligence Test
OCB	Organizational Citizenship Behavior
OSD	Office of the Secretary of Defense
PA	Positive Affectivity
PM	Project/Program Manager
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute
PMP	Project Management Professional
POB	Prosocial Organizational Behavior
RMCC	Relationship Management/Change Catalyst
RMCM	Relationship Management/Conflict Management
RMDO	Relationship Management/Developing Others
RMI	Relationship Management/Influence
RMIL	Relationship Management/Inspirational Leadership
RMIT	Royal Melbourne Institute of Technology - University
RMTC	Relationship Management/Teamwork and Collaboration
SAASA	Self-Awareness/Accurate Self Assessment
SAE	Social Awareness/Empathy
SAESA	Self-Awareness/Emotional Self Awareness
SAQ	Self-Assessment Questionnaire
SAOA	Social Awareness/Organizational Awareness
SASC	Self-Awareness/Self Confidence
SASO	Social Awareness/Service Orientation
SEI	System Engineering Institute
SMA	Self-Management/Adaptability

SMAO	Self-Management/Achievement Orientation
SMESC	Self Management/Emotional Self-Control
SMI	Self-Management/Initiative
SMO	Self-Management/Optimism
SMT	Self-Management/Transparency
SOLE	Society of Logistics Engineers
TCO	Total Cost of Ownership
TQM	Total Quality Management
US	United States
USTRANSCOM	United States Transportation Command
VAM	Values, Attitudes and Moods
WBS	Work Breakdown Structure

APPENDIX A. AUTHOR'S RESUME

Rebecca A. Turner

PMI certified Project Management Professional

EDUCATION

Doctoral Candidate, Project Management, Royal Melbourne Institute of Technology - Melbourne, Australia (Dissertation *Determining the Impact of Emotional Intelligence in Project Management as a Measure of Performance* in progress - degree award projected for May 2007)*

Ed.M., Education, Educational Operations Research and Administration, Temple University - Philadelphia, Pennsylvania
B.A., Political Science, University of Colorado - Boulder, Colorado

CERTIFICATIONS

Project Management Institute Certified Project Management Professional (1999) current through 2007

Learning Tree International Certified Wide Area Networking Professional (2000)

Society of Logistics Engineers Certified Professional Logistician (1989)

PROGRAM/PROJECT MANAGEMENT EXPERIENCE (1990 – present):

Enterprise Resource Planning (ERP) programs:

- Technically and programmatically directed the development and documentation for mission-critical systems (est. value range \$120M - \$1.2B). Provided management support to a team of approximately 180 personnel located throughout the nation, toward the successful development and installation of a major Enterprise Resource Planning (ERP) (est. value: \$550M) directed at the modernization of Department of Defense financial management. Responsible for the production of the full spectrum of acquisition and program documentation including , requirements and capabilities documentation, market research and alternatives development, acquisition strategies, and cost evaluation and analyses; to name only a few. (Oracle ERP implementation)
- Created a migration path, with management strategies for the eventual termination of legacy inventory and financial management systems, for a major oil refining corporation. Created and oversaw maintenance routines for legacy systems to ensure proper visibility of "as is" systems was not lost prior to the activation of "to be" enterprise level transitions. (SAP ERP implementation)

Automated Information Management System (AIMS) programs:

- Technically and programmatically directed the development and documentation for mission-critical systems (est. value range \$120M - \$1.2B). Met all financial and performance objectives assigned.
- Experienced in all aspects of the defense contracting process including (but not limited to) full proposal preparation, staffing, directing and fulltime management of highly-producing resources. Responsible for the identification, pursuit and implementation of regional corporate work program. 100% win record on all regional new and renewal business pursuits over a five-year period.
- Simultaneously mentor to 5 – 10 junior program managers in the scheduling and completion of all task assignments ranging from day-to-day work assignments to the delivery of substantial, multi-tiered work products.
- Create scope statements, life-cycle budget projections for the integration of commercial hardware to support a client/server architecture; development of an object-oriented, relational Sybase database for compliance with enterprise-based architecture and replication capabilities, and definition and documentation of external interfaces to other enterprise and non-enterprise information systems.
- Developed program planning documentation including the program organization matrix, risk management program, corporate resource strategy, program management plan, and test and evaluation management plan.
- Managed a technical support laboratory researching computer-aided logistics design and documentation. Developed milestone-tracking system to manage research project assignments; forecasted costs, schedules, and budgets against sponsor tasking; developed and conducted monthly project management reviews for sponsor contract oversight; and performed strategic planning for new business development.

LOGISTICS ENGINEERING EXPERIENCE (1990 – present):

- Strong background in the development of integrated logistics support plans and materiel fielding plans. Developed worldwide deployment strategy with remote system and database administration design. Assisted with the design and implemented the logistics engineering design and disaster recovery architectures for AIMS in worldwide deployment.
- Managed full scope logistics engineering design, development, and implementation with full responsibility for staff management and delivery of all logistics products.

EMPLOYMENT HISTORY

<u>Company</u>	<u>Position Title</u>	<u>Timeframe</u>
CACI/CMS Inc.	Senior Technical Program Manager	Nov 2003 – present
Harris Technical Services Corp. 2003	St. Louis Area Programs Manager	Jan 2001 – Oct
Premcor 2001	Program Management Consultant	Jul 2000 – Dec
The MITRE Corporation 2000 1997	Program Management Advisor Project Technical Advisor	May 1997 – Jun Jul 1991 – May
Accurate Information Systems 1991	Project Leader	Jun 1989 – Jun
Calculon/Eagle Technology 1989	Logistics Engineering Manager	Nov 1985 – Jun
Nations Inc. 1985	Logistics Planning Lead	Nov 1984 – Nov
United States Navy 1984	Communications Officer	May 1980 – Oct

Presentations:

August 2006 - National Procurement Council/US Women's Chamber of Commerce, *Teaming for Success*
 October 2006 - Washington University, School of Engineering, Round table discussion on the effect of emotional intelligence in project management

APPENDIX B. ARMED FORCES COMMUNICATION AND ELECTRONICS ASSOCIATION INFORMATION

AFCEA is the Armed Forces Communications and Electronics Association

Founded in 1946, AFCEA's roots trace back to the American Civil War. Today, AFCEA serves as a bridge between government requirements and industry capabilities, representing the top government, industry, and military professionals in the fields of information technology, communications, and intelligence.

AFCEA, a non-profit international association, is dedicated to supporting global security by providing an ethical environment that encourages a close cooperative relationship among civil government agencies, the military and industry.

Learn more about who we are by reading the [AFCEA bylaws](#).

[AFCEA Members](#)

- 31,000 members (20,000 individual members; 11,000 corporate associates)
- 1,300 corporate members

AFCEA's members, associates and sponsors and associates are among the world's leading designers, planners, manufacturers, testers and users of systems, services and components for IT, communications, and intelligence.

[AFCEA Chapters](#)

Located around the world, AFCEA's 134 chapters give engineers, programmers, managers, government officials and military personnel continuing opportunities to exchange ideas. AFCEA chapters conduct symposia and seminars in addition to other chapter activities.

[SIGNAL Magazine](#)

SIGNAL is a monthly international news magazine serving the critical information needs of government, military and industry professionals active in the fields of command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR); information security; research and development; electronics; and homeland security. The Source Book, published in the January issue, contains the company profiles and contacts of AFCEA's corporate members. It is the who's who of C4ISR and homeland security organizations. The annual Security Directory, published in the February issue, focuses on security solutions and the organizations that provide them.

[Online Publications](#)

SIGNAL's companion online newsletter, [SIGNAL Connections](#), is distributed the middle of each month. The e-newsletter bridges the gap between issues of *SIGNAL* by providing additional news and feature articles about the industry and the Association. *SIGNAL*'s two print directories also have a searchable online format. The [Source Book online](#) is a continually updated version of the popular print Source Book, and the [Security Directory online](#) includes information about the AFCEA corporate member companies that provide goods and services specifically geared to the security market.

[Educational Foundation](#)

Education is an AFCEA core value. The Association, in partnership with the AFCEA Educational Foundation, Chapters and Members worldwide, presents \$1.4 million annually in scholarships, grants and awards to students in the "hard" sciences attending the five service academies, ROTC programs, graduate schools and other educational institutions. The AFCEA Professional Development Center (PDC) complements the Association's educational efforts by providing a wide-ranging program of continuing education and technical training courses.

[Professional Development Center](#)

AFCEA's Professional Development Center is operated by the Educational Foundation and offers classified and unclassified courses for government, military and industry professionals in IT, communications, and intelligence.

AFCEA Sponsored Conferences/Symposia

AFCEA conferences offer problem-solving and networking opportunities through exhibits, technical panels, and featured speakers. Decision-makers from around the world attend AFCEA conferences for hands-on demonstrations, question-and-answer sessions and system solutions.

Conferences Include:

- TechNet International Convention and Exposition, May, Washington, D.C.
- Western Conference and Exposition, January-February, San Diego, CA
- TechNet Asia-Pacific Conference and Exposition, November-December, Honolulu, HI
- Intelligence Symposia, April and October, Washington, D.C.
- TechNet Europe Symposium and Exposition, October, Various European Locations

AFCEA Staff

- **President and CEO:** [VADM Herb Browne, USN \(Ret\).](#)
- **Executive Vice President:** Becky Nolan
- **Executive Vice President:** [LTG John A. Dubia, USA \(Ret\).](#)
- **Executive Director, AFCEA Educational Foundation:** [Fred H. Rainbow](#)
- **AFCEA Europe General Manager:** [Commodore Robert Howell, RN \(Ret\).](#)
- **Chairman of the Board of Directors:** [Duane P. Andrews](#)
- For additional AFCEA contacts, [CLICK HERE](#).

APPENDIX C. RMIT UNIVERSITY ETHICS APPLICATION OF PROJECTS INVOLVING HUMAN SUBJECTS

A. ETHICS APPLICATION APPROVAL

Turner, Rebecca CTR USTRANSCOM DEAMS

From: Turner Rebecca Contractor USTC
Sent: Wednesday, September 22, 2004 3:40 PM
To: 'Prue Lamont'
Cc: Derek Walker; Arun Kumar; Clare Tuckley; 'Beverley Lloyd-Walker'
Subject: RE: Ethics Approval



Turner Ethics Form
Sep 04.doc ...

Prue,

Thank you for the wonderful news. Here is my revised package, with the corrections you identified

Warm regards,

Rebecca

-----Original Message-----

From: Prue Lamont [mailto:prue.lamont@rmit.edu.au]
Sent: Tuesday, September 21, 2004 9:50 PM
To: Rebecca.Turner@caci.com
Cc: Derek Walker; Arun Kumar; Clare Tuckley
Subject: Ethics Approval

Hello Rebecca

I am pleased to advise that your Ethics Application titled "Determining the Impact of Emotional Intelligence in Project Management Leadership as a Measure of Performance Improvement" has been approved a Category 2 (Minimal Risk) subject to a tiny change in Plain Language Statement (PLS). The RDU email address has changed to rdu@rmit.edu.au . Also while you are at it the formal name of our ethics committee is the Portfolio Human Research Ethics Subcommittee.

Do you mind forwarding a copy of the amended PLS (it is fine to email it).

Your formal approval paperwork will be forthcoming.

Very best wishes with your research - it sounds very interesting.

Regards

Prue

Prue Lamont
Research Student Administration Officer
Research Development Unit
RMIT Business
Phone: 9925 5598
Fax: 9925 5595
Email prue.lamont@rmit.edu.au
<http://www.rmit.edu.au/bus/rdu>
Location 112.3.10

B. RMIT ETHICS APPLICATION OF PROJECTS INVOLVING HUMAN SUBJECTS

RMIT University HREC Register No. _____
Date Application Received _____
Faculty HREC Use Only



BUSINESS HUMAN RESEARCH ETHICS SUB-COMMITTEE

APPLICATION FOR APPROVAL OF PROJECT INVOLVING HUMAN SUBJECTS

- Note:**
- 1. All Applications must be typewritten**
 - 2. This form is available on Disk from the Research Development Unit, RMIT Business. It is also available on The RDU Website at: www.bf.rmit.edu.au/RDU/currents/currents.html**
 - 3. This form should only be used for No Risk and Minimal Risk projects. At Risk projects should use the RMIT Human Ethics Application Form, also available from the Research Development Unit, RMIT Business. The At Risk Form is available on The University Website at: www.rmit.edu.au/departments/secretariat/hrec.html**

Section A: Approvals and Declarations

Project Title:
Determining the Impact of Emotional Intelligence in Project Management Leadership as a Measure of Performance Improvement

Complete this column if you are undertaking Research for a Degree at RMIT or another university. (Bachelor/Masters/PhD). Doctor of Project Management (DPM)	Complete this column if your Research is Not for Any Degree.
Investigator	Principal Investigator
Name: Rebecca A. Turner Student No: 3027491 Qualifications Master of Education, Temple University, Philadelphia, Pennsylvania, USA Bachelor of Arts, Political Science, University of Colorado, Boulder, Colorado, USA	Name: Qualifications: School:

School: Research Development Unit Address: 104 Moonglow Drive, Belleville, Illinois, USA 62221	Phone: Email:
Phone: 618-234-5865	
Email r_a_turner@mindspring.com or rebecca.turner@caci.com	
Degree for which Research is undertaken: Doctor of Project Management (DPM)	
Supervisor:	Other Investigator/s:
Name: Beverley Lloyd-Walker Qualifications: PhD, MSc. Grad Dip (Mgt Systems) School: Research Development Unit	Name/s: Qualifications: School:
Phone: 03-9925-1414	Phone:

Declaration by the investigator(s):

I, the undersigned, accept responsibility for the conduct of the research detailed below.

Signed: _____ Date: _____
Signature of Principal Investigator

Declaration by the Head of School

The project set out in the attached application, including the adequacy of its experimental design and compliance with recognised ethical standards, has the approval of the School/Faculty. I certify that I am prepared to have this project undertaken in my School/Centre/Unit.

Signed: _____ Date: _____
Signature of Head of School

School: _____ Extn: _____

For completion by the investigators as an attachment

Please refer to the detailed instructions for completing these sections which are given in the Guidelines.

Section B: Project Particulars

1. Title of Project

Determining the Impact of Emotional Intelligence in Project Management Leadership as a Measure of Performance Improvement

2. Project description

As provided in the research proposition:

The intent of this study is focused on the expectation that:

- project management practice will be advanced through addressing the development of Emotional Competencies within project teams
- with the goal of achieving measurable improvements in personal and professional performance leading to a synergistic effect to meet traditional project management goals for
 - cost,
 - schedule and
 - performance.

Key concepts: *Leadership, Innovation, Organizational Culture, Strategic Direction, Emotional Intelligence, Emotional Competencies, Stakeholders*

Related research issues:

- The key motivators to promote Emotional Awareness.
- Shared Leadership responsibility as a means for initiating synergy through emotional cue.
- The relative increase or decrease in personal power resulting from a shared power culture.
- The improved trust and commitment within project team contributing to the overall success of a business unit.
- The use of the Consortium for Research on Emotional Intelligence in Organizations Emotional Competence Framework as a definition for personal competence as a tool for improvement

Intangible emotional intelligence outcomes are currently poorly recognized, delivered and measured on projects:

- The application of emotional competencies to daily work activities
- The identification and active management/fostering of empathy skills
- The encouragement and facilitation of share power
- The benefit of individual growth on the organization culture
- Ethical role-modelling
- The enhancement and ongoing maintenance of trust and commitment

3. Proposed commencement of project and commencement of data collection
Commence data collection tool development and critical tool evaluation immediately.
Commence data gathering and analysis September 2004.
4. Proposed duration of project; proposed finish date
Late 2005/Early 2006

Funding

5. Source of funding (internal and/or external) NIL (N/A)
6. Project grant title; proposed duration of grant (where applicable) NIL (N/A)

Section C: Details of Subjects

1. Number, type, age range, and any special characteristics of subjects
These are at present, undetermined as the nature of the DPM research is to interview colleagues, clients and members of project teams associated with projects under examination. Generally they will be in small groups, of mature age (over 21 often in their 30's and 40s), consenting aware adults.
2. Source of subjects (attach written permission where appropriate)
Each participant will be provided with a briefing of the research project. The nature of the DPM is such that it is mainly case study work using unstructured and semi-structured interviews, short surveys of Likert style measures and action learning programs where feedback is sought.
3. Means by which subjects are to be recruited
As colleagues, and co-workers.
4. Are any of the subjects "vulnerable" or in a dependent relationship with any of the investigators, particularly those involved in recruiting for or conducting the project?

NO

[If YES, attach a statement explaining the relationship and the steps taken by the investigators to ensure that the subject's participation is purely voluntary.]

Section D: Project Classification and Estimation of Potential Risk to Subjects

1. Please identify the project classification by assessing the level of risk to subjects
No risk **Minimal risk** (please circle)
2. Please explain why you believe there are minimal or no risks to the subjects.
None of the Information sought will be identifiable or attributable to them as a person or to their organisation identified rather identified as Organisation A etc.
3. Please explain how the potential benefits to the subject, or contributions to the general body of knowledge, outweigh the risks.

This project is part of the DPM program in which professional practice is to be advanced, as there is no significant risk to participants. The potential for benefits clearly outweigh risks.

4. Please detail any other ethical issues which may be particularly associated with this project. A checklist of possible ethical issues is given here as a **guide only**
- | | Yes
No | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----|
| (a) Is deception to be used? | | NO |
| (b) Does the data collection process involve access to confidential data without the prior consent of subjects? | | NO |
| (c) Will subjects be video taped? | | NO |
| (d) If interviews are to be conducted, will they be tape-recorded? | | NO |
| (e) Do you plan to use an interpreter? | | N/A |
| (f) Does the research involve any tasks, investigations or processes which may be experienced by subjects as stressful or unpleasant during or after the data collection? | | NO |
| (g) Are the subjects in any sort of dependent relationship to the investigator/s? | | NO |
| (h) If you are collecting data using questionnaires or surveys will you be using a code identifier to track respondents or non – respondents for follow up? | | NO |
| (i) Are you using an organisation external to RMIT to assist in the data collection? | | NO |
| (j) Are subjects asked to disclose information which may leave them feeling vulnerable or embarrassed? | | NO |
| (k) Are there, in your opinion, any other ethical issues involved in the research? | | NO |

Section E: Informed Consent

1. Attach to your application-

- (a) Should a postal survey be used, a copy of the letter to subjects giving information in plain language about the research (see Appendix 1) will be prepared on RMIT letterhead.
- (b) Should a personal interview style of information collecting be conducted or the researcher personally administers a questionnaire to a group of subjects, a copy of the plain language statement (see Appendix 2) and the appropriate prescribed consent form (see Appendix 3). Individual consent to participation will be obtained in writing.

