The Relationship between the Leadership Style and Emotional Intelligence of Information System Project Managers

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ABSTRACT

Managing an information systems (IS) project is a challenging undertaking because of the very nature of these projects. The IS project manager is challenged with increasing and changing requirements, the management of technical resources and business users, and the delivery of the project to meet the business need in time and on budget.

The high failure rate of projects in general is a concern for organizations as this can have serious repercussions for the business in terms of loss in turnover or business opportunities. The abilities that are required of an IS project manager in order to manage IS projects efficiently and successfully are of interest to both organizations and the IS project managers themselves.

The mastery of project management competencies was previously regarded as being sufficient for successful project management. However, with the high rate of project failure, it became evident that successful project managers have other "soft" skills or abilities over and above these competencies that enable them to be successful. The leadership style that the project manager employs during the project can affect the outcome of the project. A transformational leader motivates and inspires the team to improve themselves and become more effective. Emotional intelligence is a soft skill that enhances the project manager's ability to practice transformational leadership.

This study examined the relationship between emotional intelligence and transformational leadership of South African project managers practicing specifically in the IS field. The study further explored the effect of demographic factors such as age, gender and occupational background on emotional intelligence and transformational leadership, and the relationship between the two constructs.

Data was collected from a sample of 49 IS project managers based in South Africa. The Multifactor Leadership Questionnaire was used to determine leadership and the Genos EI Inventory was used to determine the emotional intelligence of the participants. The results of the data analysis show a strong positive and significant relationship between the transformational leadership and emotional intelligence of South African IS project managers. None of the demographic factors had an effect on the relationship between emotional intelligence and transformational leadership. IS project managers with a more

technical background showed lower average scores for both emotional intelligence and transformational leadership than their peers. Female IS project managers showed slightly higher average scores for both transformational leadership and emotional intelligence than their male counterparts. The results suggest that an increase in emotional intelligence can assist an IS project manager to effectively improve their transformational leadership skills.

Further research into the appropriate interventions that should be introduced in order to increase emotional intelligence in South African project managers is advisable. The perceived effect on the project team and the success of the IS project manager after introducing these interventions should be measured. This will be useful in motivating South African organizations to facilitate and encourage their IS project managers to develop their emotional intelligence and transformational leadership skills in order to be more effective and achieve better results with IS project implementation.

CHAPTER 1: INTRODUCTION

1.1 Background

1.1.1 Introduction

Unlike the engineering and construction fields, the Information Systems (IS) field was not initially linked to project management practices and methods (Cartwright & Gale, 1995). Over time, organizations have generally come to embrace project management methodologies and practices, become more project based, and undertake an increasing number of IS projects. However, the number of projects that fail to be delivered within the constraints of time, cost, scope and quality has highlighted the fact that project management is a challenging undertaking and is of particular interest to organizations (Maylor, Vidgen & Carver, 2008).

Atkinson, Crawford and Ward (2006) describe projects as ranging from being "hard" to "soft" depending on whether the project goals and deliverables are clearly defined from the beginning of the project or likely to change during the course of the projects. IS projects are usually "soft" projects and are characteristically complex by virtue of the often unclear goals, high risks, high costs, technical and organizational dynamics (Lee-Kelley & Leong, 2003; Maylor, Vidgen & Carver, 2008).

The increasing number of IS projects requires that organizations place the right kind of individuals into project management positions in order to achieve organizational success (Brewer, 2005). The IS project manager has been identified as a key resource in the facilitation of organizational change and the achievement of organizational goals (Whitty & Maylor, 2009). Project failure has also been attributed to the lack of influencing and human skills on the part of the project manager (Geoghegan & Dulewicz, 2008). Investigations into the means of achieving competent and successful management of IS projects is therefore of interest to organizations and project mangers alike (Maylor, Vidgen & Carver, 2008)

1.1.2 Leadership

An online search of a popular South African career website on the 31st of October 2009 found that the keywords "leader" and "leadership" appeared in 24 advertisements for IS project managers as an attribute or a skill that the IS project manager was expected to have. According to some of the

advertisements, the IS project manager was expected to "have strong leadership skills", "be a visible leader", "provide leadership and support to teams", and "lead an effective team to achieve set goals and objectives" (Career Junction, 2009).