2. Dissemination of results

Will participants be informed that results from the study may appear in publications?

Yes

If yes, this information should be included in the plain language statement.

Section F: Confidentiality of Records

1. Describe the procedures you will adopt to ensure confidentiality.

All records will be kept under secure conditions (lock and key) in the researcher's home office. Identification of organisations and individuals will be strictly masked by codes (numbers or letters).

2. Who will be responsible for security of confidential data?

The DPM candidate - Rebecca Turner.

3. How long will data be held? 5 years statutory time limit.

4. Who will have access to the data, and for what purpose?

The DPM candidate - Rebecca Turner and the DPM advisor/supervisor

PRIVACY

5. Does this project involve the use of personal information obtained from a government department or agency?

NO

Section G: Other Issues

PAYMENT TO SUBJECTS

1. Do you propose to pay subjects? If so, how much and for what purpose.

NO

PLACE FOR CONDUCT OF PROJECT

2. Where will the project be conducted?

Principally in Fairview Heights, Illinois, USA

OTHER DECISIONS REGARDING THIS PROJECT

3. Is this project being submitted to another Human Research Ethics Committee, or has it been previously submitted to a Human Research Ethics Committee?

NO

GENERAL GUIDELINES FOR LETTERS ACCOMPANYING QUESTIONNAIRES

1. The letter should be written in plain language, readily comprehensible to the persons likely to receive it. In particular, it should avoid the use of technical jargon.
2. The letter should identify the university, school involved and the project title, (or degree name) and the name(s) of the researchers, and should explain
 - a. nature
 - b. purpose
 - c. methodof the proposed investigation.
3. The letter should explain fully what the person taking part in the research investigation will be required to do, that is, to complete the questionnaire, and return it in the envelope, etc.
4. The letter should explain why the involvement of the person is being sought.
5. The letter must contain words indicating:
 - a that the participation is voluntary
 - b that the person may withdraw from the research at any time
 - c that the person is invited to, and should, ask for clarification at any time of any aspect that concerns him or her. The name or names and telephone numbers of the persons to contact must be given.
6. The overall purpose of the letter is to provide a full, fair and readily comprehensible statement of all relevant matters so that the person invited to take part in the investigation will be in a proper position to judge whether, as a matter of reasoned decision, he or she wishes to take part in the investigation.
7. While there is no objection to pointing out to a person the benefits to others that may result from the investigation, special care should be taken not to impose any moral pressure or undue influence on a person to take part in an investigation.
8. The procedures adopted to ensure confidentiality of data should be explained. Information about how the data will be used should also be included and, where necessary, the steps to be taken to ensure that participants will not be identified. The letter should also state if anonymity of respondents is assured and how this is to be achieved; and how the security of the data following completion of the study is to be assured.
9. If the research data collected from the questionnaire is to be published in some form, this fact should be clearly stated.

**SUBJECTS****RESEARCH PROJECT INVOLVING HUMAN****Guidelines for Provision of Written Information and the Prescribed Form for Informed Consent of Subjects Participating in Research Projects****1. Informed Consent**

The informed consent of subjects is a central ethical principle in the conduct of projects involving humans as subjects of research. It is the responsibility of the investigator to ensure that consent to participate is both informed and freely given by the subjects of their research.

Prior to research being undertaken the free consent of the subject should be obtained. To this end the investigator is responsible for providing the subject at their level of comprehension with sufficient information about the purpose, methods, demands, risks, inconveniences and discomforts of participation in the study. Consent should be obtained in writing unless there are good reasons to the contrary. If consent is not obtained in writing, the circumstances under which it is obtained should be recorded.

The content and level of detail contained in the written description to subjects will obviously vary depending on the type of participation required of subjects, the requirements of the project itself, and in particular the level of potential risk to subjects, and the characteristics of the subject population. It is important to remember that consent to participate cannot be seen either to be informed or given freely unless potential subjects have available to them a full description of the project and the nature of their participation in language they can understand.

A written description of the project for the information of potential subjects should normally be provided for all projects in the form of a letter on RMIT letterhead. This description should accompany your application to the RMIT Business Human Research Ethics Sub-Committee. If investigators believe that written information need not be provided to subjects they should explain to the Sub-Committee their reasons for believing so. In such a case the Sub-Committee will require a clear statement to be included with the application describing exactly what subjects will be told about the project and their involvement in order to obtain their free consent to participate.

Guidelines for plain language statements are set out below.

2. Requirements of "Plain Language" Written Statements

- (i). The statement should be written in the form of a letter inviting participation, on RMIT letterhead, in plain language, readily comprehensible to the persons likely to receive it and appropriate to their condition.
- (ii). It is thought that comprehension would ordinarily be improved if the statement:
 - (a) is expressed in the language of "we" and "you" rather than in the third person;
 - (b) is divided into short paragraphs;
 - (c) avoids the use of technical jargon;
 - (d) is as concise as the subject matter will allow.

The Secretary of the Portfolio HRE Sub-Committee is able to show you some "model" plain language statements to assist you in preparing yours.

The description should:

- (iii) clearly identify:
 - the University;
 - the school or schools involved;
 - the project title;
 - the Investigator/Principal Investigator (*please state your qualifications or title so that it is clear to the participants what your standing is to carry out this research*);
 - if the research is being undertaken as part of a Masters or PhD Degree;
 - your Supervisor/other investigator.
- (iv) explain in language that the subjects will understand the aim of the project, its purpose, and the procedures to be followed. This should include a description of what subjects are expected to do and experience if participating in the project, and the anticipated time involved.
- (v) identify and explain any reasonable foreseeable risks involved in the procedures. Where possible these risks should be quantified.
- (vi) clearly outline any disadvantages or possible disadvantages which may result to a person taking part in the investigation. If there are corresponding advantages, or possible advantages, these should also be stated.
- (vii) explain why the involvement of the person is being sought.

- (viii) clearly indicate that participation in the project is voluntary, and that subjects may withdraw consent to participate and discontinue participation at any time. Subjects should also be aware that they may if they wish withdraw any unprocessed data previously supplied.
- (ix) whilst there is no objection to pointing out to a person the benefits to others that may result from the investigation, take special care not to impose any moral pressure on a person to take part in an investigation.
- (x) explain the procedures adopted to ensure confidentiality of data. Information about how the data will be used should also be included and, where necessary, the steps to be taken to ensure that participants will not be identified. (For example, if case histories are to be written up in a report of the research, a statement will need to be included to indicate that information will be disguised by use of pseudonyms or other devices so that identification of the subject will not be possible).
- (xi) inform the participants if research is being funded by a particular donor.
- (xii) indicate that the person is invited to, and should, ask for clarification at any time of any aspect that concerns him or her. The name or names and telephone numbers of the persons to contact must be given. For Business Portfolio Research this is the chair of the Business Portfolio Human Research Ethics Committee, phone: (03) 9925 5594, fax: (03) 9925 5595 or email: rdu@rmit.edu.au

The overall purpose of the statement is to provide a full, fair and readily comprehensible statement of all relevant matters so that the person invited to take part in the investigation will be in a proper position to judge whether, as a matter of reasoned decision, he or she wishes to take part in the investigation.

7.6.1.1 HREC Form No 2b

7.6.1.2 RMIT HUMAN RESEARCH ETHICS COMMITTEE

Prescribed Consent Form For Persons Participating In Research Projects Involving Interviews,
Questionnaires or Disclosure of Personal Information

FACULTY OF

BUSINESS

DEPARTMENT OF

RESEARCH DEVELOPMENT UNIT

Name of participant: _____

Project Title: _____

Name(s) of investigators: (1) _____

Phone: _____

1. I have received a statement explaining the interview/questionnaire involved in this project.
2. I consent to participate in the above project, the particulars of which - including details of the interviews or questionnaires - have been explained to me.
3. I authorise the investigator or his or her assistant to interview me or administer a questionnaire.
4. I acknowledge that:
 - (a) Having read Plain Language Statement, I agree to the general purpose, methods and demands of the study.
 - (b) I have been informed that I am free to withdraw from the project at any time and to withdraw any unprocessed data previously supplied.
 - (c) The project is for the purpose of research and/or teaching. It may not be of direct benefit to me.
 - (d) The confidentiality of the information I provide will be safeguarded. However should information of a confidential nature need to be disclosed for moral, clinical or legal reasons, I will be given an opportunity to negotiate the terms of this disclosure.
 - (e) The security of the research data is assured during and after completion of the study. The data collected during the study may be published, and a report of the project outcomes will be provided to _____ (specify as appropriate). Any information which will identify me will not be used.

Participant's Consent

Name: _____

(Participant)

Date: _____

Name: _____

(Witness to signature)

Date: _____

Where participant is under 18 years of age:

I consent to the participation of _____ in the above project.

Signature: (1) _____ (2) _____ Date: _____
(Signatures of parents or guardians)

Name: _____ Date: _____
(Witness to signature)

Participants should be given a photocopy of this consent form after it has been signed.

Any complaints about your participation in this project may be directed to the Chair, RMIT Business Portfolio Human Research Ethics Committee, RMIT Business, GPO Box 2476V, Melbourne, 3001. The telephone number is (03) 9925 5594, the fax number is (03) 9925 5595 or email address is rdm@rmit.edu.au

Research Proposition:

That project management practice will be advanced through addressing the development of Emotional Competencies within project teams with the goal of achieving measurable improvements in personal and professional performance leading to a synergistic effect to meet traditional project management goals for cost, schedule and performance.

Key concepts: *Leadership, Innovation, Organizational Culture, Strategic Direction, Emotional Intelligence, Emotional Competencies, Stakeholders*

Related research issues:

- The key motivators to promote Emotional Awareness.
- Shared Leadership responsibility as a means for initiating synergy through emotional cue.
- The relative increase or decrease in personal power resulting from a shared power culture.
- The improved trust and commitment within project team contributing to the overall success of a business unit.
- The use of the Consortium for Research on Emotional Intelligence in Organizations Emotional Competence Framework as a definition for personal competence as a tool for improvement

Intangible emotional intelligence outcomes are currently poorly recognized, delivered and measured on projects:

- The application of emotional competencies to daily work activities
- The identification and active management/fostering of empathy skills
- The encouragement and facilitation of share power
- The benefit of individual growth on the organization culture
- Ethical role-modelling
- The enhancement and ongoing maintenance of trust and commitment

RESEARCH METHOD

Introduction

In order to research the potential for addressing the introduction of emotional Competency skills by also identifying, defining, delivering and measuring intangible outcomes, research participants will need to satisfy some basic criteria;

1. Acknowledgment of the key role of Emotional Intelligence (as defined by The Emotional Competence Framework (The consortium of Research on Emotional Intelligence in Organizations) in addressing personal and professional challenges.
2. Past business/project experiences that can be used as a basis for comparing the intangible trust and commitment outcomes generated by this research.
3. Support from project management leaders and team members to improve the level of empathy skills required to achieve improved project outcomes.

Having identified research participants satisfying these criteria, the researcher will collaborate with a variety of nominated stakeholders, through the process of identifying/delivering/measuring/evaluating intangible impacts resulting from emotionally intelligent project management leadership practices.

Project/program stakeholders' opinions will be sought, recorded and documented through the development/evaluation process for each case study environment. The researcher will then analyse (contrast and compare) stakeholders' opinions from each of the different case study environment. Based on this analysis, the researcher will then document recommendations for project managers to better identify, deliver and measure intangible impacts resulting from emotionally intelligence project management leadership practices.

The above will take place in an evolving action research context in which data will gathered from participants and a log of reflective learning maintained by the researcher. The application of the research results to the practice of project management will be validated and commented upon by project stakeholder focus groups.

Research Case Studies

CASE STUDY ORGANISATION

Case study organization, selected according to the above criteria, is the ALPHA. ALPHA is a project, jointly managed by the United States Transportation Command (USTRANSCOM), the US Air Force (USAF) and the Defense Finance and Accounting Service (DFAS) with oversight from the Office of the Secretary of Defense (Comptroller).

Fundamental problems at the data source level and a lack of integration prevent USTRANSCOM systems from producing accurate, reliable and timely financial data. Without the quality of financial data/information required, USTRANSCOM Commanders lack the information necessary to make important decisions. Several non-material solutions offer only partial mitigation for the existing deficiencies. USTRANSCOM has combined forces with the USAF and DFAS to provide program and functional management, as well as finance and accounting subject matter experts to create a tightly-knit confederation to champion the ALPHA program.

Leadership through Emotional Intelligence in the ALPHA program.

As evidence of the USTRANSCOM commitment to improved financial management, they are currently in the process of delivering a program that will modernize, standardize and make possible a fully auditable and enterprise-level, architecturally-compliant financial management solution.

Research Action Plan

It is planned that the following activities will be conducted:

1. Use results of ALPHA team self-assessment as the input provided by the ALPHA management group (General Manager and direct reports).
2. Schedule and conduct lunchtime, brown-bag workshops based on the Emotional Competence Framework, with voluntary groups of representatives from each of several functional operational groups; capturing feedback in terms of 'What is currently being done well' and 'Suggestions for Improvement'.
3. Compile and analyse (compare and contrast) the feedback gathered from all groups.
4. Document recommendations for ALPHA as input into their leadership improvement program (based on the Emotional Competency Framework).
5. Based on the analysis and recommendations described above, document additional recommendations for project management leadership, for their consideration.

Research Case Study Organisation Confidentiality

The research case study organisation, ALPHA will always be referred to in general terms as '**Project Alpha**', unless requested/advised otherwise in writing by the primary research area sponsor - Office of the Secretary of Defense (Comptroller), Business Management Modernization Program, Domain Lead. No individual members of the ALPHA staff attending the facilitated workshops will be identified by name or in any way that will allow them to be identified. The facilitator will summarise group feedback to each aspect of emotional intelligence or competency discussed. The members of each workshop group will be asked to confirm the facilitator's summary of their feedback, prior to discussing the next aspect. This will ensure that the feedback is accurately captured.

Case Study Organization Sponsors

- Mr. Dave Smith, Office of the Secretary of Defense (Comptroller), Business Management Modernization Program, Domain Lead
- Mr. John Senn, USTRANSCOM, ALPHA Functional Manager

DRAFT for completion on Faculty of Business RDU Letterhead

May 2004

FACULTY OF	BUSINESS
DEPARTMENT OF	RESEARCH DEVELOPMENT UNIT
Name of participant:	UOSD(C), USTRANSCOM
Project Title:	Determining the Impact of Emotional Intelligence in Project Management Leadership as a Measure of Performance Improvement
Name(s) of investigator	Rebecca A. Turner Phone: 619-622-5713

General John Handy
 Commander, United States Transportation Command
 508 Scott Drive
 Scott Air Force Base, Illinois, USA 62225-5357

Dear General Handy,

I am a research candidate in the Doctor of Project Management (DPM) program at the Royal Melbourne Institute of Technology (RMIT) University. The purpose of the DPM program is to advance project management practice. To date, my academic qualifications comprise a Master of Education degree, majoring in Operations Administration and a Bachelor of Arts degree in Political Science.

I am writing to request the assistance of your organization/program (ALPHA) in providing data to support my research project, the purpose of which to investigate how the strategic challenges of emotional intelligence through establishing emotional competencies can be better developed and addressed by identifying, defining, delivering and measuring intangible outcomes, that provide value beyond the traditional tangible deliverables - -satisfying cost, time and project quality.

My research is based on the hypothesis that organizations and individuals (including project teams and project managers) will be better able to address strategic challenges by identifying, defining, delivering and measuring intangible Emotional Intelligence outcomes, in addition to more traditional tangible deliverables. My research activities are intended to investigate this hypothesis and provide a basis for advancing project management practice. While desired intangible outcomes will differ from practice to practice and organization to organization, I expect that they will include intangibles such as the application of organizational values to daily work, Individual and organizational learning, the Identification and active management/fostering of key relationship and the development of reputation and trust. Intangible outcomes, when combined with traditional tangible deliverables will provide greater value to senior stakeholders and also assist them to maintain/improve their organizations overall performance. My research activities are intended to investigate this hypothesis and provide a basis for advancing project management practice.

Due to the practical nature of my research topic, I am dependent on the participation of willing project stakeholders. Therefore the opportunity to work with your project will be of great assistance. Currently, I anticipate this assistance to take the form of an agreed series of short planning and review sessions, involving a small number of senior stakeholders. It is expected that no appreciable time will be required by members of your management team and that all workshops and survey results will be requested for voluntary completion/attendance during lunch time "brown-bag" events or on off-duty hours.

I will respect the privacy of your organization, both during and after the course of my research activities. I will ensure that all data and comments provided to me remain coded and secure to protect your right to confidentiality; including any mention of my research findings in conference papers and/or journal articles. I am a self-funded doctoral research student and receive no funding for this work. I am currently supporting the ALPHA project under an advisory and assistance contract as the program manager for CACI/CMS. As such, I have signed all required non-disclosure agreements and have a full understanding of the sensitivities of the program that require confidentiality.

I fully respect your right to withdraw for your voluntary support of my research at any time. In addition, should you wish to clarify any issues regarding my research, please contact either my research supervisor, Senior-Lecturer Beverley Lloyd-Walker, PhD, Research Development Unit, Business Portfolio [School of Management, Victoria University] (phone : 03-9688 4121) or the RMIT Business Portfolio Human Research Ethics Committee, phone: (03) 9925 5594, fax: (03) 9925 5595, email: rdu@bf.rmit.edu.au.

I anticipate that your support of this research project will result in improved project management practice.