A leader is made through a combination of personal characteristics, skills and knowledge (Geoghegan & Dulewicz, 2008). According to Jackson and Parry (2008) a complicated and intricate process is involved in the development of leadership skill. The process of growing the ability to lead begins when a person receives certain genes before they are born and continues through life and is influenced by childhood experiences, mentors and work experience. Putting this developed ability to lead others to practice is dependent on the luck of opportunity presenting itself (Jackson & Parry, 2008).

According to Crawford (2000), leadership has been consistently identified in the literature as a requirement for a project manager to be deemed competent. Transformational leadership is posited as the answer to the question of the appropriate leadership skills required for project management (Keegan & Den Hartog, 2004). Transformational leadership has been linked to increased impact and effectiveness in the project environment and organization as a whole (Eagly, 2007; Geoghegan & Dulewicz, 2008).

The challenge that IS project managers are faced with is to get the best results from a variety of business and technical experts or specialists through leadership, and the management of relationships between all the project stakeholders (Clarke, 2009). According to Geoghegan and Dulewicz (2008), a combination of both intellectual (IQ) and emotional (EI) aptitude is a requirement for success.

1.1.3 Emotional Intelligence

Studies by Barling, Slater and Kelloway (2000), Higgs and Aitken (2003), Gardner and Stough (2002), Leban and Zulauf (2004), Palmer, Walls, Burgess and Stough (2001), Rosete and Ciarrochi (2005), Sivanathan and Fekken (2002) suggest that there is a relationship between leadership style and emotional intelligence. According to Küpers and Weibler (2006), the capacity to provide effective leadership is enhanced when one can manage and understand emotions in themselves and in others.

Though Mayer, Salovey and Caruso (2008) criticize the claims by some researchers that emotional intelligence is a predictor of performance in the workplace, some researchers have emphasized the importance for project managers to pay attention to the emotional aspects of their roles as project leaders (Keegan & Den Hartog, 2004). The reader should note that the term "project leader" is used throughout this paper in reference to the leadership role that the project manager plays while managing a project team.

Emotional intelligence has been positively linked to the display of behaviours required for effective project leadership and the project management competencies linked to the management of human resources (Clarke, 2009; Leban & Zulauf, 2004; Müller & Turner, 2007; Sunindijo & Hadikusumo, 2005). Emotionally intelligent project managers are posited to provide better support and leadership and develop productive working environments for their teams (Geoghegan & Dulewicz, 2008; Mayer, Salovey & Caruso, 2008),

1.1.4 Research Objectives & Scope

This study aims to make a contribution to the project management field by examining the emotional intelligence and transformational leadership of IS project managers in South Africa specifically.

MAIN OBJECTIVES

The main objectives of this research are to:

- Determine the leadership behaviour of South African IS project managers
- Determine the emotional intelligence of South African IS project managers
- Find conclusive evidence of a positive correlation between transformational leadership (TL) and high levels of emotional intelligence (EI) in South African IS project managers.

OTHER OBJECTIVES

The other objectives of this research include the investigation of relationships between leadership behaviour and emotional intelligence and the following factors for IS project managers:

- Gender
- Preferred project type (i.e. technical or change project)
- Technical background
- Tenure in the IS field

SCOPE

The scope of the research will be limited to South African IS project managers who have access to email and the internet.

1.2 Research Outline

This chapter provides an introduction to the research topic and the scope of this research.

Chapter 2: introduces the review of the literature regarding leadership and emotional intelligence.

Chapter 3: discusses leadership while **Chapter 4:** discusses emotional intelligence and how the literature links emotional intelligence to the enhancement of the quality of leadership. **Chapter 5:** investigates the requirement of leadership skills and emotional intelligence for the IS project manager. **Chapter 6:** summarizes the literature review.

Chapter 7: gives an outline of the research design and methodology. The research questions and proposed hypothesis are also detailed. **Chapter 8:** presents the outcome of the research conducted and provides a discussion of the results, the contribution of this research project, and suggestions for future research are proposed.

Chapter 9: brings this paper to a conclusion by providing an overview of the research problem and methods and presents the findings.

CHAPTER 2: INTRODUCTION TO THE LITERATURE ON LEADERSHIP STYLE & EMOTIONAL INTELLIGENCE

An information system (IS) project managers' leadership style has a considerable impact on the implementation of IS projects and is an important aspect in the delivery of any information system (Wang, Chou & Jiang, 2005) and the success or failure of a project (Christenson & Walker, 2004; Müller & Turner, 2007).