Yours most sincerely,

Rebecca Alison Turner
Doctor of Project Management candidate
RMIT University
Rebecca.Turner@caci.com

**APPENDIX D. RESEARCH AGREEMENTS WITH THE UNITED STATES
TRANSPORTATION COMMAND**

**USE AND NON-DISCLOSURE AGREEMENT BETWEEN UNITED STATES
TRANSPORTATION COMMAND AND REBECCA A. TURNER**

USE AND NON-DISCLOSURE AGREEMENT

I, **Rebecca A. Turner**, have been authorized by the Government to gain access to records and individuals from USTRANSCOM for the purpose of performing research to determine the impact of emotional intelligence in project management leadership as a measure of performance improvement. I understand that in the course of my research I may be given or otherwise have access to nonpublic information that the Government and USTRANSCOM may have a responsibility to protect or control. Such information may include, but is not limited to contractor proprietary information, advanced procurement information, source selection information, trade secrets and other confidential business information, attorney work product, information protected by the Privacy Act, and other sensitive information that USTRANSCOM would not release under the Freedom of Information Act. Under no circumstances will access to classified information be permitted.

In consideration for this access, I agree and promise to use any data I may discover or have provided to me in the course of my research strictly in accordance with this Agreement and the Memorandum of Agreement.

I agree that I will not seek access to non-public information beyond what is required for my research,

I agree that I will ensure my status as a private researcher is known when seeking access to and receiving any non-public information from government employees

I agree to return any nonpublic information given to me pursuant to the Memorandum of Agreement upon the termination of the Memorandum

With the exception of its use for research and academic publication, any nonpublic information I may receive in the course of my research may not be used for personal or commercial purposes. I will also not, except in the context of research and academic publication, discuss any nonpublic information with third parties. I understand that any release of nonpublic information by me in any form may only occur after review by USTRANSCOM representatives in accordance with terms spelled out in the Memorandum of Agreement.

If I become aware of the release of any nonpublic information, I will advise the USTRANSCOM point of contact as soon as possible

I am aware that any unauthorized use, release or disclosure of nonpublic information in violation of this agreement may subject me to civil or criminal penalties as may be authorized by law.

I agree that I have a continuing duty not to disclose (except when authorized) or misuse the information referenced above even after the expiration of this agreement. I also agree that the release of nonpublic information will continue to be governed by the provisions contained in the Memorandum of Agreement and that the terms of such release will survive the expiration of the Agreement.

//signed//

Signature

//4 Oct 2004//

Date

**MEMORADUM OF AGREEMENT BETWEEN UNITED STATES
TRANSPORTATION COMMAND AND REBECCA A. TURNER**

Memorandum of Agreement

between

United States Transportation Command,

and

Rebecca A. Turner

1. PURPOSE AND SCOPE: The purpose of this agreement is to define the purpose, duration, and relationship between Rebecca A. Turner, and the United States Transportation Command, (USTRANSCOM), a Department of Defense entity. Collectively, Ms. Turner and USTRANSCOM are referred to as the parties.

2. BACKGROUND: Rebecca A. Turner, a research candidate in the Doctor of Project Management (DPM) program at the Royal Melbourne Institute of Technology (RMIT) University, desires to conduct research to determine the impact of emotional intelligence in project management leadership as a measure of performance improvement. USTRANSCOM has agreed to provide Ms. Turner with the access and support necessary for her to conduct her research, at no cost to USTRANSCOM or DoD.

3. TERMS OF REFERENCE: The parties agree that:

a. While conducting her research at USTRANSCOM, Ms. Turner will not be an employee, agent, or contractor (for purposes of this research) of USTRANSCOM and will not represent herself as such.

b. Ms. Turner will not be considered as performing a service, compensated or uncompensated, for USTRANSCOM.

c. Ms. Turner will not file a claim or assert a cause of action against the Federal Government for employment compensation or benefits as a result of the research performed at USTRANSCOM. In addition, Ms. Turner will not file a claim for or seek reimbursement of, any expense incurred by herself in the course of conducting her research.

d. Nothing in this MOA is intended to limit Ms. Turner's (or her successor's) right to file, against USTRANSCOM and the Federal Government, a claim for personal injury or death to, or damage to property owned by, Ms. Turner that occurs while she is conducting research at USTRANSCOM.

e. Ms. Turner will indemnify the Federal Government from all liability and third party claims in case of personal injury or death, or damage to or loss of property, or any other claim or liability arising from her activities. Ms. Turner will reimburse the Federal

Government for damage to, or the loss of, USTRANSCOM property that results from her activities.

f. Ms. Turner will comply with all security, Equal Employment Opportunity, and other applicable laws, directives, regulations, and policies while conducting research and other activities at USTRANSCOM on Scott Air Force Base. The USTRANSCOM Point of Contact (POC) will provide guidance and answer questions, as necessary, relating to said laws, directives, regulations, and policies.

g. Implementation of this MOA is contingent upon the execution of a separate non-disclosure agreement, attached hereto as Annex A.

h. Prior to publication or placement in the public domain in any fashion, Ms. Turner will submit, or cause to be submitted, to USTRANSCOM for review, any articles, commentaries, reviews, summaries, etc., that incorporate, reflect, or refer to the results of her research at USTRANSCOM. The purpose of this review will be to ensure compliance with this MOA, Annex A, and other laws and regulations applicable to the release of information. The following procedures will apply:

- 1) Items submitted by Ms. Turner under this provision shall be sent to the USTRANSCOM Chief of Staff, 508 Scott Drive, Scott Air Force Base Illinois 62225.
- 2) USTRANSCOM will have 30 days from receipt to review any item submitted by Ms. Turner, and to agree or object to the content of the item.
- 3) In the event USTRANSCOM objects to the content of an item, the parties agree to engage in a good faith effort to resolve the matter prior to taking any further action.
- 4) Should efforts to resolve the matter be unsuccessful, Ms. Turner agrees to provide written notice, at least 30 days in advance, of his intent to proceed with publication or placement in the public domain of any item to which USTRANSCOM has objected.
- 5) This procedure shall remain in effect for a period of two (2) years from the date of the termination of the MOA.

4. RESPONSIBILITIES:

a. USTRANSCOM agrees to provide Ms. Turner:

- 1) Access to government and contractor personnel working on the USTRANSCOM Defense Enterprise Accounting and Management System (DEAMS) program on a non-interference and voluntary basis for the purpose of administering survey tools and conducting limited personal interviews for data collection.
- 2) Explanation / interpretation of rules and policies applicable to Ms. Turner's access to the USTRANSCOM workplace as well as the use and handling of information collected therein.

APPENDIX E. COORDINATION AND APPROVAL WITH HAY GROUP

Hay Group Emotional Competence Inventory (ECI) Research Application

Running head: IMPACT OF EMOTIONAL INTELLIGENCE

Proposed Research Plan for

Determining the Impact of Emotional Intelligence in Project Management

as a Measure of Performance

Rebecca A. Turner

Candidate, Doctor of Project Management

Royal Melbourne Institute of Technology

Background

The research issue:

This doctoral research will attempted to identify whether an awareness of and development of skills in applying emotional intelligence competencies contributes to successful project teams.

Relevant references: (references that support the theoretical or empirical foundation/rationale of this proposed study)

Ashkanasy, N.M. & Dasborough, M.T. (2003). *Emotional Awareness and Emotional Intelligence in Leadership Teaching*, Journal of Education for Business, 79, 1, 18-22.

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- Higgs, M. & Aitken, P. (2003). *An exploration of the relationship between emotional intelligence and leadership potential*, Journal of Managerial Psychology, 18, 7/8, 814-823
- Humphrey, R.H. (2002). *The many faces of emotional leadership*, The Leadership Quarterly, 13, 493-504
- Jordan, P.J., Ashkanasy, N.M., Hartel, C.E.J. & Hooper G. S. (2002). *Workgroup emotional intelligence scale development and relationship to team process effectiveness and goal focus*, Human Resource Management Review 12, 195-214
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- Voola R., Carlson, J., & West A. (2004). *Emotional intelligence and competitive advantage: examining the relationship from a resource-based view*, Strategic Change 13, 83-93
- Wolff, S.B., Pescosolido, A.T., & Druskat, V.U. (2002). *Emotional intelligence as a basis of leadership emergence in self-managing teams*, The Leadership Quarterly 13, 505 - 522
- Wong, C. & Law, K.S. (2002). *The effects of leader and follower emotional intelligence on performance and attitude: An exploratory study*, The Leadership Quarterly 13, 243-274

Statement of Purpose:

To advance project management through creating awareness and addressing the importance of emotional competencies within project teams; with the goal of achieving measurable improvements in personal satisfaction and professional performance leading to a synergistic effect to better meet traditional project management goals for cost, schedule and performance.

Key concepts: Emotional and social competency awareness, project success

Proposed Study

Empirically based hypotheses:

Made aware of emotional competencies through knowledge area skill development and trial scenarios as applied within a project setting, a project team will be more successful.

Project success is generally defined in terms of cost, schedule and performance.

The focus is on the “bottom line”. Success, in this case, is not going to be measured in terms of cost, schedule and performance, but rather in terms of work satisfaction, willingness to participate in future projects, desire to lead a project. Therefore, this research is intended to look at the best use of “people” and the benefits gained through an individual perception of success.

Theoretically based hypotheses:

Project teams with awareness of emotional and social competence within the work place will increase in overall emotional intelligence, positively influencing project success.

Research Sample

i) How obtained.

The research sample will be obtained through measuring the EQ of randomly assigned project groups comprising eight groups of three to five individuals each.

All project groups will be drawn from the same overarching program. The overarching program is comprised of approximately 85 individuals, with all individuals working one or more project assignments.

- All individuals will be between 21 and 65 years of age.
- All groups will be randomly assigned from a program personnel staff with individuals of mixed gender, race and culture.
- Members will have between one and 20 years of project related experience.

Only those project groups considered successful in terms of total program performance will be selected for participation, as those not meeting that criterion will not be made available for participation by the organization. A project is considered successful if:

- predefined outcomes are realized
 - outputs are delivered on time and of a mutually agreed quality, and
 - costs are within an established budget
- ii) How sampled.

The Researcher is requesting the use of the Emotional Competence Inventory. The research sample will be taken through a request for participation at the convenience of the individual. These “probabilistically equivalent” (Trochim, 2001, p.193) groups will be randomly assigned to either an active or control group. All group members will participate in the ECI measurement. All team members will participate in measurements taken by survey to measure individual perceptions of project contribution and success value. Group A (Active Group) will participate in discussions regarding emotional intelligence with a follow-on measurement administered through survey.

The design structure is illustrated in Figure 1.

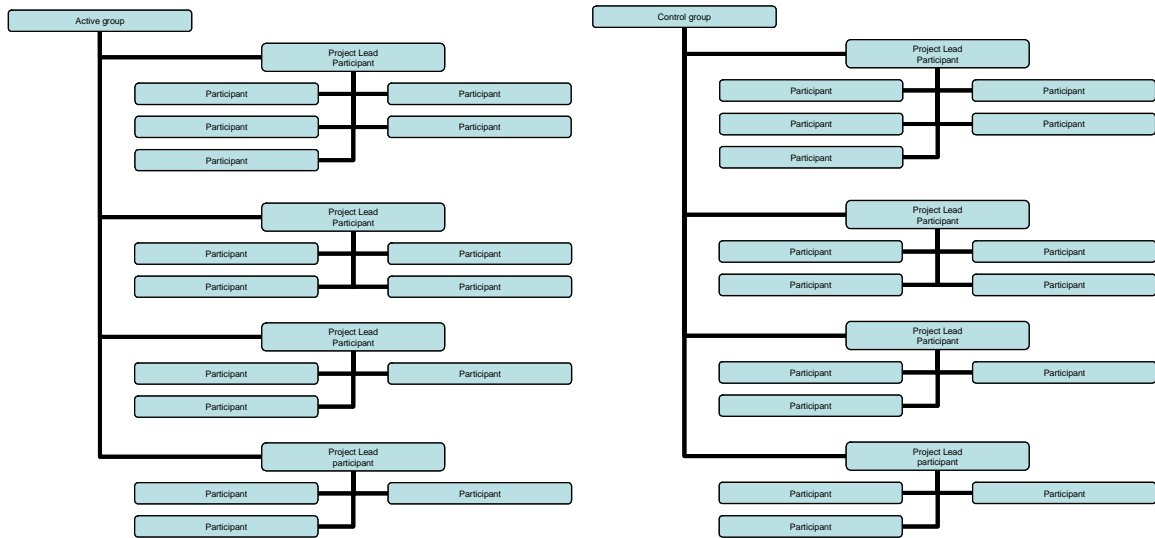


Figure 7-1 Research Design Structure

In terms of Research Design type, the following table shows that Group A (Active Group) will be pre-tested and post-tested with the introduction of emotional intelligence discussions. Group B (Control Group) will be pre-tested and post-tested without the introduction of any program discussion of emotional intelligence introduced.

Table 7-1 Research Design Notation

Group Assignment	Assn to group	Observation or measure	Treatment	Observation Or measure
Group A	R	O	X	O
Group B (Control Group)	R	O		O

iii) How many.

It is planned that 25 - 40 individuals will participate in the study. The number of management personnel expected to participate is a maximum of eight (8) and a minimum of six (6).

- Management participants must have a minimum of one year of project management experience, with a minimum of 90-days in current assignment.
- Non-management participants must have a minimum of 60-days working on the current project. Due the nature of the workplace, all participants have experience a range of project leadership styles.

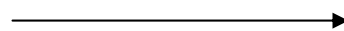
Correlational or experimental study

This study will be an experimental in nature. The research design will be tailored to minimize threats to validity through the use of a control group and by taking the preventive action of offering the training to the control group at the conclusion of the study.

Operationalized Independent and Dependent Variables

Independent Variable

Awareness of
Emotional
Competencies



Dependent Variable

Increased
Project
Success

Figure 7-2 Research Process Model

Awareness of Emotional Competencies will be accomplished through a structured briefing²⁷ and two to three activities²⁸ with Group A (Action Group) members. The briefing and activities will be focused on distinct emotional and social competencies in the areas of self awareness, self regulation, empathy and basic social communications skills. The sessions will be guided by the researcher acting as a facilitator but, will remain unstructured in terms of the ability for all group members to voice insights or share experiences. Group A (Action Group) will be briefed that the discussions are not to be shared with other project groups. Group B (Control Group) members will not participate in these sessions. To minimize risk,

²⁷ TalentSmart – EQ PowerPoint, Emotional Intelligence PowerPoint, 2004 Edition

²⁸ Lynn, A. B., (2002). *The Emotional Intelligence Activity Book: 50 Activities for Promoting EQ at Work*, AMACOM, New York

the control group will be told that similar sessions will be available to them following the completion of the study.

Improved Project Success potential will be determined through an observed change in ECI measurement. In conjunction with the post test, interviews with group members and observations of team interactions will be conducted to collect research data.

These efforts are intended to answer the following question:

- Will an awareness of emotional and social competencies promote an increase in overall emotional intelligence, such that individual performance increases project success?

Confidentiality and Consent

An application for approval of project involving human subjects has been completed and approved as of 21 September 2004 by the Royal Melbourne Institute of Technology (RMIT) Business Human Research Ethics Sub-committee. Appendix 2 of the application contains the guidelines for provision of written information and the prescribed form for informed consent of subjects participating in the research project. A copy of the ethics application is available upon request.

Hay Group Emotional Competence Inventory (ECI) Conditional Use Agreement

CONDITIONAL USE AGREEMENT

For good and valuable consideration, the receipt and legal sufficiency of which are hereby acknowledged, I hereby agree that the permission granted to me by the Hay Group, Inc. ("Hay"), to receive and utilize, without charge, the Emotional Competency Inventory (the "ECI") is subject to the following conditions, all of which I hereby accept and acknowledge:

1. I will utilize the ECI for research purposes only and not for commercial gain.

2. The ECI, and all derivatives thereof, including raw data, is and shall remain the exclusive property of the Hay Group; Hay Group shall own all right, title and interest, including, without limitation, the copyright, in and to the ECI.

3. I will not modify or create works derivative of the ECI or permit others to do so. Furthermore, I understand that I am not permitted to reproduce the ECI for inclusion in my thesis/research publication.

4. I will provide the Hay Group with a copy of any research findings arising out of my use of the ECI and will cite the Hay Group, Daniel Goleman and Richard Boyatzis in any of my publications relating thereto. The Hay Group may disseminate this research and report any results relating to the ECI.

5. The Hay Group will have no obligation to provide me with any scoring services for my use of the ECI other than the Algorithm used to score results.

6. The Hay Group will not be deemed to have made any representation or warranty, express or implied, in connection with the ECI, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

7. My rights under this Agreement are non-transferable and non-exclusive and will be limited to a period of two (2) years from the date of this Agreement.

8. The Hay Group may immediately terminate this Agreement by giving written notice to me in the event I breach any of this Agreement's terms or conditions.

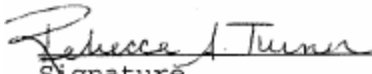
9. This Agreement will be construed in accordance with the laws of Massachusetts without recourse to its conflict of laws principles.

10. This Agreement may not be assigned by me without the prior written consent of the Hay Group.

11. Failure by the Hay Group to enforce any provisions of this Agreement will not be deemed a waiver of such provision, or any subsequent violation of the Agreement by me.

12. This is the entire agreement with the Hay Group pertaining to my receipt and use of the ECI, and only a written amendment signed by an authorized representative of the Hay Group can modify this Agreement.

Agreed and understood:


Signature

Rebecca A. Turner
Print Name

2 May 2005
Date

Hay Group Emotional Competence Inventory (ECI) Research Acceptance

Turner, Rebecca CTR USTRANSCOM DEAMS

From: Ken_delPo@haygroup.com
Sent: Monday, May 23, 2005 10:40 AM
To: Turner Rebecca Contractor USTC
Cc: Steven_Wolff@haygroup.com
Subject: ECI Acceptance



ECI 2.0 Self
Version.doc (104 K...



ECI 2.0 Scoring
Instructions.d...



ECI 2.0 Scoring
Key.xls (31 KB...



ECI 2.0 360
Version.doc (105 K...

Dear Rebecca,

Thank you for your interest in the Emotional Competence Inventory (ECI). You have been approved to do research using the ECI 2.0, and your research contribution is greatly appreciated. Attached you will find four documents:

1. ECI 2.0 360 Version.doc - This is a copy of the ECI 360 rating booklet. You may print or copy this document as needed for your research.
2. ECI 2.0 Self Version.doc - This is a copy of the ECI Self rating booklet. You may print or copy this document as needed for your research.
3. ECI 2.0 Scoring Instructions.doc - This document contains the instructions necessary for you to calculate the ECI 2.0 scores. The scoring instructions document is a bit outdated, but conceptually the scoring is the same.
4. ECI 2.0 Scoring Key.doc - This contains the scoring key (list of items for each competency and cluster) for the ECI. Use this document to create variables in your statistical program for each ECI competency and cluster score.

We look forward to hearing about your results. When you have completed your study please e-mail or send a hard copy of your research paper or publication to the following address:

Steven Wolff (steven_wolff@haygroup.com)
Hay Group
McClelland Center for Research
116 Huntington Ave.
Boston MA 02116

Sincerely,
Ken del Po

(See attached file: ECI 2.0 Self Version.doc) (See attached file: ECI 2.0 Scoring Instructions.doc) (See attached file: ECI 2.0 Scoring Key.xls) (See attached file: ECI 2.0 360 Version.doc)

**APPENDIX F. HAY GROUP EMOTIONAL COMPETENCE INVENTORY
(ECI) VERSION 2 (SELF)**

The contents of Appendix G. were removed following evaluation to respect the proprietary nature of the materials used with permission of the owner/developer.

**APPENDIX G. HAY GROUP EMOTIONAL COMPETENCE INVENTORY
(ECI) VERSION 2 (PEER)**

The contents of Appendix H. were removed following evaluation to respect the proprietary nature of the materials used with permission of the owner/developer.

**APPENDIX H. BALL FOUNDATION – JOB SATISFACTION SURVEY TOOL
RESEARCH AUTHORIZATION**

Ball Foundation Job Satisfaction Survey

Page 1 of 2

Turner, Rebecca CTR USTRANSCOM DEAMS

From: Kevin Field [kfield@careervision.org]
Sent: Wednesday, July 06, 2005 4:20 PM
To: Turner Rebecca Contractor USTC
Subject: RE: Ball Foundation Job Satisfaction Survey

Rebecca,

Thanks for the background information you have provided on your study. Career Vision/Ball Foundation would be delighted to collaborate with you on the administration of the Job Satisfaction Survey to your research sample.

A research agreement is attached - please let me know if you have any suggested edits to it. If you find it acceptable, please sign and fax it to my attention at 630.469.6279 - I'll promptly sign it and return it to you for your records.

Of course there are logistical details and other questions we are both likely to have, and I am interested in working these out with you in the near future.

Regards,
Kevin

Kevin Field, Ph.D.
Assessment Systems Manager
CAREER VISION
800 Roosevelt Road E-200
Glen Ellyn, IL 60137
630.469.6270 x238
kfield@careervision.org <--- NOTE NEW EMAIL
www.careervision.org
Direction. Decisions. Satisfaction.

APPENDIX I. BALL FOUNDATION – JOB SATISFACTION SURVEY TOOL

The contents of Appendix J. were removed following evaluation to respect the proprietary nature of the materials used with permission of the owner/developer.

APPENDIX J. JOB PERFORMANCE SURVEY TOOL

PERFORMANCE SURVEY TOOL

Candidate being reviewed: _____

As a peer of the participant named above, you have been asked to give feedback on job performance. Your feedback is confidential. It will be compiled with other peer responses as a profile and will be kept anonymous.

It should take you less than 5 minutes to complete this questionnaire. Each item in the questionnaire describes a work performance-related behavior. Think about how the individual you are rating has performed over the previous several months. Then, use the scale below to indicate how frequently each behavior has been exhibited.

An example survey item:

Item Number	Please carefully respond to each survey item below. The person you are rating:	Almost never	Infrequently	Frequently	Very Frequently	Almost always	Don't know or Not Applicable
75	Listens carefully when you are speaking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

In the above example, mark an “X” in the box that best indicates how frequently you have observed this behavior in the individual you are rating. [Note: if answering electronically, double click the box for the window that will allow you to select the “checked” mechanism in MSWord.] For example, if the person you are rating never carefully listens to you when you are speaking then fill in, “almost never.” If he or she infrequently listens carefully to you, then fill in, “Infrequently.” If this person listens carefully to you about half of the time, then fill in “Frequently.” If you observe this most of the time, then fill in “Very frequently” and if the person listens carefully very frequently (i.e., all the time or nearly all the time) and consistently, then fill in, “Almost always.”

Please try to respond to all of the items. If for some reason an item does not apply to this individual or you have not had an opportunity to observe any particular behavior then choose, “Don’t know”/“Not applicable.”

Thank you for your participation.

Item Number	Please carefully respond to each survey item below. The person you are rating:	Almost never	Infrequently	Frequently	Very Frequently	Almost always	Don't know or Not Applicable
1	Has a positive and enthusiastic attitude that contributes to the team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Recognizes the importance of good team relationships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Acknowledges individual and team accomplishments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Willingly accepts feedback	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Delivers feedback in a productive way	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Willingly helps others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Follows instructions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Manages assigned workload effectively	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Completes work assignments on time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Is flexible in anticipating and adapting to changes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Proactively resolves problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	Asks for help in tackling difficult assignments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**APPENDIX K. TALENTSMART EMOTIONAL INTELLIGENCE
POWERPOINT BRIEFING**

The contents of Appendix L. were removed following evaluation to respect the proprietary nature of the materials used with permission of the owner/developer.

APPENDIX L. EMOTIONAL INTELLIGENCE EXERCISES

The contents of Appendix M. were removed following evaluation to respect the proprietary nature of the materials used with permission of the owner/developer.

APPENDIX M. PARTICIPANT TRACKING SPREADSHEET

	Test Group	Phase 1							Phase 2							Phase 3									
		Participant Profile	Satisfaction Survey	EI - 360	Performance Survey #1	Performance Survey #2	Peer - 360	Peer - 360	Attend EQ Brief	Exercise #1A	Exercise #1B	Exercise #2A	Exercise #2B	Exercise #3A	Exercise #3B	Exercise #4A	Exercise #4B	Exercise #5A	Exercise #5B	Satisfaction Survey	EI - 360	Performance Survey #1	Performance Survey #2	Peer - 360	Peer - 360
Team Indigo																									
D001	A																								
D002	C																								
D003	C																								
D004	A																								
D005	A																								
D006																									
Team Orange																									
D007	C																								
D008	C																								
D009	C																								
D010	C																								
D011	C																								
D012	C																								
Team Lime																									
D013	A																								
D014	A																								
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D045	C																								
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D056	A																								
D057	C																								
D058	C																								
D059																									

APPENDIX N. WORK GROUP AND TEST GROUP ASSIGNMENTS

Thank you for participating in my research project.

In structuring this project, I have adopted a case study style that calls for participants to take-on more than one group assignment. First, each participant will be assigned to be a member of a **work group** that will be labeled with a “color” name. Assignment of participants to work groups was not random, as a working familiarity with the other members of the group is necessary to provide peer survey data.

You have been assigned to the _____ **Work Group.**

As a member of your assigned work group, you will be asked to provide peer emotional intelligence (EI) and work performance survey input on at least two members of your work group. At the same time, members of your work group will be providing survey information as peers to you.

The other members of your work group are listed on the next page. Please circle two names from the list, as those you prefer to provide your survey reviews from a peer perspective. Your preference will be given first consideration, but some alternative reviewers may be assigned to balance the requirement for participant’s time in survey completion. **Once you have made your peer preference selections, please return the selection sheet to me.** Retain this page to remind you of your group assignments.

Second, each participant will be assigned to be a member of one of the two possible **test groups**. One group will be the “active” group and the other will be the “control” group. Assignment of participants to the test groups was done by means of a simple random construct, based on the timing of their response to volunteer.

You have been assigned to the _____ **Test Group.**

If you are a member of the Active Test Group: Following the initial survey series, you will be taking part in occasional sessions (over the next six months) where information and activities concerning the concept of EI will be explored. These sessions/materials will be available either in-person, on-line or in hardcopy (as appropriate) to allow for maximum flexibility for individual participation and convenience. Following these activities, you will once again participate in a survey series to conclude your participation.

If you are a member of the Control Test Group: Following the initial survey series, there will be no immediate activities related to the study requiring your participation for approximately six months. Following this six month period, you will be invited to participate in a second survey series. All information and activity data provided to the Active Test Group during the study will be available to members of the Control Test Group at the conclusion of the study.

The other members of your Work Group are:

- 1.
- 2.
- 3.
- 4.
- 5.

Please circle two names from the list, as those you prefer to provide your survey reviews from a peer perspective. Your preference will be given first consideration, but some alternative reviewers may be assigned to balance the requirement for participant’s time in survey completion. **Once you have made your peer preference selections, please return the selection sheet to me.** Retain the first page of this document to remind you of your group assignments.

APPENDIX O. LETTER OF INTRODUCTION AND INFORMED CONSENT

Dear _____ ,

I am a research candidate in the Doctor of Project Management (DPM) program at the Royal Melbourne Institute of Technology (RMIT) University. The purpose of the DPM program is to advance project management practice. To fulfill the requirements of earning this degree, I must complete a formal dissertation. The purpose of the dissertation is to develop the learner's capability to give a scientific account of and apply the knowledge in the area of project management that has been gained through research and study.

With the approval of the Business Research Development Unit, RMIT University Ethics Review Board and with authorization from the Commander, United States Transportation Command (USTRANSCOM); the Defense Enterprise Accounting and Management System (DEAMS) program organization is approved as the case study body-of-knowledge to support my research project.

My dissertation proposes to advance the practice of project management through investigating the potential benefits of increasing awareness and addressing the importance of emotional competencies within project teams, with the goal of achieving measurable improvements in personal satisfaction and professional performance.

The case study will be based on the participation of individuals, randomly assigned to groups for the purpose of gaining survey response information. All individual survey results will be held in **strict confidence**. Individuals may request their own survey results. Otherwise, under no circumstances will individual results be released to anyone beyond the identified researcher (Rebecca Turner).

The first survey tool is the Emotional Competency Inventory (ECI), a product of the Hay Group. The Hay Group is a widely-known global organizational and human resources consulting firm. Additional information about Hay Group can be found on the internet at www.haygroup.com. Participants will be asked to take the ECI survey to self-rate and also to provide two/three peer ratings to ensure all participants receive the full breadth of feedback from the inventory survey tool.

The second survey tool will ask participants to rate their job satisfaction and professional performance value. The results of all surveys will be analyzed and documented to investigate whether emotional intelligence (EI) can make the difference between a highly successful project team and an average performing project team. In addition, some participants will be asked to take part in sessions where information and activities concerning the concept of EI will be explored. These sessions will be available either in-person, on-line or in hardcopy (as appropriate) to allow for maximum flexibility for individual participation and convenience. Approximately six months following the initial survey, a second, identical set of surveys will be performed. When completed, the survey information obtained will be analyzed for inclusion in the research paper. The completed dissertation, with detailed research results, will be published through the RMIT Research Development Unit and will be formally provided to the Commander, USTRANSCOM as stipulated in completed research agreements.

Due to the practical nature of my research topic, I am dependent on the participation of project team members. Therefore your generously volunteering your time, which will be kept very minimal, is most appreciated. I fully respect your right to withdraw your voluntary support of my research at any time. Should you wish to clarify any issues regarding my research, please feel free to contact me using the contact information following my signature.

Yours most sincerely,

Rebecca A. Turner
Doctor of Project Management candidate
RMIT University
(618) 234-5865
Rebecca.Turner@caci.com

APPENDIX P. CONSENT TO PARTICIPATE

CONSENT TO PARTICIPATE

PLEASE RESPOND BY: **12 JULY 2005** and Thank you!

[Place an "X" in the box that describes your availability to participate in this research.]

Rebecca,

I recognize that your research is dependent on the participation of project team members. Therefore, I intend to willingly volunteering my time, in as far as I am able. I understand that I have the right to withdraw my support of your research at any time and will notify you should that be necessary.

I am not willing to support your research.

Printed Name:

Signature:

APPENDIX Q. PARTICIPANT PROFILE

Participant # _____

A small amount of demographic information is requested to complete our survey process. Please select those elements that apply to you:

Gender: Female
 Male

Age Group: 18 – 25 46 – 55
 26 – 35 56 – 65
 36 – 45 65 and older

Education: [indicate highest level completed] High School Diploma (or equivalent)
 Associates
 Bachelors
 Masters
 Doctorate

Professional: [indicate years in Professional work force] 2 – 5 years 13 – 18 years
 5 – 7 years 19 – 25 years
 8 – 12 years > than 25 yrs

Number of years in current professional area: _____

APPENDIX R. PHASE 2 EXERCISE PACKAGE

Active Group

Participant # _____

This is your Phase 2 Exercise package. Following the Emotional Intelligence briefing, we will work through Exercise #1 together to allow everyone to understand the response expectations.

You are requested to choose and complete one exercise in each of the five categories numbered one through five (1-5) in the table below (Completing a total of 5). You can be open, honest, creative, and bold because, the results of these exercises are yours to keep. You need not share them with anyone.

The value in each member of the team completing these exercises comes from “doing” each exercise with *interest* and *energy*.

EQ Exercise	Marked Selection
Exercise 1-A Action/Reaction	
Exercise 1-B Contribution Spirit Killers	
Exercise 2-A I Value, We Value	
Exercise 2-B Tuning in to Our Team	
Exercise 3-A Listening Habits	
Exercise 3-B Personality Contest	
Exercise 4-A Gifts	
Exercise 4-B Great Vision	
Exercise 5-A Interior Power	
Exercise 5-B Advice from Team	

- (f) As you make your way through the exercises, please put an “x” in the column next to each exercise you completed. Remember: pick one in each of the five categories.
- (g) When you have completed the exercises, **please return this sheet indicating which exercises you completed back to me.**
- (h) DO NOT return any of the exercise worksheets you complete – they are yours to keep.

Please complete the assignment and **return this sheet** to me at your earliest convenience and no later than 15 December 2005 – if at all possible. THANKS!!!

**APPENDIX S. REGRESSION ANALYSIS DETAILED RESULTS –
JOB SATISFACTION**

The Effect of Emotional Competency Introduction in Job Satisfaction (1 April 2006)

1. Outcome variable: change in JS scores averaged across 37.

Question:	ave_all	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	1.14843	0.23922	4.80000	0.00000	0.66053	1.63633
gender	0.18389	0.19343	0.95000	0.34900	-0.21061	0.57839
ba	0.50276	0.22920	2.19000	0.03600	0.03530	0.97022
gr	0.33052	0.19646	1.68000	0.10300	-0.07017	0.73121
ethnic	0.05323	0.22401	0.24000	0.81400	-0.40364	0.51011
tenure	-0.02284	0.01143	-2.00000	0.05400	-0.04615	0.00046
gen_treat	-0.35569	0.30691	-1.16000	0.25500	-0.98164	0.27026
tenure_treat	-0.00429	0.02134	-0.20000	0.84200	-0.04781	0.03923
ba_treat	-1.01330	0.32457	-3.12000	0.00400	-1.67527	-0.35134
gr_treat	-0.40730	0.40427	-1.01000	0.32100	-1.23182	0.41721
_cons	-0.30652	0.20717	-1.48000	0.14900	-0.72905	0.11601

2. Outcome variable: change in JS scores for each question in the JS, evaluated independently.

Question:	q1	Coef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.72094	0.86121	0.84000	0.40900	-1.03552	2.47740
gender	-0.04501	0.41517	-0.11000	0.91400	-0.89175	0.80174
ba	-0.28938	0.43394	-0.67000	0.51000	-1.17442	0.59565
gr	-0.24083	0.34285	-0.70000	0.48800	-0.94008	0.45842
ethnic	-0.53163	0.42465	-1.25000	0.22000	-1.39770	0.33444
tenure	-0.00054	0.02851	-0.02000	0.98500	-0.05868	0.05760
gen_treat	0.04615	0.80417	0.06000	0.95500	-1.59397	1.68626
tenure_treat	-0.02864	0.03863	-0.74000	0.46400	-0.10744	0.05015
ba_treat	-0.02654	0.94006	-0.03000	0.97800	-1.94381	1.89073
gr_treat	-0.11285	0.87062	-0.13000	0.89800	-1.88848	1.66278
_cons	0.38732	0.43987	0.88000	0.38500	-0.50979	1.28444

Question:	q2	Coef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.79219	0.85688	0.92000	0.36200	-0.95544	2.53982
gender	0.83182	0.52761	1.58000	0.12500	-0.24424	1.90788
ba	0.40045	0.35869	1.12000	0.27300	-0.33111	1.13200
gr	0.00982	0.31433	0.03000	0.97500	-0.63127	0.65091
ethnic	-0.48616	0.40485	-1.20000	0.23900	-1.31186	0.33953
tenure	-0.05983	0.02588	-2.31000	0.02800	-0.11261	-0.00706
gen_treat	-1.62893	0.70375	-2.31000	0.02700	-3.06423	-0.19362
tenure_treat	0.07393	0.02783	2.66000	0.01200	0.01717	0.13068
ba_treat	-0.24536	0.88630	-0.28000	0.78400	-2.05298	1.56225
gr_treat	-0.26045	0.85471	-0.30000	0.76300	-2.00365	1.48276
_cons	0.08867	0.26433	0.34000	0.74000	-0.45043	0.62776

Question:	q3	Coef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	1.67324	0.76294	2.19000	0.03600	0.11721	3.22927
gender	0.41589	0.62840	0.66000	0.51300	-0.86573	1.69752
ba	0.59925	0.41935	1.43000	0.16300	-0.25602	1.45452
gr	0.06660	0.57624	0.12000	0.90900	-1.10865	1.24184
ethnic	-0.89504	0.38785	-2.31000	0.02800	-1.68606	-0.10402
tenure	-0.01173	0.03648	-0.32000	0.75000	-0.08613	0.06267
gen_treat	-0.74544	0.81167	-0.92000	0.36500	-2.40084	0.90996
tenure_treat	0.00661	0.04121	0.16000	0.87400	-0.07744	0.09066
ba_treat	-1.37808	0.80853	-1.70000	0.09800	-3.02708	0.27092
gr_treat	-0.32670	0.88579	-0.37000	0.71500	-2.13328	1.47987
_cons	0.04868	0.35447	0.14000	0.89200	-0.67426	0.77162