The concept and study of leadership can be traced back many centuries (Cleland, 1995; Higgs, 2003) but there is no universal, clear-cut, and generally accepted definition of leadership (Cleland, 1995; Hayward, 2005; Huysamen, 2002; Naidu & van der Walt, 2005; Prins, 2006). Over time, various theories on leadership have been raised in an attempt to understand leadership, including trait theories, behavioural and situational theories, charismatic theories and transformational and transactional theories (Duckett & Macfarlane, 2003; Higgs, 2003).

Transformational leadership is often associated with improved performance in organizations. A transformational leader guides his/her followers to improve themselves and achieve better results by changing and aligning their values, beliefs and attitudes to those of the organization (Charbonneau, 2004). Cleland (1995, p. 86) defines project leadership as "a presence and a process carried out within an organizational role that assumes responsibility for the needs and rights of those people who choose to follow the leader in accomplishing project results". The Project Manager Competency Development Framework specifies "Leading" and "Cognitive Ability" as some of the personal competencies that any project manager should develop in order to be effective (Project Management Institute, 2007).

The beginning of the 21st century saw an increased interest in studying the efficacy of using emotional intelligence (EI) to determine the effectiveness of a leader (Gardner & Stough, 2002). EI is the ability to be aware of and manage emotions both personally and in others (Gardner & Stough, 2002). EI is posited as the key to improved job performance, employee behaviour, customer satisfaction, quality assurance and organizational practices that promote exceptional service delivery, quality and workplace harmony (Morehouse, 2007). As a leader, an IS project managers' key responsibility is to ensure that project objectives are met by successfully managing both the emotional and rational aspects of a project (Leban & Zulauf, 2004).

The IS project managers leadership style, as a key role in project team performance, is receiving increased attention in IS research (Wang et al., 2005). Transformational leadership has been suggested as the ideal leadership style for a project manager (Leban & Zulauf, 2004; Rosete & Ciarrochi, 2005) but Müller and Turner (2007) suggest that a project manager should display different leadership styles depending on the type of project that they are leading while Graham (1996) suggests that different leadership styles should be used during the different phases of a project.

According to Leban and Zulauf (2004), a project manager's leadership style and related EI is significant for organizational success. The emotional aspects of leadership play an important role in determining project performance (Turner & Müller, 2006) and the very nature of a project managers job make emotional intelligence a requirement for success (Mersino, 2007).

The next chapter provides a review of the literature related to leadership and the requirement of leadership skills for effective project management.

CHAPTER 3: LEADERSHIP

3.1. Introduction

The study of leadership and the attributes of a good leader are traceable as far back as 500 B.C., when Confucius proposed that piety, love, proper conduct, and avoidance of disagreements are the qualities required for effective leadership (Turner & Müller, 2005; Ng & Walker, 2008). Further contributions came from Plato, Machiavelli, Xunxi and others, but there is still speculation on the requirements of effective leadership (Rosete & Ciarrochi, 2005). Jackson and Parry (2008) propose that the five attributes that are essential for effective leadership include: (i.) the confidence to nominate themselves to lead; (ii.) integrity to encourage consistency in beliefs and clarity on what the leader stands for; (iii.) connection to followers through shared values; (iv.) resilience to endure the conflict, stresses and setbacks; and most importantly, (v.) the aspiration to be a leader.

Leadership can be defined as a "social interaction" (Kerr, Garvin, Heaton & Boyle, 2006, p.268), an "interpersonal process" (Klenke, 1998, p. 1128), or a relationship between the leader and followers based on shared exchange (Jackson & Parry, 2008) whereby the leaders' influence on followers actions can determine performance results (Kerr et al., 2006). April (1999, p. 232) describes leadership as an ethical agreement between a leader and followers in order to "bring out the best in each other for the good of the whole". Leadership is therefore, an integral part of a successful organization's culture (Bohn & Grafton, 2002; Prins, 2006).

Thomas and Cheese (2005) suggest that, rather than leadership or MBA courses, practical leadership is the best way a leader can learn the essential lessons and gain wisdom about leadership. Klenke (1998) further suggests that attaining the skills to become an effective leader is a life-long process that involves formal education, reflection, learning about yourself, your thoughts and your actions, determination and commitment to a lifetime of learning.

According to Higgs (2003), and Turner and Müller (2005), five schools of thought were developed in various efforts to understand leadership. A discussion of five of these leadership theories follows in Section 3.2 i.e. (i.) trait theory, (ii.) behavioural theory, (iii.) situational theory, (iv.) charismatic or visionary theory, and (v.) competency theory.

Section 3.3 discusses the requirement for leadership skills in Project Management. Leadership assessment instruments are discussed in Section 3.4 and the chapter is brought to a conclusion with a summary of the leadership literature in Section 3.5.

3.2. Leadership Schools of Thought

3.2.1. TRAIT THEORY

According to Duckett and Macfarlane (2003), the theory that a person is born with natural leadership abilities and these abilities can be identified as a set of characteristics or attributes was popular between 1930 and 1950. Trait theories on leadership are based on the assumption that a leader is born with certain traits - that cannot be developed – which made them effective (Turner & Müller, 2006). By 1940, about 20 studies into leadership traits identified a list of about 79 leadership traits (Gehring, 2007).

Physical appearance and size, personality (e.g. confidence) and management abilities are the three trait aspects identified for effective leadership (Brown, Bryant, & Reilly, 2006; Turner & Müller, 2006) however several studies of various successful leaders failed to identify common physical, personality or mental characteristics (Gehring, 2007). Research shows that character and personality traits have an impact on leadership behaviours (Belasen & Frank, 2008; Brewer, 2005) and the inability of researchers to agree on a list of traits that are essential for successful leadership led researchers to shift their focus to leadership behaviours (Gehring, 2007).

3.2.2. BEHAVIOURAL THEORY

In the late 1950's, leadership research shifted its focus from traits and begun to concentrate on leadership behaviour (Duckett & Macfarlane, 2003). The behavioural theory assumes that an effective leader can be made by adopting certain styles or behaviours (Turner & Müller, 2005). The leader is seen to affect organizational performance by the amount of participation followers take in decision-making (Duckett & Macfarlane, 2003).

Six main parameters emerge from the literature to characterize leadership behaviour. Researchers such as Blake and Mouton, and Hershey and Blanchard used various combinations of the six parameters to define models of leadership behaviour in 1978 and 1988 respectively (Turner & Müller, 2005):

- Concern for people and relationships
- Concern for production

- Use of Authority
- Team involvement in formulating decisions
- Team involvement in choosing/making decisions
- Flexibility as opposed to the application of rules

A review of the literature by Sunindijo and Hadikusumo (2005) revealed thirteen behaviours that are required for effective leadership and influence: (i.) communicate a *vision*; (ii.) focus team efforts on an *inspiring* purpose; (iii.) provide an environment that *stimulates* ideas; (iv.) personal *coaching* and advise; (v.) *rewards* for achieving goals; (vi.) *punishment* for poor performance; (vii.) exercising *delegation* appropriately; (viii.) setting a good *example*; (ix.) openly *communicating* and sharing information; (x.) applying active *listening* skills; (xi.) *directing* actions where necessary; (xii.) allow *participation* in decision-making; (xiii.) *proactively* gather information and identify problems.

3.2.3. SITUATIONAL /CONTINGENCY THEORY

McGregor (as cited by Cleland, 1995) portrayed leadership as being a relationship between four variables:

- the leaders' characteristics
- the followers' attitudes, requirements and personal characteristics
- the organizations' characteristics
- the social, political and economical climate

The characteristics required by the leader in order to be effective were dependent on the other three variables. An organization therefore requires a different type of leader today, in terms of personal characteristics and leadership abilities, as compared to a decade ago as the other three variables are bound to have changed (Cleland, 1995).

A dynamic organizational environment, along with the changes that happen with the leader in different situations will determine how effectively the team will perform (Lee-Kelley & Leong, 2003). According to Fiedler's situational leadership theory there is a strong link between personality and leadership style (Arvonen & Pettersson, 2002). Several factors, such as team member loyalty and commitment, the simplicity of tasks, and the leaders' power and authority regarding assignment and assessment of tasks, will determine how control and uncertainty affect the leaders' personality and confidence levels (Lee-

Kelley & Leong, 2003). Because the leader adapts the situation to suit their personality (Arvonen & Pettersson, 2002), these factors will determine the suitability of the leadership style in the situation:

- *Task-oriented.* Autocratic leadership is suited to particularly favourable or extremely unfavourable situations.
- *Relationship-oriented.* Building inter-personal relationships motivates leaders suited for situations that are not extreme.
- *Socio-Independent.* These leaders are not affected by the environment or personality. They perform effectively when they have moderate to high levels of control.