Question:	q4	Coef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.34939	0.99192	0.35000	0.72700	-1.67365	2.37243
gender	0.15621	0.34058	0.46000	0.65000	-0.53840	0.85082
ba	0.48980	0.90210	0.54000	0.59100	-1.35005	2.32965
gr	0.41056	0.95002	0.43000	0.66900	-1.52702	2.34815
ethnic	0.22701	0.33874	0.67000	0.50800	-0.46386	0.91788
tenure	-0.03931	0.03041	-1.29000	0.20600	-0.10133	0.02270
gen_treat	-0.44004	0.48957	-0.90000	0.37600	-1.43853	0.55844
tenure_treat	0.03032	0.03997	0.76000	0.45400	-0.05120	0.11185
ba_treat	-0.59478	1.13405	-0.52000	0.60400	-2.90769	1.71812
gr_treat	0.14966	1.15651	0.13000	0.89800	-2.20905	2.50836
_cons	-0.37915	0.75806	-0.50000	0.62000	-1.92522	1.16691

Question:	q5	Coef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.82340	0.60068	1.37000	0.18000	-0.40169	2.04850
gender	0.05239	0.30021	0.17000	0.86300	-0.55989	0.66467
ba	0.83863	0.48932	1.71000	0.09700	-0.15935	1.83661
gr	0.65745	0.49919	1.32000	0.19700	-0.36064	1.67555
ethnic	0.48835	0.32394	1.51000	0.14200	-0.17232	1.14902
tenure	-0.03333	0.02088	-1.60000	0.12100	-0.07591	0.00926
gen_treat	0.43086	0.57496	0.75000	0.45900	-0.74177	1.60349
tenure_treat	-0.00911	0.03098	-0.29000	0.77100	-0.07229	0.05407
ba_treat	-1.09118	0.71860	-1.52000	0.13900	-2.55677	0.37440
gr_treat	-0.72456	0.65626	-1.10000	0.27800	-2.06301	0.61389
_cons	-0.84941	0.54284	-1.56000	0.12800	-1.95654	0.25772

Question:	q6	Coef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	1.38264	1.22091	1.13000	0.26600	1.10743	3.87271
gender	0.88403	0.46961	1.88000	0.06900	0.07375	1.84181
ba	-0.65679	1.11875	-0.59000	0.56100	-2.93851	1.62492
gr	-0.22580	1.09933	-0.21000	0.83900	-2.46791	2.01631
ethnic	0.14662	0.37424	0.39000	0.69800	-0.61666	0.90989
tenure	-0.01841	0.03135	-0.59000	0.56100	-0.08235	0.04552
gen_treat	-1.45574	0.54596	-2.67000	0.01200	-2.56923	-0.34225
tenure_treat	0.00699	0.03228	0.22000	0.83000	-0.05884	0.07282
ba_treat	-0.58755	1.17602	-0.50000	0.62100	-2.98606	1.81096
gr_treat	-0.67382	1.15235	-0.58000	0.56300	3.02405	1.67642
_cons	0.07778	1.23295	0.06000	0.95000	-2.43683	2.59239

Question:	q7	Coef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.57196	0.82573	0.69000	0.49400	-1.11214	2.25605
gender	0.10470	0.53333	0.20000	0.84600	-0.98303	1.19243
ba	-0.26750	0.57144	-0.47000	0.64300	-1.43296	0.89797
gr	-0.39315	0.47993	-0.82000	0.41900	1.37198	0.58567
ethnic	0.07465	0.47690	0.16000	0.87700	-0.89800	1.04729
tenure	0.02987	0.30989	0.96000	0.34300	-0.03334	0.09307
gen_treat	-0.09122	0.64240	-0.14000	0.88800	-1.40141	1.21897
tenure_treat	-0.03454	0.03690	-0.94000	0.35600	-0.10981	0.04072
ba_treat	-0.26646	0.90314	-0.30000	0.77000	-2.10843	1.57551
gr_treat	-0.22053	0.86371	-0.26000	0.80000	-1.98209	1.54102
_cons	0.05448	0.48444	0.11000	0.91100	-0.93353	1.04250

Question:	q8	Coef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	2.02756	0.45197	4.49000	0.00000	1.10576	2.94937
gender	0.32192	0.33556	0.96000	0.34500	-0.36245	1.00629
ba	0.85826	0.37525	2.29000	0.02900	0.09293	1.62359
gr	1.01141	0.39084	2.59000	0.01500	0.21428	1.80853
ethnic	0.15273	0.26123	0.58000	0.56300	-0.38005	0.68552
tenure	-0.02840	0.01581	-1.80000	0.08200	-0.06064	0.00384
gen_treat	-0.20140	0.50808	-0.40000	0.69500	-1.23763	0.83484
tenure_treat	0.02687	0.02203	1.22000	0.23200	-0.01806	0.07180
ba_treat	-2.13020	0.60109	-3.54000	0.00100	-3.35614	-0.90427
gr_treat	-2.24699	0.56539	-3.97000	0.00000	-3.40010	-1.09387
_cons	-0.83164	0.28879	-2.88000	0.00700	-1.42064	-0.24264

Question:	q9	Coef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	1.63156	1.45435	1.12000	0.27100	-1.33460	4.59700
gender	-0.25817	0.41162	-0.63000	0.53500	-1.09767	0.58133
ba	0.64151	1.34019	0.48000	0.63600	-2.09183	3.37485
gr	0.67548	1.32829	0.51000	0.61500	-2.03358	3.38454
ethnic	0.16108	0.37200	0.43000	0.66800	-0.59763	0.91978
tenure	-0.02823	0.02601	-1.09000	0.28600	-0.08128	0.02481
gen_treat	-0.24136	0.53627	-0.45000	0.65600	-1.33509	0.85237
tenure_treat	-0.01212	0.03087	-0.39000	0.69700	-0.07509	0.05084
ba_treat	-1.37720	1.43332	-0.96000	0.34400	-4.30048	1.54608
gr_treat	-1.58175	1.46970	-1.08000	0.29000	-4.57922	1.41572
_cons	-0.11804	1.43490	-0.08000	0.93500	-3.04453	2.80846

Question:	q10	Coef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	1.44164	0.51158	2.82000	0.00800	0.39826	2.48502
gender	-0.12478	0.29201	-0.43000	0.67200	-0.72032	0.47077
ba	0.68452	0.43167	1.59000	0.12300	-0.19589	1.56493
gr	0.28222	0.38580	0.73000	0.47000	-0.50463	1.06906
ethnic	0.17438	0.32067	0.54000	0.59000	-0.47963	0.82838
tenure	-0.02018	0.01574	-1.28000	0.20900	-0.05228	0.01193
gen_treat	-0.60285	0.44710	-1.35000	0.18700	-1.51472	0.30903
tenure_treat	0.00132	0.01906	0.07000	0.94500	-0.03754	0.04019
ba_treat	-1.19275	0.59223	-2.01000	0.05300	-2.40060	0.01511
gr_treat	-0.70496	0.72251	-0.98000	0.33700	-2.17854	0.76861
_cons	-0.25878	0.36259	-0.71000	0.48100	-0.99829	0.48073

Question:	q11	Coef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	2.15736	0.64759	3.33000	0.00200	0.83658	3.47813
gender	0.72672	0.32577	2.23000	0.03300	0.06231	1.39113
ba	0.81768	0.57586	1.42000	0.16600	-0.35679	1.99215
gr	0.35731	0.55719	0.64000	0.52600	-0.77910	1.49371
ethnic	0.12146	0.36200	0.34000	0.74000	-0.61686	0.85977
tenure	-0.02943	0.03049	-0.97000	0.34200	-0.09161	0.03276
gen_treat	-0.84749	0.53858	-1.57000	0.12600	-1.94594	0.25096
tenure_treat	-0.01154	0.04406	-0.26000	0.79500	-0.10140	0.07833
ba_treat	-2.00044	0.74724	-2.68000	0.01200	-3.52444	-0.47644
gr_treat	-0.73754	0.87819	-0.84000	0.40700	-2.52861	1.05353
_cons	-0.74185	0.55829	-1.33000	0.19400	-1.88050	0.39680

Question:	q12	Coef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	1.26420	0.42033	3.01000	0.00500	0.40693	2.12148
gender	0.30184	0.30484	0.99000	0.33000	-0.31987	0.92356
ba	0.89441	0.40430	2.21000	0.03400	0.06983	1.71899
gr	0.85873	0.35459	2.42000	0.02100	0.13553	1.58193
ethnic	0.56589	0.28743	1.97000	0.05800	-0.02033	1.15212
tenure	-0.03996	0.02005	-1.99000	0.05500	-0.08085	0.00093
gen_treat	0.35416	0.49587	0.71000	0.48000	-0.65717	1.36548
tenure_treat	-0.01385	0.02225	-0.62000	0.53800	-0.05922	0.03153
ba_treat	-1.19980	0.54880	-2.19000	0.03600	-2.31908	-0.08051
gr_treat	-0.28747	0.53650	-0.54000	0.59600	-1.38166	0.80672
_cons	-1.03204	0.30313	-3.40000	0.00200	-1.65027	-0.41380

Question:	q13	Coef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	0.33053	0.29384	1.12000	0.26900	-0.26875	0.92982
gender	0.45930	0.27992	1.64000	0.11100	-0.11159	1.03019
ba	0.49243	0.20421	2.41000	0.02200	0.07593	0.90892
gr	0.17663	0.30109	0.59000	0.56200	-0.43744	0.79071
ethnic	-0.19194	0.30696	-0.63000	0.53600	-0.81798	0.43411
tenure	-0.04344	0.02007	-2.16000	0.03800	-0.08438	-0.00250
gen_treat	0.12084	0.51008	0.24000	0.81400	-0.91948	1.16116
tenure_treat	0.00475	0.02279	0.21000	0.83600	-0.04173	0.05124
ba_treat	-0.34441	0.32123	-1.07000	0.29200	-0.99956	0.31075
gr_treat	0.10905	0.57472	0.19000	0.85100	-1.06311	1.28121
_cons	0.05343	0.18648	0.29000	0.77600	-0.32690	0.43375

Question:	q14	Coef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	1.46680	0.80655	1.82000	0.07900	-0.17817	3.11178
gender	0.76920	0.53964	1.43000	0.16400	-0.33140	1.86981
ba	1.02767	0.49161	2.09000	0.04500	0.02502	2.03032
gr	0.78393	0.53432	1.47000	0.15200	-0.30582	1.87369
ethnic	-0.54899	0.47638	-1.15000	0.25800	-1.52056	0.42259
tenure	-0.02685	0.02785	-0.96000	0.34200	-0.08366	0.02995
gen_treat	-1.14562	0.75885	-1.51000	0.14100	-2.69330	0.40205
tenure_treat	0.03627	0.03403	1.07000	0.29500	-0.03314	0.10568
ba_treat	-1.47569	0.84290	-1.75000	0.09000	-3.19481	0.24342
gr_treat	-0.46392	0.97950	-0.47000	0.63900	-2.46162	1.53378
_cons	-0.67027	0.45738	-1.47000	0.15300	-1.60311	0.26257

Question:	q15	Coef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	0.82793	0.78771	1.05000	0.30100	-0.77863	0.43448
gender	-0.10418	0.36665	-0.28000	0.77800	-0.85197	0.64361
ba	0.67054	0.72270	0.93000	0.36100	-0.80341	2.14449
gr	0.99534	0.63006	1.58000	0.12400	-0.28967	2.28035
ethnic	0.26797	0.33009	0.81000	0.42300	-0.40525	0.94120
tenure	-0.00558	0.03187	-0.18000	0.86200	-0.07058	0.05942
gen_treat	-0.55603	0.73126	-0.76000	0.45300	-2.04745	0.93538
tenure_treat	-0.00789	0.03858	-0.20000	0.83900	-0.08658	0.07080
ba_treat	-0.27216	0.88992	-0.31000	0.76200	-2.08716	1.54285
gr_treat	-0.64325	0.78359	-0.82000	0.41800	-2.24139	0.95488
_cons	-0.74609	0.77532	-0.96000	0.34300	-2.32736	0.83518

Question:	q16	Coef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	2.25851	0.69943	3.23000	0.00300	0.83202	3.68500
gender	1.15490	0.43069	2.68000	0.01200	0.27650	2.03330
ba	1.03357	0.60163	1.72000	0.09600	-0.19345	2.26059
gr	0.83544	0.60131	1.39000	0.17500	-0.39094	2.06182
ethnic	-0.69645	0.41146	-1.69000	0.10100	-1.53564	0.14273
tenure	-0.00735	0.02293	-0.32000	0.75100	-0.05412	0.03941
gen_treat	-1.49219	0.59716	-2.50000	0.01800	-2.71011	-0.27427
tenure_treat	-0.01999	0.03738	-0.53000	0.59700	-0.09622	0.05624
ba_treat	-1.37528	0.72423	-1.90000	0.06700	-2.85237	0.10180
gr_treat	-0.47657	0.79167	-0.60000	0.55200	-2.09118	1.13805
_cons	-0.93309	0.67615	-1.38000	0.17700	-2.31211	0.44594

Question:	q17	Coef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	1.10655	0.44291	2.50000	0.01800	0.20323	2.00986
gender	-0.13135	0.39057	-0.35000	0.73100	-0.93194	0.66120
ba	0.05524	0.48649	0.11000	0.91000	-0.93697	1.04746
gr	0.15724	0.36243	0.43000	0.66700	-0.58194	0.89641
ethnic	-0.13849	0.38777	-0.36000	0.72300	-0.92936	0.65238
tenure	0.00454	0.02371	0.19000	0.85000	-0.04382	0.05289
gen_treat	0.05035	0.51202	0.10000	0.92200	-0.99393	1.09462
tenure_treat	-0.05262	0.03979	-1.32000	0.19600	-0.13377	0.02853
ba_treat	-0.33685	0.59842	-0.56000	0.57800	-1.55734	0.88363
gr_treat	0.11160	0.71181	0.16000	0.87600	-1.34013	1.56334
_cons	-0.17495	0.39381	-0.44000	0.66000	-0.97813	0.62822

Question:	q18	Coef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	0.76334	0.74926	1.02000	0.31600	-0.76479	2.29146
gender	0.01236	0.51130	0.02000	0.98100	-1.03044	1.05516
ba	0.35859	0.66900	0.54000	0.59600	-1.00584	1.72303
gr	-0.38860	0.79087	-0.49000	0.62700	-2.00159	1.22439
ethnic	0.16785	0.53057	0.32000	0.75400	-0.91427	1.24996
tenure	-0.01945	0.02390	-0.81000	0.42200	-0.06819	0.02929
gen_treat	-0.00208	0.77201	0.00000	0.99800	-1.57661	1.57246
tenure_treat	-0.04575	0.03896	-1.17000	0.24900	-0.12520	0.03371
ba_treat	-0.53597	0.85037	0.63000	0.53300	-2.27030	1.19837
gr_treat	0.71006	0.94785	0.75000	0.45900	-1.22310	2.64322
_cons	-0.01641	0.70436	-0.02000	0.98200	-1.45297	1.42014

Question:	q19	Coef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	1.66344	0.52796	3.15000	0.00400	0.58665	2.74023
gender	-0.29650	0.47707	-0.62000	0.53900	-1.26949	0.67650
ba	0.19036	0.53249	0.36000	0.72300	-0.89565	1.27637
gr	-0.07591	0.44325	-0.17000	0.86500	-0.97992	0.82810
ethnic	0.50422	0.43874	1.15000	0.25900	-0.39059	1.39903
tenure	-0.00113	0.03081	-0.04000	0.97100	-0.06397	0.06170
gen_treat	0.19918	0.64101	0.31000	0.75800	-1.10817	1.50652
tenure_treat	-0.05488	0.04791	-1.15000	0.26100	-0.15258	0.04282
ba_treat	-1.09777	0.64777	-1.69000	0.10000	-2.41890	0.22336
gr_treat	-0.01487	0.73148	0.02000	0.98400	1.50674	1.47700
_cons	-0.46577	0.53401	-0.87000	0.39000	-1.55490	0.62336

Question:	q20	Coef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	1.58841	0.67549	2.35000	0.02500	0.21074	2.96608
gender	-0.20325	0.26811	-0.76000	0.45400	-0.75006	0.34356
ba	0.42387	0.38124	1.11000	0.27500	-0.35368	1.20142
gr	0.39293	0.40638	0.97000	0.34100	-0.43589	1.22174
ethnic	0.55126	0.38645	1.43000	0.16400	-0.23691	1.33944
tenure	0.00212	0.01493	0.14000	0.88800	-0.02833	0.03257
gen_treat	-0.41851	0.60745	-0.69000	0.49600	-1.65741	0.82040
tenure_treat	-0.05946	0.35059	-1.70000	0.10000	-0.13096	0.01204
ba_treat	-0.77335	0.76952	-1.00000	0.32300	-2.34280	0.79610
gr_treat	0.22488	0.93368	0.24000	0.81100	-1.67937	2.12914
_cons	-0.90999	0.30008	-3.03000	0.00500	-1.52200	-0.29798

Question:	q21	Coef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	0.99587	0.43149	2.31000	0.02800	0.11585	1.87589
gender	-0.11856	0.24092	-0.49000	0.62600	-0.60993	0.37281
ba	1.09890	0.31287	3.51000	0.00100	0.46080	1.73700
gr	0.95591	0.33167	2.88000	0.00700	0.27946	1.63236
ethnic	0.03032	0.31953	0.09000	0.92500	-0.62136	0.68200
tenure	-0.01781	0.01334	-1.33000	0.19200	-0.04502	0.00940
gen_treat	0.00006	0.35780	0.00000	1.00000	-0.72967	0.72980
tenure_treat	-0.02566	0.03603	0.71000	0.48200	-0.09914	0.04783
ba_treat	-1.03275	0.49410	-2.09000	0.04500	-2.04047	-0.02504
gr_treat	-0.67043	0.67080	-1.00000	0.32500	-2.03854	0.69767
_cons	-0.51286	0.35339	-1.45000	0.15700	-1.23360	0.20788