The Path-Goal theory proposes that a leader should assist his/her team through the process of determining the means in which to achieve the team's goals (Turner & Müller, 2005). According to this theory, the leader motivates the team by reducing the barriers to achieving goals, providing guidance and support to team members and appropriately rewarding the accomplishment of goals (Huysamen, 2002). As a result, the leader's behaviour positively influences the end result of the task (Li, Tan, Teo & Mattar, 2006). This popular situational leadership theory identifies four leadership behaviours that are aimed at meeting the needs of followers or subordinates i.e.: (i.) *Directive*: providing specific work instructions and providing clarity on rules and procedures in order to reduce ambiguity with regards to expectations of each role; (ii.) *Supportive*: providing a supportive and stress-free work environment that is focused on producing employee satisfaction; (iii.) *Participative*: employees are encouraged to take part in decision-making their opinions are taking into consideration; or (iv.) *Achievement-orientated*: encouraging excellence in performance and showing confidence that employees are capable of achieving these high standards (House, 1996; Turner & Müller, 2005).

3.2.4. CHARISMATIC OR VISIONARY THEORY

Leadership is termed as either *"transformational"* or *"transactional"* in order to establish a distinction between leadership and management (Duckett & Macfarlane, 2003). Transactional leadership or management deals with complexity (e.g. planning and controlling) while transformational leadership manages change (e.g. motivating and coordinating) (Kaulio, 2008; Ng & Walker, 2008). Researchers also identify *"laissez-faire"* leadership which is characterised by the inability to take action and the avoidance of any leadership responsibilities (Avolio & Bass, 2004; Downey, Papageorgiou, & Stough, 2006; Eagly & Carli, 2003).

A transactional leader is generally defined as one who focuses on procedure, addresses the immediate needs of followers, maintains the status quo and rewards good performance (Gardner & Stough, 2002; Rosete & Ciarrochi, 2005; Müller & Turner, 2007).

Gardner & Stough (2002) define a transformational leader as one who seeks to determine the needs and drivers of followers and encourages positive change in individuals and the greater organization. Transformational leadership has gained popularity as it has been regularly associated with improved performance, increased morale, motivation and commitment within organizations (Charbonneau, 2004). The transformational leader focuses on relationships and the communication of common values in order to stimulate follower's sense of meaning and value in the work that they do in order to bring about organizational change (Müller & Turner, 2007). Though leaders can not completely control or predict their followers, they can appeal to the things that motivate followers in order to inspire them to go beyond their own interests – to work and participate at a higher level (April, 1999) and achieve far more than expected (Ng & Walker, 2008) – for the sake of the organizational or team vision (Avolio & Bass, 2004).

Nanus (1992, p. 8) defines a vision as "a realistic, credible, attractive future" which is better and more desirable than the present. The results of a 2003 survey of IT Executives (Table 1) found that the ability to inspire and be a visionary was essential for effective leadership (Brewer, 2005). According to Choi (2006), a leader creates a vision of an attractive future and communicates this vision not only verbally, but by their behaviour as well. Choi (2006) further posits that followers are empowered by a role-model leader who increases their confidence and perceptions of their ability to overcome obstacles. A visionary leader combines shared purpose, empowered people, appropriate organizational changes and strategic thinking (Nanus, 1992) in order to provide the motivation required to enhance business performance (Belasen & Frank, 2008). Followers have a clear vision of what they are trying to achieve and are emotionally committed to the vision (Goleman, 1998) because it has been clearly communicated to them (Rosete & Ciarrochi, 2005). Leaders who offer their time, vigour and, efforts in order to achieve a vision are pivotal to achieving organizational effectiveness (Bohn & Grafton, 2002). Team members can personally relate with the teams' purpose and goal and feel more loyalty and unity within the team (Wang et al., 2005). Transformational leaders ensure that team members are aware of the value and importance of assigned deliverables/goals and the means of attaining those deliverables/goals (Avolio & Bass, 2004).

The Full Range of Leadership Model (FRLM) by Avolio and Bass (1991) emphasises the importance of transformational leadership and divides its behaviours into four important areas. (i.) *Charisma* – shows high moral and ethical standards and acts as a role model; (ii.) *Inspiration* – presents an attractive vision, shows enthusiasm and motivation; (iii.) *Intellectual stimulation* – encourages innovation and creativity; (iv.) *Individualized Consideration* – shows concern and develops and coaches followers to reach their full potential (Charbonneau, 2004; Eid, Johnsen, Bartone, & Nissestad, 2008). Charbonneau (2004) further suggests that transformational leaders also use influencing tactics in order to achieve the required commitment and motivation from their teams.

Personal characteristics critical for IT executives to be effective leaders	Most Critical	Strongest	Needs Improvement
Ability to Inspire Others	64.2%	46.5%	37.6%
Vision of the Future	63.5%	51.7%	29.0%
Integrity	51.9%	55.6%	4.7%
Creativity and Innovation	31.6%	42.5%	32.2%
Willingness to take Risks	25.9%	26.3%	41.5%
Intelligence	21.2%	35.9%	9.0%
Self-confidence	13.4%	21.6%	40.6%
Maturity	12.7%	14.7%	19.2%

Table 1: Personal Characteristics for Effective Leaders (Brewer, 2005)

According to Keegan and Den Hartog (2004), transformational leaders were found to have better performing teams, and were perceived to be more effective by both their teams and their superiors as compared to transactional leaders. Transformational leaders deal with strategy more efficiently and are thought to be more effective for organizational progress (Rosete & Ciarrochi, 2005). Table 2 identifies the differences between and the various dimensions of transactional, transformational and laissez-faire leadership.

Leadership Style	Dimension	Description
Transformational	Idealized influence (attributed) Idealized influence (behaviour) Inspirational motivation Intellectual stimulation Individualized consideration	The charisma of the leader Charisma centering on values beliefs and mission Energizing followers by optimism, goals and vision Challenging creativity for problem solving Advising, supporting, and caring for individuals
Transactional	Contingent rewards leadership Management by exception (active) Management by exception (passive)	Providing role, task clarification and psychological rewards Active vigilance of a leader to ensure goals are met Leaders intervene after mistakes have happened
Laissez-faire	Laissez-faire leadership	Leader avoids making decisions, abdicates responsibility, and does not use authority

Table 2: Dimensions of Leadership (Turner & Müller, 2005)

Some researchers posit that transformational leadership is appropriate in possibly every situation though the way in which it works is dependent on the situation (Jackson & Parry, 2008). The competing values framework (CVF) developed by Quinn and Rohrbaugh in 1983 (Figure 1) shows various transactional and transformational leadership roles. Belasen and Frank (2008) suggest that a good leader should be able to play each of these roles so as to deal with the difficult decisions a leader has to make in order to be effective in any environment