Question:	q22	Coef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	1.16731	0.58226	2.00000	0.05400	-0.02021	2.35483
gender	0.29474	0.34688	0.85000	0.40200	0.41271	1.00220
ba	0.63000	0.52474	1.20000	0.23900	-0.44022	1.70022
gr	0.25670	0.55326	0.46000	0.64600	-0.87168	1.38508
ethnic	0.43414	0.37106	1.17000	0.25100	-0.32265	1.19092
tenure	-0.02266	0.02666	-0.85000	0.40200	-0.07703	0.03171
gen_treat	-0.28843	0.56566	-0.51000	0.61400	-1.44211	0.86525
tenure_treat	-0.00860	0.03328	-0.26000	0.79800	-0.07647	0.05928
ba_treat	-0.64895	0.70795	-0.92000	0.36600	-2.09282	0.79491
gr_treat	-0.16443	0.69157	-0.24000	0.81400	-1.57489	1.24603
_cons	-0.69841	0.54565	-1.28000	0.21000	-1.81128	0.41447

Question:	q23	Coef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	1.93621	0.34062	5.68000	0.00000	1.24151	2.63091
gender	0.54808	0.24676	0.22000	0.03400	0.04481	1.05134
ba	0.47295	0.34035	1.39000	0.17500	-0.22121	1.16710
gr	-0.14799	0.33267	-0.44000	0.66000	-0.82647	0.53048
ethnic	0.59592	0.35799	1.77000	0.08600	-0.08894	1.28079
tenure	-0.06298	0.01925	-3.27000	0.00300	-0.10224	-0.02371
gen_treat	-0.77456	0.45192	-1.71000	0.09700	-1.69625	0.14714
tenure_treat	0.00813	0.03765	0.22000	0.83000	-0.06865	0.08491
ba_treat	-1.82666	0.49689	-3.68000	0.00100	-2.84007	-0.81325
gr_treat	-0.51188	0.64520	-0.79000	0.43400	-1.82777	0.80401
_cons	-0.42679	0.32524	-1.31000	0.19900	-1.09011	0.23653

Question:	q24	Coef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	0.48362	0.59163	0.82000	0.42000	-0.72302	1.69025
gender	-0.27756	0.42187	-0.66000	0.51500	-1.13796	0.58284
ba	0.75718	0.52346	1.45000	0.15800	-0.31042	1.82479
gr	0.31447	0.55808	0.56000	0.57700	-0.82374	1.45267
ethnic	-0.24594	0.48355	-0.51000	0.61500	-1.23215	0.74027
tenure	-0.01490	0.02878	-0.52000	0.60800	-0.07361	0.04380
gen_treat	0.51873	0.58085	0.89000	0.37900	-0.66591	1.70337
tenure_treat	-0.03905	0.04803	-0.81000	0.42200	-0.13701	0.05891
ba_treat	-0.66901	0.79149	-0.85000	0.40400	-2.28326	0.94524
gr_treat	0.28076	0.92590	0.30000	0.76400	-1.60762	2.16914
_cons	0.09515	0.47687	0.20000	0.84300	-0.87742	1.06773

Question:	q25	Coef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	0.95197	0.46889	2.03000	0.05100	-0.00433	1.90827
gender	0.37449	0.43182	0.87000	0.39200	-0.50621	1.25518
ba	1544738.00000	366643.00000	0.42000	0.67600	-0.59330	0.90225
gr	0.62976	0.43282	1.46000	0.15600	-0.25299	1.51251
ethnic	0.16291	0.41238	0.40000	0.69600	-0.67815	1.00398
tenure	-0.02189	0.02898	-0.76000	0.45600	-0.08100	0.03721
gen_treat	-0.46452	0.63222	-0.73000	0.46800	-1.75395	0.82491
tenure_treat	-0.01891	0.04768	-0.40000	0.69400	-0.11616	0.07834
ba_treat	-0.58716	0.57634	-1.02000	0.31600	-1.76262	0.58829
gr_treat	-0.35791	0.78881	-0.45000	0.65300	-1.96669	1.25087
_cons	-0.24149	0.33783	-0.71000	0.48000	-0.93051	0.44752

Question:	q26	Coef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	1.33937	0.61517	2.18000	0.03700	0.08472	2.59403
gender	0.33987	0.48461	0.70000	0.48800	-0.64849	1.32824
ba	0.26508	0.54765	0.48000	0.63200	-0.85186	1.38201
gr	0.24836	0.34064	0.73000	0.47100	-0.44637	0.94309
ethnic	0.32507	0.35256	0.92000	0.36400	-0.39397	1.04412
tenure	-0.04221	0.03283	-1.29000	0.20800	-0.10918	0.02475
gen_treat	-0.29373	0.58877	-0.50000	0.62100	-1.49453	0.90707
tenure_treat	0.03555	0.37581	0.95000	0.35100	-0.04109	0.11220
ba_treat	-1.50734	0.82421	-1.83000	0.07700	-3.18832	0.17364
gr_treat	-1.28231	0.72630	-1.77000	0.08700	-2.76361	0.19899
_cons	-0.21815	0.33293	-0.66000	0.51700	-0.89717	0.46087

Question:	q27	Coef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	1.40640	0.60499	2.32000	0.02700	0.17252	2.64027
gender	0.10519	0.41909	0.25000	0.80300	-0.74956	0.95994
ba	0.90886	0.45926	1.98000	0.05700	-0.02782	1.84553
gr	0.35778	0.49751	0.72000	0.47700	-0.65690	1.37245
ethnic	0.07649	0.49536	0.15000	0.87800	-0.93381	1.08679
tenure	-0.05170	0.02267	-2.28000	0.03000	-0.09794	-0.00546
gen_treat	-0.69677	0.69560	-1.00000	0.32400	2.11546	0.72193
tenure_treat	0.02454	0.04509	0.54000	0.59000	-0.06742	0.11649
ba_treat	-1.72390	0.75805	2.27000	0.03000	-3.26995	-0.17784
gr_treat	0.05008	0.98018	0.05000	0.96000	-1.94901	2.04916
_cons	-0.17871	0.39642	-0.45000	0.65500	-0.98722	0.62979

Question:	q28	Coef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	0.46456	0.55906	0.83000	0.41200	-0.67566	1.60477
gender	0.05832	0.40284	0.14000	0.88600	-0.76328	0.87992
ba	0.63668	0.48937	1.30000	0.20300	-0.36139	1.63475
gr	0.38495	0.43823	0.88000	0.38600	-0.50884	1.27873
ethnic	-0.25646	0.42422	-0.60000	0.55000	-1.12167	0.60875
tenure	-0.07101	0.03209	-2.21000	0.03400	-0.13646	-0.00555
gen_treat	-0.62442	0.61439	-1.02000	0.31700	-1.87748	0.62864
tenure_treat	0.08800	0.03918	2.25000	0.03200	0.00810	0.16791
ba_treat	-1.77288	0.75050	-2.36000	0.02500	-3.30355	-0.24222
gr_treat	-0.92795	0.77819	-1.19000	0.24200	-2.51509	0.65918
_cons	0.84412	0.38840	2.17000	0.03800	0.05197	1.63627

Question:	q29	Coef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	2.33307	0.50169	4.65000	0.00000	1.30986	3.35628
gender	0.44578	0.37092	1.20000	0.23900	-0.31071	1.20228
ba	0.66819	0.59179	1.13000	0.26800	-0.53876	1.87515
gr	0.76356	0.40974	1.86000	0.07200	-0.07212	1.59923
ethnic	0.75061	0.33998	2.21000	0.03500	0.05721	1.44402
tenure	-0.03098	0.02991	-1.04000	0.30800	-0.09197	0.03002
gen_treat	-0.52813	0.56986	-0.93000	0.36100	-1.69038	0.63411
tenure_treat	-0.02690	0.04294	-0.63000	0.53600	-0.11447	0.06067
ba_treat	-1.71472	0.73479	-2.33000	0.02600	-3.21332	-0.21611
gr_treat	-1.35407	0.76124	-1.78000	0.08500	-2.90663	0.19849
_cons	-1.29906	0.38381	-3.38000	0.00200	-2.08185	-0.51627

Question:	q30	Coef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	0.29179	0.37690	0.77000	0.44500	-0.47691	1.06048
gender	-0.16868	0.39279	-0.43000	0.67100	-0.96978	0.63241
ba	-0.16634	0.35286	-0.47000	0.64100	-0.88600	0.55332
gr	0.05199	0.31804	0.16000	0.87100	-0.59665	0.70063
ethnic	-0.49915	0.40407	-1.24000	0.22600	-1.32326	0.32497
tenure	0.00435	0.01934	0.23000	0.82300	0.03510	0.04380
gen_treat	0.49643	0.67803	0.73000	0.47000	-0.88642	1.87928
tenure_treat	-0.05667	0.04053	-1.40000	0.17200	-0.13933	0.02599
ba_treat	0.18075	0.49661	0.36000	0.71800	-0.83209	1.19360
gr_treat	0.51691	0.72994	0.71000	0.48400	-0.97182	2.00563
_cons	0.42200	0.33688	1.25000	0.22000	-0.26507	1.10907

Question:	q31	Coef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	-0.30537	0.26470	-1.15000	0.25700	-0.84523	0.23449
gender	-0.30918	0.30664	-1.01000	0.32100	-0.93457	0.31621
ba	0.16618	0.32512	0.51000	0.61300	-0.49691	0.82927
gr	0.01505	0.39521	0.04000	0.97000	-0.79098	0.82108
ethnic	0.19603	0.31845	0.62000	0.54300	-0.45344	0.84551
tenure	-0.00666	0.02673	-0.25000	0.80500	-0.06117	0.04785
gen_treat	0.65527	0.46084	1.42000	0.16500	-0.28462	1.59515
tenure_treat	-0.01055	0.02994	-0.35000	0.72700	-0.07160	0.05050
ba_treat	0.02312	0.39571	0.06000	0.95400	-0.78393	0.83017
gr_treat	0.22498	0.55727	0.40000	0.68900	-0.91158	1.36153
_cons	0.11094	0.24799	0.45000	0.65800	-0.39484	0.61673

Question:	q32	Coef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	-0.30457	1.23207	-0.25000	0.80600	-2.81740	2.20825
gender	-0.40735	0.45380	-0.90000	0.37600	-1.33287	0.51817
ba	0.23173	0.60949	0.38000	0.70600	-1.01134	1.47480
gr	-0.00389	0.61636	-0.01000	0.99500	-1.26097	1.25318
ethnic	-0.69249	0.56357	-1.23000	0.22800	-1.84189	0.45692
tenure	-0.00661	0.04484	-0.15000	0.88400	-0.09805	0.08484
gen_treat	0.44982	0.72603	0.62000	0.54000	-1.03094	1.93057
tenure_treat	0.00114	0.06620	0.02000	0.98600	-0.13387	0.13616
ba_treat	-0.51603	1.40945	-0.37000	0.71700	-3.39062	2.35857
gr_treat	0.24798	1.45719	0.17000	0.86600	-2.72397	3.21993
_cons	0.76847	0.52576	1.46000	0.15400	-0.30383	1.84076

Question:	q33	Coef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.97403	0.51387	1.90000	0.06700	-0.07400	2.02207
gender	-0.04842	0.36694	-0.13000	0.89600	-0.79680	0.69996
ba	0.95109	0.38983	2.44000	0.02100	0.15602	1.74616
gr	0.63129	0.48335	1.31000	0.20100	-0.35451	1.61709
ethnic	0.11765	0.37014	0.32000	0.75300	-0.63725	0.87256
tenure	-0.02106	0.02250	-0.94000	0.35700	-0.06694	0.02483
gen_treat	0.13220	0.57861	0.23000	0.82100	-1.04790	1.31229
tenure_treat	-0.02779	0.04011	-0.69000	0.49400	-0.10959	0.05402
ba_treat	-1.07878	0.57318	-1.88000	0.06900	-2.24778	0.09022
gr_treat	-0.08946	0.81260	-0.11000	0.91300	-1.74677	1.56785
_cons	-0.60053	0.43412	-1.38000	0.17600	-1.48592	0.28487

Question:	q34	Coef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	1.08948	0.94167	1.16000	0.25600	-0.83107	3.01003
gender	0.63099	0.39146	1.61000	0.11700	-0.16739	1.42937
ba	0.60579	0.73422	0.83000	0.41600	-0.89166	2.10324
gr	0.15226	0.72010	0.21000	0.83400	-1.31639	1.62090
ethnic	-0.28316	0.53375	-0.53000	0.60000	-1.37175	0.80542
tenure	0.00860	0.02560	0.34000	0.73900	-0.04362	0.06081
gen_treat	-1.72684	0.69433	-2.49000	0.01800	-3.14294	-0.31073
tenure_treat	0.01662	0.02878	0.58000	0.56800	-0.04207	0.07531
ba_treat	-0.83947	0.86430	-0.97000	0.33900	-2.60223	0.92328
gr_treat	0.10057	1.06431	0.09000	0.92500	-2.07010	2.27124
_cons	-0.61106	0.88862	-0.69000	0.49700	-2.42341	1.20129

Question:	q35	Coef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	1.18747	0.84427	1.41000	0.17000	-0.53442	2.90937
gender	-0.10312	0.33564	-0.31000	0.76100	-0.78766	0.58142
ba	0.49869	0.63759	0.78000	0.44000	-0.80169	1.79906
gr	0.10084	0.58020	0.17000	0.86300	-1.08249	1.28418
ethnic	0.38680	0.39812	0.97000	0.33900	-0.42518	1.19878
tenure	-0.04632	0.02376	-1.95000	0.06000	-0.09477	0.00213
gen_treat	0.02716	0.56599	0.05000	0.96200	-1.12718	1.18149
tenure_treat	-0.00188	0.03882	-0.05000	0.96200	-0.08106	0.07729
ba_treat	-1.76971	0.85840	-2.06000	0.04800	-3.52042	-0.01900
gr_treat	-0.29348	1.02198	-0.29000	0.77600	-2.37782	1.79086
_cons	0.05793	0.70669	0.08000	0.93500	-1.38338	1.49924

Question:	q36	Coef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	1.24371	0.48241	2.58000	0.01500	0.25984	2.22759
gender	0.34668	0.42972	0.81000	0.42600	-0.52975	1.22311
ba	0.01838	0.47081	0.04000	0.96900	-0.94184	0.97860
gr	0.00033	0.35826	0.00000	0.99900	-0.73035	0.73100
ethnic	0.16973	0.32557	0.52000	0.60600	-0.49427	0.83374
tenure	-0.02725	0.03266	-0.83000	0.41000	-0.09385	0.03936
gen_treat	-0.81948	0.58065	-1.41000	0.16800	-2.00373	0.36477
tenure_treat	0.02714	0.03744	0.73000	0.47400	-0.04921	0.10350
ba_treat	-0.67800	0.68481	-0.99000	0.33000	-2.07467	0.71867
gr_treat	-0.50014	0.64477	-0.78000	0.44400	-1.81515	0.81487
_cons	-0.19895	0.30732	-0.65000	0.52200	-0.82573	0.42782

Question:	q37	Coef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	2.39546	0.62357	3.84000	0.00100	1.12369	3.66723
gender	0.06869	0.36133	0.19000	0.85000	-0.66826	0.80564
ba	1.44124	0.53080	2.72000	0.01100	0.35867	2.52380
gr	1.17102	0.55287	2.12000	0.04200	0.04343	2.29861
ethnic	0.58639	0.39663	1.48000	0.14900	-0.22254	1.39532
tenure	-0.03750	0.02139	-1.75000	0.08900	-0.08113	0.00613
gen_treat	-0.55592	0.58993	-0.94000	0.35300	-1.75910	0.64725
tenure_treat	0.01953	0.04299	0.45000	0.65300	-0.06816	0.10721
ba_treat	-3.02886	0.73014	-4.15000	0.00000	-4.51799	-1.53974
gr_treat	-2.16844	0.86628	-2.50000	0.01800	-3.93522	-0.40166
_cons	-1.23672	0.51143	-2.42000	0.02200	-2.27979	-0.19365

**APPENDIX T. REGRESSION ANALYSIS DETAILED RESULTS –
JOB PERFORMANCE**

The Effect of Emotional Competency Introduction in Job Performance (9 April 2006)

Question:	ave_all	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.58039	0.29398	1.97000	0.05700	-0.01918	1.17996
gender	-0.34060	0.19881	-1.71000	0.09700	-0.74606	0.06487
ba	0.31052	0.24421	1.27000	0.21300	-0.18755	0.80858
gr	0.22703	0.25350	0.90000	0.37700	-0.28999	0.74405
ethnic	-0.05338	0.31480	-0.17000	0.86600	-0.69542	0.58866
tenure	0.00529	0.01305	0.40000	0.68800	-0.02133	0.03191
gen_treat	0.06938	0.45540	0.15000	0.88000	-0.85941	0.99818
tenure_treat	0.00583	0.01808	0.32000	0.74900	-0.03103	0.03923
ba_treat	-0.79872	0.32100	-2.49000	0.01800	-1.45340	-0.14404
gr_treat	-0.84727	0.55197	-1.53000	0.13500	-1.97302	0.27848
_cons	-0.09887	0.22037	-0.45000	0.65700	-0.54831	0.35056

Question:	jp_1	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.02929	0.58194	0.05000	0.96000	-1.15759	1.21618
gender	-0.32629	0.29784	-1.10000	0.28200	-0.93374	0.28117
ba	-0.05866	0.47286	-0.12000	0.90200	-1.02307	0.90574
gr	0.10354	0.51416	0.20000	0.84200	-0.94509	1.15217
ethnic	0.05204	0.34804	0.15000	0.88200	-0.65779	0.76187
tenure	-0.01566	0.02065	-0.76000	0.45400	-0.05778	0.02646
gen_treat	0.34726	0.54337	0.64000	0.52700	-0.76095	1.45547
tenure_treat	0.01433	0.02524	0.57000	0.57400	-0.03714	0.06580
ba_treat	-0.12543	0.65033	-0.19000	0.84800	-1.45177	1.20092
gr_treat	-0.55439	0.78959	-0.70000	0.48800	-2.16478	1.05599
_cons	0.26634	0.42001	0.63000	0.53100	-0.59027	1.12295