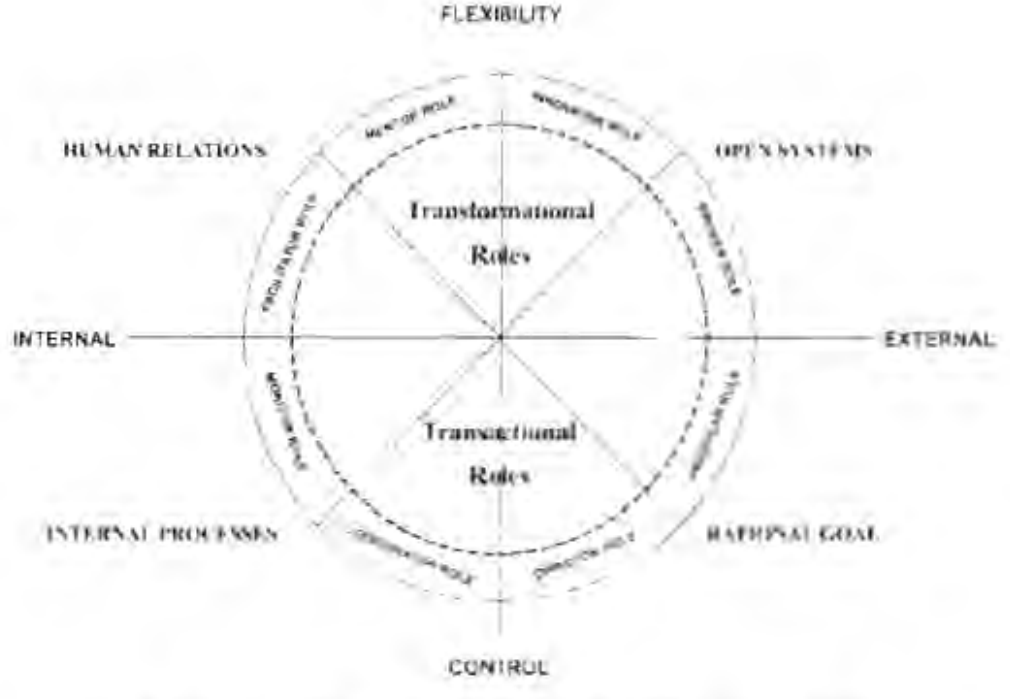

Figure 1: Competing values framework (Belasen & Frank, 2008)

Gardner and Stough (2002) further suggest that a combination of transformational and transactional leadership styles is required in order to achieve organizational objectives. The best organizational performance can be achieved through a combination of leadership and management (Jackson & Parry, 2008). When an organization is going through a transitional phase, leaders are more effective when they redirect some energy towards gaining equilibrium across the leadership activities across the CVF roles (Belasen & Frank, 2008). Some researchers however criticize the lack of identification or ambiguity regarding specific behaviours required for transformational leadership (Jackson & Parry, 2008).

According to Strang (2007), the "key principle gained" from the CVF and its identified leadership roles, is the view that a leader should not follow any leadership model or theory too emphatically but should instead strike a balance between the management philosophies, traits, behaviours and roles that these models and theories propose.

Strang (2007) integrated the leadership roles (competing values framework) and the leadership behaviour (transactional/transformational leadership) to illustrate the roles and behaviours that a technology manager should play and display (Table 3) as they lead their team.

Technology Manager & Leader Roles	Competing Values	Leadership Behaviour
		Transformational Behaviours
1. Innovator (creative problem solving, change, adaptation)	Open Systems, Adaptive Leadership	Inspirational Motivation, Intellectual Stimulation
2. Broker (power, influence, resource acquisition)	Open Systems, Adaptive Leadership	Inspirational Motivation, Intellectual Stimulation
3. Facilitator (conflict management, participative decision making)	Human Relations, People Leadership	Individualized Consideration, Support of Others
4. Mentor (human resources development)	Human Relations, People Leadership	Individualized Consideration, Support of Others
		Transactional Behaviours
5. Coordinator (task analysis, coordination, financial control)	Internal Process, Stability Leadership	Focus on task performance to achieve organizational goals
6. Monitor (information management, critical thinking)	Internal Process, Stability Leadership	Focus on task performance to achieve organizational goals
7. Producer (productivity, efficiency)	Rational Goal, Task Leadership	Focus on task performance to achieve organizational goals
8. Director (planning, goal setting)	Rational Goal, Task Leadership	Focus on task performance to achieve organizational goals

Table 3: Technology Manager Roles, Competing Values and Leadership Behaviour (Strang, 2007)

3.2.7 COMPETENCY THEORY

Brown et al. (2006) suggest that leadership can be better understood by determining what capabilities an individual should possess in order to be a good leader. According to Turner and Muller (2005), fifteen (15) leadership competencies were identified in the literature, of which three were intellectual competencies (IQ); five were managerial competencies (MQ) and seven were emotional competencies (EQ).

Table 4 shows how each of the competencies contribute in various degrees to the three leadership styles (Dulewicz & Higgs, 2005)

- *Engaging* (E) leadership is suitable in a transformational environment and utilizes involvement and empowerment in order to bring about standing commitment to major change
  Involving (I) leadership is suitable in a "transitional" environment where change is necessary but it is not major.
  Goal-oriented (G) leadership is suitable in a stable environment and is centred on producing predetermined results.