Question:	jp_2	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.69773	0.58448	1.19000	0.24200	-0.49432	1.88979
gender	-0.26631	0.25085	-1.06000	0.29700	-0.77793	0.24530
ba	0.30697	0.50682	0.61000	0.54900	-0.72669	0.24530
gr	0.12841	0.52635	0.24000	0.80900	-0.94511	1.20194
ethnic	-0.37304	0.39565	-0.94000	0.35300	-1.17997	0.43390
tenure	0.02564	0.01446	1.77000	0.08600	-0.00386	0.05514
gen_treat	-0.18376	0.55011	-0.33000	0.74100	-1.30571	0.93819
tenure_treat	0.00042	0.02035	0.02000	0.98400	-0.04110	0.04193
ba_treat	-0.87008	0.63098	-1.38000	0.17800	-2.15698	0.41683
gr_treat	-1.02614	0.82691	-1.24000	0.22400	-2.71263	0.66034
_cons	-0.04385	0.46219	-0.09000	0.92500	-0.98649	0.89879

Question:	jp_3	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.23837	0.59045	0.40000	0.68900	-0.96750	1.44424
gender	-0.74159	0.35797	-2.07000	0.04700	-1.47267	-0.01051
ba	0.42103	0.63139	0.67000	0.51000	-0.86843	1.71050
gr	0.25013	0.68208	0.37000	0.71600	-1.14271	1.64330
ethnic	-0.04873	0.38097	-0.13000	0.89900	-0.82678	0.72932
tenure	0.00109	0.02305	0.05000	0.96300	-0.04597	0.04816
gen_treat	0.62341	0.53762	1.16000	0.25500	-0.47455	1.72138
tenure_treat	-0.00805	0.02412	-0.33000	0.74100	-0.05730	0.41197
ba_treat	-0.44535	0.68157	-0.65000	0.51800	-1.83731	0.94662
gr_treat	-0.82614	0.85173	-0.97000	0.34000	-2.56561	0.91334
_cons	0.18772	0.49892	0.38000	0.70900	-0.83121	1.20666

Question:	jp_4	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.04821	0.66766	0.07000	0.94300	-1.31350	1.40991
gender	-0.63245	0.31134	-2.03000	0.05100	-1.26743	0.00253
ba	0.31809	0.62463	0.51000	0.61400	-0.95585	1.59203
gr	-0.08815	0.63209	-0.14000	0.89000	-1.37732	1.20102
ethnic	0.17178	0.35656	0.48000	0.63300	-0.55543	0.89899
tenure	-0.01495	0.01752	-0.85000	0.40000	-0.05069	0.02079
gen_treat	0.41324	0.59652	0.69000	0.49400	-0.80337	1.62986
tenure_treat	0.22782	0.02444	0.93000	0.35800	-0.02707	0.07263
ba_treat	-1.05935	0.72411	-1.46000	0.15400	-2.53618	0.41747
gr_treat	-0.78046	0.81143	-0.96000	0.34400	-2.43538	0.87446
_cons	0.38685	0.62910	0.61000	0.54300	-0.89621	1.66991

Question:	jp_5	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	-0.80953	0.42641	-1.90000	0.06800	-1.68298	0.06392
gender	-0.97457	0.39035	-2.50000	0.01900	-1.77415	-0.17498
ba	-0.24415	0.32952	-0.74000	0.46500	-0.91914	0.43084
gr	-0.24583	0.37856	-0.65000	0.52100	-1.02126	0.52961
ethnic	-0.04649	0.42017	-0.11000	0.91300	-0.90715	0.81418
tenure	0.01213	0.02342	0.52000	0.60900	-0.03585	0.06011
gen_treat	1.01458	0.63047	1.61000	0.11900	-0.27687	2.30604
tenure_treat	0.00270	0.03118	0.09000	0.93200	-0.06117	0.06657
ba_treat	-0.04211	0.60968	-0.07000	0.94500	-1.29098	1.20675
gr_treat	-0.04551	0.68129	-0.07000	0.94700	-1.44108	1.35006
_cons	0.61602	0.33750	1.83000	0.07900	-0.07532	1.30737

Question:	jp_6	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.76084	0.54021	1.41000	0.16900	-0.34093	1.86262
gender	-0.28656	0.29299	-0.98000	0.33600	-0.88412	0.31101
ba	0.21715	0.48798	0.45000	0.65900	-0.77809	1.21392
gr	0.32526	0.41551	0.78000	0.44000	-0.52218	1.17270
ethnic	-0.37480	0.32027	-1.17000	0.25100	-1.02800	0.27841
tenure	0.03310	0.01765	1.87000	0.07000	-0.00291	0.06911
gen_treat	0.26438	0.51667	0.51000	0.61200	-0.78937	1.31813
tenure_treat	-0.01131	0.02236	-0.51000	0.61700	-0.05691	0.34297
ba_treat	-0.80339	0.55691	-1.44000	0.15900	-1.93922	0.33244
gr_treat	-0.97756	0.64849	-1.51000	0.14200	-2.30017	0.34504
_cons	-0.23562	0.52399	-0.45000	0.65600	-1.30431	0.83306

Question:	jp_7	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	1.60076	0.33565	4.77000	0.00000	0.91429	2.28723
gender	0.51153	0.24044	2.13000	0.04200	0.01976	1.00329
ba	0.60200	0.24411	2.47000	0.02000	0.10274	1.10125
gr	0.97200	0.11803	8.24000	0.00000	0.73060	1.21341
ethnic	-0.45264	0.43554	-1.04000	0.30700	-1.34342	0.43813
tenure	-0.00882	0.01588	-0.56000	0.58300	-0.04130	0.02365
gen_treat	-1.31613	0.69968	-1.88000	0.07000	-2.74712	0.11487
tenure_treat	0.05151	0.02619	1.97000	0.05900	-0.00204	0.10507
ba_treat	-1.75289	0.42801	-4.10000	0.00000	-2.62826	-0.87751
gr_treat	-1.94260	0.66283	-2.93000	0.00700	-3.29823	-0.58696
_cons	-0.49221	0.24232	-2.03000	0.05100	-0.98779	0.00340

Question:	jp_8	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.71604	0.38326	1.87000	0.07200	-0.06904	1.50112
gender	-0.53399	0.27592	-1.94000	0.06300	-1.09919	0.03121
ba	0.54166	0.29030	1.87000	0.07300	-0.05300	1.13631
gr	0.43022	0.23903	1.80000	0.08300	-0.06038	0.92082
ethnic	1.86412	0.37850	0.49000	0.62600	-0.58891	0.96173
tenure	-0.01790	0.02037	-0.88000	0.38700	-0.05961	0.02382
gen_treat	-0.08660	0.57082	-0.15000	0.88100	-1.25588	1.08268
tenure_treat	-0.01790	0.02655	1.17000	0.25200	-0.02335	0.08540
ba_treat	-1.04132	0.43380	-2.40000	0.02300	-1.92991	-0.15273
gr_treat	-0.94198	0.62366	-1.51000	0.14200	-2.21948	0.33553
_cons	-0.17284	0.25867	-0.67000	0.51000	-0.70270	0.35703

Question:	jp_9	qCoef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	-0.06832	0.43917	-0.16000	0.87800	-0.97105	0.83441
gender	-0.57984	0.30072	-1.93000	0.06500	-1.19798	0.03830
ba	-0.10943	0.34906	-0.31000	0.75600	-0.82693	0.60808
gr	0.07478	0.32974	0.23000	0.82200	-0.60301	0.75273
ethnic	-0.11177	0.45222	-0.25000	0.80700	-1.04132	0.81778
tenure	0.00029	0.01844	0.02000	0.98800	-0.37615	0.03819
gen_treat	0.05098	0.61771	0.08000	0.93500	-1.21875	1.32071
tenure_treat	0.00846	0.02367	0.36000	0.72400	-0.04020	0.05612
ba_treat	-0.07769	0.45211	-0.17000	0.86500	-1.00701	0.85162
gr_treat	-0.32104	0.67738	-0.47000	0.63900	-1.71341	1.07133
_cons	0.45953	0.38542	1.19000	0.24400	-0.33317	1.25223

Question:	jp_10	qCoef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	1.04957	0.50647	2.07000	0.04700	0.01522	2.08392
gender	-0.21178	0.49075	-0.43000	0.66900	-1.21403	0.79047
ba	0.90147	0.47935	1.88000	0.07000	-0.07750	1.88044
gr	0.64368	4.33904	1.48000	0.14800	-0.24247	1.52984
ethnic	0.09565	0.43504	0.22000	0.82700	-0.79281	0.98412
tenure	0.00098	0.02794	0.04000	0.97200	-0.05607	0.05804
gen_treat	0.02358	0.81001	0.03000	0.97700	-1.63068	1.67784
tenure_treat	0.01365	0.03618	0.38000	0.70900	-0.06024	0.08753
ba_treat	-1.70626	0.58307	-2.93000	0.00600	-2.89704	-0.51547
gr_treat	-1.10675	0.80228	-1.38000	0.17800	-2.74522	0.53172
_cons	-0.59449	0.40155	-1.48000	0.14900	-1.41553	0.22558

Question:	jp_11	qCoef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	1.06352	0.37839	2.81000	0.00900	0.29084	1.83629
gender	-0.01805	0.43403	-0.04000	0.96700	-.904451	0.86834
ba	0.17547	0.38572	0.45000	0.65200	-0.61227	0.96320
gr	0.01081	0.35683	0.03000	0.97600	-0.71794	0.73956
ethnic	0.04972	0.32915	0.15000	0.88100	-0.62249	0.72192
tenure	0.05547	0.03203	1.73000	0.09400	-0.00994	0.12089
gen_treat	0.12228	0.55692	0.22000	0.82800	-1.01512	1.25967
tenure_treat	-0.04917	0.03466	-1.42000	0.16600	-0.11996	0.02161
ba_treat	-0.55835	0.46174	-1.21000	0.02360	-1.50135	0.38464
gr_treat	-0.65127	0.53706	-1.21000	0.23500	-1.74810	0.44556
_cons	-0.81697	0.29716	-2.75000	0.01000	-1.42386	-0.21009

Question:	jp_12	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	1.45075	0.58733	2.47000	0.02000	0.24565	2.65585
gender	-0.07107	0.51662	-0.14000	0.89200	1.13109	0.98895
ba	0.59891	0.47007	1.27000	0.21300	-0.36560	1.56342
gr	0.00149	0.68802	0.00000	0.99800	-1.41021	1.41319
ethnic	0.24049	0.50527	0.48000	0.63800	-0.79625	1.27722
tenure	-0.03387	0.04167	-0.81000	0.42300	-0.11937	0.05163
gen_treat	-0.28625	0.74178	-0.39000	0.70300	-1.80825	1.23575
tenure_treat	0.01398	0.04245	0.33000	0.74400	-0.07311	0.10107
ba_treat	-0.95600	0.53396	-1.79000	0.08500	-1.05158	0.13959
gr_treat	-0.88703	0.95981	-0.92000	0.36400	-2.85639	1.08234
_cons	-0.59895	0.52065	-1.15000	0.26000	-1.66723	0.46933

**APPENDIX U. REGRESSION ANALYSIS DETAILED RESULTS –
EMOTIONAL COMPETENCIES**

**The Effect of Emotional Competency Introduction on Emotional Competency Inventory
Post Treatment (22 May 2006)**

The following 18 emotional competency categories are defined including the associated acronym and the questions where these categories are covered:

ECI Category	Acronym	Questions
Self-Awareness/Accurate Self Assessment	SAASA	[53/21/6/15]
Self-Awareness/Emotional Self Awareness	SAESA	[68/1/27/16]
Self-Awareness/Self Confidence	SASC	[55/62/48/31]
Self-Management/ Achievement Orientation	SMAO	[52/10/4/12]
Self-Management/Adaptability	SMA	[9/30/49/69]
Self Management/Emotional Self-Control	SMESC	[60/37/40/24]
Self-Management/Initiative	SMI	[66/70/56/3]
Self-Management/Optimism	SMO	[2/13/57/72]
Self-Management/ Transparency	SMT	[44/22/47/26]
Social Awareness/Empathy	SAE	[23/71/19/54]
Social Awareness/ Organizational Awareness	SAOA	[39/43/51/45]
Social Awareness/Service Orientation	SASO	[17/32/46/64]
Relationship Management/ Change Catalyst	RMCC	[35/5/41/36]
Relationship Management/ Conflict Management	RMCM	[28/18/63/33]
Relationship Management/ Developing Others	RMDO	[38/14/8/67]
Relationship Management/ Influence	RMI	[34/59/42/58]
Relationship Management/ Inspirational Leadership	RMIL	[25/20/29/50]
Relationship Management/Teamwork and Collaboration	RMTC	[61/11/7/65]

Self-rated ECI performance regression analysis:

Question:	self-avg	qCoef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	0.23149	0.07836	2.95000	0.00600	0.07240	0.39057
gender	0.05352	0.08882	0.60000	0.55100	-0.12680	0.23383
ba	0.62236	0.10568	0.59000	0.56000	-0.15234	0.27681
gr	-0.04297	0.08941	-0.48000	0.63400	-0.22448	0.13854
ethnic	-0.08783	0.09056	-0.97000	0.34100	-0.27248	0.09682
tenure	0.00214	0.00425	0.50000	0.61800	-0.00649	0.01078
_cons	-0.06123	0.08048	-0.71000	0.48100	-0.23592	0.11345

Question:	saasa	qCoef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	-0.04379	0.11777	-0.37000	0.71200	-0.28288	0.19531
gender	0.16053	0.12620	1.27000	0.21200	-0.09567	0.41672
ba	-0.00473	0.19801	-0.02000	0.98100	-0.40671	0.39725
gr	-0.17190	0.20757	-0.83000	0.41300	-0.59328	0.24929
ethnic	-0.10573	0.14639	-0.72000	0.47500	-0.40292	0.19146
tenure	-0.00131	0.00866	-0.15000	0.88000	-0.08820	0.01620
_cons	0.14257	0.16980	0.84000	0.40700	-0.20214	0.48729

Question:	saesa	qCoef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	0.23418	0.15619	1.50000	0.14300	-0.82889	0.55126
gender	0.16991	0.17688	0.96000	0.34300	-0.08289	0.52899
ba	0.61589	0.19150	0.32000	0.75000	-0.32718	0.45035
gr	-0.28231	0.17368	-1.63000	0.11300	-0.63490	0.07028
ethnic	-0.03155	0.22632	-0.14000	0.89000	-0.49101	0.42791
tenure	0.00738	0.00933	0.79000	0.43400	-0.01155	0.02631
_cons	-0.04511	0.20867	-0.22000	0.83000	-0.46873	0.37852

Question:	sasc	qCoef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	0.13037	0.12837	1.02000	0.31700	-0.13023	0.39098
gender	-0.21908	0.14527	-1.51000	0.14000	-0.51400	0.07583
ba	-0.24959	0.22081	-1.13000	0.26600	-0.69787	0.19868
gr	-0.29894	0.18862	-0.15800	0.12200	-0.68185	0.08398
ethnic	-0.13785	0.17226	-0.80000	0.42900	-0.48755	0.21185
tenure	0.01215	0.00835	1.46000	0.15400	-0.00480	0.02909
_cons	0.16897	0.21755	0.78000	0.44300	-0.27269	0.61063

Question:	smao	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.00394	0.13566	0.03000	0.97700	-0.27472	0.27935
gender	0.13965	0.15075	0.93000	0.36100	-0.16639	0.44568
ba	-0.01325	0.15075	-0.09000	-0.92600	-0.30097	0.27447
gr	-0.23121	0.14503	-1.59000	0.12000	-0.52563	0.06321
ethnic	-0.11684	0.15234	-0.77000	0.44800	-0.42611	0.19242
tenure	0.00156	0.00675	0.23000	0.81900	-0.01215	0.01526
_cons	0.08294	0.14437	0.57000	0.56900	-0.21014	0.37602

Question:	sma	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.08904	0.17484	0.51000	0.61400	-0.26591	0.44400
gender	-0.00772	0.20285	-0.04000	0.97000	-0.41954	0.40410
ba	-0.13035	0.23541	-0.55000	0.58300	-0.60826	0.34756
gr	-0.07114	0.20457	-0.35000	0.73000	-0.48643	0.34415
ethnic	-0.05530	0.25291	-0.22000	0.82800	-0.56873	0.45814
tenure	0.01355	0.00982	1.38000	0.17600	-0.00638	0.03348
_cons	0.06474	0.26225	0.25000	0.80600	-0.46765	0.59714

Question:	smesc	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.05110	0.10978	0.47000	0.66400	-0.17176	0.27395
gender	-0.21009	0.11615	-1.81000	0.07900	-0.44588	0.02570
ba	-0.05149	0.21906	-0.24000	0.81600	-0.49620	0.39322
gr	0.08979	0.23300	0.39000	0.70200	-0.38322	0.56281
ethnic	0.05665	0.12593	0.46000	0.65000	-0.19799	0.31330
tenure	-0.00157	0.00614	-0.24000	0.81300	-0.01500	0.00185
_cons	0.04762	0.19118	0.25000	0.80500	-0.34049	0.43574

Question:	smi	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.10586	0.11316	0.94000	0.35600	-0.12387	0.33559
gender	0.44854	0.13992	3.21000	0.00300	0.16447	0.73260
ba	0.36077	0.21471	1.68000	0.10200	-0.07513	0.79666
gr	0.20783	0.21067	0.99000	0.33100	-0.21986	0.63552
ethnic	-0.12812	0.17606	-0.73000	0.47200	-0.48553	0.22929
tenure	-0.00582	0.00803	-0.73000	0.47300	-0.02213	0.01048
_cons	-0.33419	0.21780	-1.53000	0.13400	-0.77634	0.10797

Question:	smo	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.00953	0.12594	0.08000	0.94000	-0.24614	0.26521
gender	0.04263	0.12838	0.33000	0.74200	-0.21801	0.30326
ba	0.06336	0.17680	0.36000	0.72200	-0.29556	0.42228
gr	0.09452	0.15757	0.60000	0.55200	-0.22537	0.41441
ethnic	-0.13081	0.12745	-1.03000	0.21300	-0.38953	0.12792
tenure	0.00856	0.00809	1.06000	0.29700	-0.00787	0.02498
_cons	-0.43973	0.15968	-0.28000	0.78500	-0.36813	0.28019

Question:	smt	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	-0.02986	0.16026	-0.19000	0.85300	-0.35520	0.29548
gender	0.08087	0.17078	0.47000	0.63900	0.26584	0.42758
ba	0.08883	0.22420	0.40000	0.69400	-0.36633	0.45399
gr	-0.04360	0.20590	-0.21000	0.83400	-0.46160	0.37441
ethnic	0.07598	0.18404	0.41000	0.68200	-0.29764	0.44961
tenure	-0.00828	0.00831	-1.00000	0.32600	-0.02516	0.00860
_cons	0.00002	0.17741	0.00000	1.00000	-0.36013	0.36017

Question:	sae	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.04064	0.11691	0.35000	0.73000	-0.19670	0.27798
gender	0.19773	0.12698	1.56000	0.12800	-0.06004	0.45550
ba	-0.00450	0.17558	-0.03000	0.98000	-0.36095	0.35194
gr	-0.13792	0.15336	-0.90000	0.37500	-0.44927	0.17342
ethnic	0.07636	0.15453	0.49000	0.62400	-0.23736	0.39007
tenure	-0.00033	0.00869	-0.04000	0.97000	-0.17969	0.01731
_cons	0.03962	0.18806	0.21000	0.83400	-0.34216	0.42140

Question:	saoa	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.31031	0.16707	1.86000	0.07200	-0.02886	0.64949
gender	-0.11231	0.16114	-0.70000	0.49000	-0.43944	0.21382
ba	0.72522	0.35784	2.03000	0.05000	-0.00123	1.45167
gr	0.62654	0.39200	1.60000	0.11900	-0.16927	1.42235
ethnic	-0.57093	0.20538	-2.78000	0.00900	-0.98788	-0.15398
tenure	0.00680	0.01280	0.53000	0.59900	-0.01918	0.03278
_cons	-0.33005	0.33860	-0.97000	0.33600	-1.01743	0.35734

Question:	saso	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.37665	0.40096	0.94000	0.35400	-0.43733	1.19063
gender	0.18227	0.50751	0.36000	0.72200	-0.84803	1.21256
ba	0.03821	0.28946	0.13000	0.89600	-0.54942	0.62585
gr	-0.39496	0.34575	-1.14000	0.26100	-1.09688	0.30695
ethnic	-0.41697	0.37502	-1.11000	0.27400	-1.17831	0.34436
tenure	-0.00179	0.01800	-0.10000	0.92100	-0.03834	0.03475
_cons	0.00600	0.33407	0.02000	0.98600	-0.67220	0.68420

Question:	rmcc	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	2.80367	0.23677	1.18400	0.00000	2.32300	3.28434
gender	-0.14213	0.27310	-0.52000	0.60600	-0.69656	0.41230
ba	-0.27208	0.55318	-0.49000	0.62600	-1.39510	0.85093
gr	-0.12640	0.58120	-0.22000	0.82900	-1.30630	1.05350
ethnic	-0.18469	0.30139	-0.61000	0.54400	-0.79655	0.42716
tenure	0.01067	0.01597	0.67000	0.50900	-0.02176	0.43090
_cons	-1.05764	0.45413	-2.33000	0.02600	-1.97958	-0.13570

Question:	rmcm	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.02530	0.14285	0.18000	0.86000	-0.26470	0.31529
gender	-0.01481	0.14885	-0.10000	0.92100	-0.31699	0.28736
ba	0.58983	0.26585	2.22000	0.03300	0.05012	1.12954
gr	0.24789	0.25195	0.98000	0.33200	0.05012	1.12954
ethnic	0.21208	0.21853	0.97000	0.33800	-0.23156	0.65571
tenure	0.00775	0.00722	1.07000	0.29000	-0.00690	0.02240
_cons	-0.49838	0.24839	-2.01000	0.05300	-1.00262	0.00587

Question:	rmdo	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.10178	0.14456	0.70000	0.48600	-0.19169	0.39526
gender	0.29852	0.14874	2.01000	0.05300	-0.00344	0.60048
ba	0.35505	0.18436	1.93000	0.06200	-0.01921	0.72932
gr	0.35360	0.18616	1.90000	0.06600	-0.02433	0.73152
ethnic	-0.16816	0.15238	-1.10000	0.27700	-0.47750	0.14118
tenure	-0.02584	0.00849	-3.04000	0.00400	-0.04307	-0.00861
_cons	0.08905	0.16620	0.54000	0.59500	-0.24835	0.42646

Question:	rmi	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	-0.00623	0.14727	-0.04000	0.96700	-0.30509	0.29285
gender	-0.08761	0.16355	-0.54000	0.59600	-0.41963	0.24440
ba	-0.44770	0.27558	-1.62000	0.11300	-1.00715	0.11175
gr	-0.45616	0.24520	-1.86000	0.07100	-0.95394	0.04161
ethnic	-0.03744	0.18264	-0.20000	0.83900	-0.40823	0.33335
tenure	0.01115	0.00747	1.49000	0.14400	-0.00401	0.02631
_cons	0.46981	0.25713	1.83000	0.07600	-0.05219	0.99181

Question:	rmil	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.13703	0.13960	0.98000	0.33300	-0.14637	0.42043
gender	0.06813	0.14049	0.48000	0.63100	-0.21708	0.35333
ba	-0.18426	0.26871	-0.69000	0.49700	-0.72978	0.36125
gr	-0.30704	0.25993	-1.18000	0.24500	-0.83472	0.22064
ethnic	-0.20115	0.15322	-1.31000	0.19800	-0.51220	0.10990
tenure	0.00859	0.00802	1.07000	0.29200	-0.00769	0.02488
_cons	0.16239	0.23107	0.70000	0.48700	-0.30670	0.63148

Question:	rmtc	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	-0.17291	0.15121	-1.14000	0.26100	-0.47988	0.13406
gender	-0.03170	0.16141	-0.20000	0.84500	-0.35938	0.29597
ba	0.19536	0.25002	0.78000	0.44000	-0.31220	0.70293
gr	0.12789	0.25922	0.49000	0.62500	-0.39836	0.65414
ethnic	0.28248	0.19506	1.45000	0.15600	-0.11351	0.67846
tenure	-0.00465	0.00860	-0.54000	0.59200	-0.02211	0.01280
_cons	-0.06663	0.26869	-0.25000	0.80600	-0.61210	0.47884

Peer-rated ECI performance regression analysis:

Question:	peer average	qCoef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	-0.01675	0.10168	-0.16000	0.87000	-0.22318	0.18968
gender	-0.05298	0.09952	-0.53000	0.59800	-0.25502	0.14907
ba	0.18889	0.12764	1.48000	0.14800	-0.07022	0.44801
gr	-0.05662	0.14205	-0.40000	0.69300	-0.34500	0.23175
ethnic	0.19574	0.10199	1.92000	0.06300	-0.01130	0.40279
tenure	-0.01037	0.00693	-1.50000	0.14400	-0.02445	0.00370
_cons	-0.14478	0.11253	-1.29000	0.20700	-0.37323	0.08368

Question:	saasa	qCoef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	-0.36963	0.16098	-2.30000	0.02800	-0.69643	-0.04283
gender	-0.10285	0.16225	-0.63000	0.53000	-0.43222	0.22653
ba	-0.15521	0.22482	-0.69000	0.49500	-0.61162	0.30120
gr	-0.36817	0.20153	-1.83000	0.07600	-0.77730	0.04096
ethnic	0.09146	0.17474	0.52000	0.60400	-0.26328	0.44621
tenure	0.00461	0.00853	0.54000	0.59200	-0.12713	0.02194
_cons	0.23143	0.21737	1.06000	0.29400	-0.20984	0.67271

Question:	saesa	qCoef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	-0.05939	0.17652	-0.34000	0.73900	-0.41775	0.29896
gender	-0.19970	0.17025	-1.17000	0.24900	-0.54532	0.14592
ba	-0.22453	0.28907	-0.78000	0.44300	-0.81138	0.36231
gr	-0.49088	0.30396	-1.61000	0.11500	-1.10795	0.12619
ethnic	0.31785	0.19857	1.60000	0.11800	-0.08527	0.72098
tenure	-0.00731	0.01680	-0.43000	0.66600	-0.04142	0.02680
_cons	0.17170	0.25327	0.68000	0.50200	-0.34246	0.68586

Question:	sasc	qCoef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	0.55134	0.53787	1.03000	0.31200	-0.54060	1.64327
gender	0.34002	0.54899	0.62000	0.54000	-0.77449	1.45453
ba	0.41806	0.58414	0.72000	0.47900	-0.76781	1.60392
gr	0.01061	0.26369	0.04000	0.96800	-0.52470	0.54592
ethnic	0.47281	0.39239	1.20000	0.23600	-0.32378	1.26940
tenure	-0.02803	0.02959	-0.95000	0.35000	-0.08810	0.03204
_cons	-0.66095	0.57806	-1.14000	0.26100	-1.83448	0.51258

Question:	smao	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.05098	0.13743	0.37000	0.71300	-0.22802	0.32998
gender	-0.18331	0.13464	-1.36000	0.18200	-0.45663	0.09002
ba	0.19896	0.22211	0.90000	0.37600	-0.25195	0.64988
gr	-0.13058	0.26217	-0.50000	0.62200	-0.66281	0.40164
ethnic	0.08960	0.00994	0.52000	0.60600	-0.26023	0.43943
tenure	-0.01109	0.00994	-1.12000	0.27200	-0.03127	0.00908
_cons	0.01079	0.28979	0.04000	0.97100	-0.57752	0.59909

Question:	sma	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	-0.01468	0.17992	-0.08000	0.93500	-0.37994	0.35058
gender	-0.03724	0.17895	-0.21000	0.83600	-0.40052	0.32604
ba	-0.06791	0.23333	-0.29000	0.77300	-0.54159	0.40578
gr	-0.07609	0.25603	-0.30000	0.76800	-0.59586	0.44369
ethnic	0.41638	0.23080	1.80000	0.08000	-0.05217	0.88494
tenure	-0.00796	0.01139	-0.70000	0.48900	-0.03109	0.01519
_cons	-0.32420	0.24353	-1.33000	0.19200	-0.81858	0.17019

Question:	smesc	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	-0.22281	0.12860	-1.73000	0.09200	-0.48388	0.03827
gender	-0.05562	0.12668	-0.44000	0.66300	-0.31279	0.20155
ba	0.02376	0.22231	0.11000	0.91600	-0.42757	0.47508
gr	-0.16071	0.22761	-0.71000	0.48500	-0.62278	0.30137
ethnic	0.13188	0.15653	0.84000	0.40500	-0.62278	0.30137
tenure	0.00031	0.00844	0.04000	0.97100	-0.01682	0.01745
_cons	-0.08195	0.22525	-0.37000	0.71500	0.54024	0.37433

Question:	smi	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.03194	0.14386	0.22000	0.82600	-0.26012	0.32399
gender	-0.13460	0.14987	-0.90000	0.37500	-0.43886	0.16966
ba	0.24126	0.17392	1.39000	0.17400	-0.11181	0.59434
gr	0.31104	0.18100	0.17000	0.86500	-0.33634	0.59434
ethnic	0.41681	0.17719	2.35000	0.02400	0.05709	0.77652
tenure	-0.01852	0.00871	-2.13000	0.04100	0.03620	-0.00084
_cons	-0.18806	0.13491	-1.39000	0.17200	-0.46194	0.08583

Question:	smo	qCoef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	-0.10860	0.12587	-0.86000	0.39400	-0.36413	0.14692
gender	-0.10609	0.11611	-0.91000	0.36700	-0.34181	0.12963
ba	0.03524	0.16020	0.22000	0.82700	-0.28999	0.36046
gr	-0.09966	0.17753	-0.56000	0.57800	-0.46006	0.26075
ethnic	0.01561	0.11406	0.14000	0.89200	-0.21595	0.24717
tenure	-0.00168	0.00878	-0.19000	0.84900	-0.01952	0.01615
_cons	0.03551	0.16935	0.21000	0.83500	-0.30828	0.37930

Question:	smt	qCoef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	-0.20325	0.22491	-0.90000	0.37200	-0.65983	0.25334
gender	0.30664	0.25102	1.22000	0.23000	-0.20297	0.81524
ba	0.56963	0.34450	1.65000	0.10700	-0.12974	1.26901
gr	0.27465	0.26873	1.02000	0.31300	-0.27090	0.82021
ethnic	-0.03554	0.22819	-0.16000	0.87700	-0.49879	0.42770
tenure	-0.01382	0.01429	-0.97000	0.34000	-0.04282	0.01519
_cons	-0.10852	0.27435	-0.40000	0.69500	-0.66549	0.44845

Question:	sae	qCoef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	0.01560	0.16084	0.10000	0.92300	-0.31093	0.34212
gender	-0.00808	0.17365	-0.05000	0.96300	-0.36060	0.34444
ba	-0.16750	0.29845	-0.56000	0.57800	-0.77339	0.43839
gr	-0.22941	0.28919	-0.79000	0.43300	-0.81650	0.35767
ethnic	-0.01982	0.19384	-0.10000	0.91900	-0.41334	0.37370
tenure	-0.01339	0.00913	-1.47000	0.15100	-0.03192	0.00515
_cons	0.23786	0.28163	0.84000	0.40400	-0.33389	0.80960

Question:	saoa	qCoef.	Robust Std. Err.	t	P> t	[95% Conf Interval]
treat	-0.13255	0.14847	-0.89000	0.37800	-0.43396	0.16886
gender	-0.22624	0.15981	-1.42000	0.16600	-0.55067	0.09819
ba	0.04297	0.14233	0.30000	0.76400	-0.24597	0.33192
gr	-0.13479	0.22628	-0.60000	0.55500	-0.59415	0.32458
ethnic	0.08483	0.17136	0.50000	0.62400	-0.26305	0.43272
tenure	0.00572	0.01021	0.56000	0.57900	-0.01500	0.02643
_cons	0.02105	0.14000	0.15000	0.88100	-0.26317	0.30527

Question:	saso	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.62472	0.31020	1.94000	0.06000	-0.02726	1.23221
gender	0.26117	0.35049	0.75000	0.46100	-0.45036	0.97269
ba	0.31111	0.36673	0.85000	0.40200	-0.43340	1.05561
gr	-0.28198	0.38203	-0.74000	0.46500	-1.05753	0.49358
ethnic	0.17614	0.27704	0.64000	0.52900	-0.38629	0.73857
tenure	-0.04534	0.01583	-2.86000	0.00700	-0.07747	-0.01321
_cons	-0.38514	0.33586	-1.15000	0.25900	-1.06697	0.29668

Question:	rmcc	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	-0.36293	0.18166	-2.00000	0.05400	-0.73172	0.00586
gender	-0.42870	0.19796	-2.17000	0.03700	-0.83058	-0.02682
ba	0.16884	0.26905	0.63000	0.53400	-0.37737	0.71505
gr	-0.00026	0.23677	0.00000	0.99900	-0.48092	0.48041
ethnic	0.39821	0.24226	1.64000	0.10900	-0.09361	0.89003
tenure	-0.00457	0.01316	-0.35000	0.73000	-0.03129	0.02214
_cons	0.02241	0.24058	0.09000	0.92600	-0.46598	0.51081

Question:	rmcm	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.26782	0.22736	1.18000	0.24700	-0.19375	0.72939
gender	0.35220	0.27288	1.29000	0.20500	-0.20176	0.90617
ba	0.05945	0.33360	0.18000	0.86000	-0.61779	0.73669
gr	-0.23497	0.27743	-0.85000	0.40300	-0.79819	0.32825
ethnic	0.00886	0.27249	0.03000	0.97400	-0.54434	0.56205
tenure	-0.00152	0.01487	-0.10000	0.91900	-0.03171	0.02868
_cons	-0.11000	0.29354	-0.37000	0.71000	-0.70592	0.48592

Question:	rmdo	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.13229	0.27372	0.48000	0.63200	-0.42338	0.68797
gender	0.09903	0.29665	0.33000	0.74000	-0.50319	0.70126
ba	1.23922	0.34796	3.57000	0.00100	0.53464	1.94380
gr	0.74494	0.36280	2.05000	0.04800	0.00842	1.48146
ethnic	-0.07183	0.30407	-0.24000	0.81500	-0.68911	0.54546
tenure	-0.04581	0.01658	-2.76000	0.00900	-0.07948	-0.01215
_cons	-0.66400	0.33400	-1.99000	0.05500	-1.34206	0.01406

Question:	rmi	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	-0.49655	0.37141	-1.34000	0.19000	-1.25056	0.25745
gender	-0.68392	0.45834	-1.49000	0.14500	-1.61440	0.24655
ba	0.75163	0.76814	0.98000	0.33500	-0.80779	2.31105
gr	0.64055	0.85062	0.75000	0.45600	-1.08630	2.36739
ethnic	0.96583	0.63004	1.53000	0.13400	-0.31320	2.24487
tenure	-0.00401	-0.12715	-0.32000	0.75400	-0.02982	0.02181
_cons	-0.83298	0.90545	-0.92000	0.36400	-2.67114	1.00517

Question:	rmil	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	-0.12602	0.15204	-0.83000	0.41300	-0.43467	0.18263
gender	-0.27633	0.14446	-1.91000	0.06400	-0.56960	0.01695
ba	-0.07944	0.17365	-0.46000	0.65000	-0.43197	0.27309
gr	-0.16969	0.23880	-0.71000	0.48200	-0.65449	0.31511
ethnic	0.05989	0.14812	0.40000	0.68800	-0.24081	0.36060
tenure	0.00404	0.00950	0.67000	0.50600	-0.25196	0.50106
_cons						

Question:	rmtc	qCoef.	Robust Std. Err.	t	P> t 	[95% Conf Interval]
treat	0.14244	0.13620	1.05000	0.30300	-0.13407	0.41895
gender	0.13005	0.14226	0.91000	0.36700	-0.15876	0.41885
ba	0.03451	0.15722	0.22000	0.82800	-0.28466	0.35367
gr	-0.34390	0.16770	-2.05000	0.04800	-0.68436	-0.00345
ethnic	0.00436	0.15005	0.03000	0.97700	-0.30025	0.30897
tenure	0.00168	0.00849	0.20000	0.84400	-0.01555	0.01891
_cons	-0.10449	0.14616	-0.71000	0.47900	-0.40122	0.19223