Group	Competency	Goal	Involving	Engaging
Intellectual (IQ)	1. Critical Analysis and judgment	High	Medium	Medium
	2. Vision and Imagination	High	High	Medium
	3. Strategic Perspective	High	Medium	Medium
Managerial (MQ)	4. Engaging Communication	Medium	Medium	High
	5. Managing Resources	High	Medium	Low
	6. Empowering	Low	Medium	High
	7. Developing	Medium	Medium	High
	8. Achieving	High	Medium	Medium
Emotional (EQ)	9. Self-awareness	Medium	High	High
	10. Emotional Resilience	High	High	High
	11. Motivation	High	High	High
	12. Sensitivity	Medium	Medium	High
	13. Influence	Medium	High	High
	14. Intuitiveness	Medium	Medium	High
	15. Conscientiousness	High	High	High

Table 4: Leadership Competencies and Competence Profiles of three Leadership styles (Turner & Muller, 2005)

The literature has thus far discussed the trait, behavioural, charismatic and competency theories regarding leadership. The next section discusses leadership as a requirement for effective project management.

3.3 Leadership in Information System Project Management

The majority of project managers (about 88%) spend over half their time working together with others (Sunindijo & Hadikusumo, 2005). Managing human behaviour in the project team is the most interesting, but challenging aspect of being a project manager (Leban & Zulauf, 2004). The strength of the relationships the project manager builds with stakeholders will have an influence on the project success (Graham, 1996). Project leadership is not only about relationships, but also about taking responsibility for channelling the potential energy in the team into results as soon as possible (Brunette, 2002).

Research has shown that professionals in the IT field are generally lacking in soft skills – which would include leadership skills and interpersonal skills (Sumner, Bock, & Giamartino, 2005, 2006). According to Thite (2000) and Wang, Chou and Jiang (2005), it is common knowledge that people in technical or scientific fields generally lack the leadership skills required for effective people management. Chief Information Officers (CIOs) with a strong technical professional background were found to be less influential and were limited in the influential behaviours they displayed when compared to CIOs with a less technical professional background (Willcoxson & Chatham, 2006).

Unfortunately, technical leaders are often promoted to project management positions because of their technical competencies as opposed to their leadership skills (Sumner et al., 2005). Though technical competence is required, it is not in itself sufficient for a person to become a successful leader (Klenke, 1998). Klenke (1998) asserts that ineffective IS leaders tend to be highly technically skilled individuals who focus on the technical issues rather than the people issues. Sumner et al. (2006) state that these project managers mostly lack the soft skills needed to motivate and manage people.

As a leader, a project manager's key responsibility is to ensure that project objectives are met by successfully managing both the emotional and rational aspects of a project (Leban & Zulauf, 2004). The literature also shows that a project manager's leadership style has a considerable impact on the implementation of IS projects and is an important aspect in the delivery of any information system (Wang et al., 2005). Furthermore, this project leadership style should be aligned to organizational culture (Cooke-Davies & Arzymanow, 2003).

In 1999, Turner (as cited by Turner & Müller, 2005) used three of the parameters characterizing leadership behaviour to define four leadership styles (Table 5) that are relevant for project management.

Parameter	Leadership Style			
	Laissez-Faire	Democratic	Autocratic	Bureaucratic
Team Decision-making	High	High	Low	Low
Team Decision-taking	High	Low	Low	Low
Flexibility	High	High	High	Low

Table 5: Four styles of Project Manager Leadership (Turner & Müller, 2005)

Turner (1993) describes the four styles of project manager leadership as follows:

A *Democratic* leader consults with the team and encourages the contribution of ideas before deciding on the action to be taken. This leadership style is suitable for the feasibility and planning stages of a project.

An *Autocratic* leader gives orders to the team on exactly how and when tasks will be carried out. This leadership style can be suitable for the execution phase of the project in order to get tasks completed on time and according to specifications.

A *Bureaucratic* leader does not know how to react to change and uses policies and procedures to manage the team. This leadership style is only suitable for low-risk projects or for the close-out stages of a project.

A *Laissez-Faire* leader acts as part of the team and team members generally manage themselves. This leadership style is suitable in a research project and the leader will offer advise if required.

Projects do not achieve desired results because of a lack of leadership rather than a lack of management or technological competence (Lee-Kelley & Leong, 2003; Sumner et al., 2005). Experience brought Sumner et al. (2005) to the conclusion that a project manager with good leadership skills was better suited to meeting the challenges of managing IT staff. Thomas and Mengel (2008) suggest that, on the whole, project managers who had received training or certification did not perform any better than those who had not. Brewer (2005) suggests the idea project manager does not only display competence

in the technical skills required for the job, but is also an efficient and effective communicator, motivator and leader.

According to Leban and Zulauf (2004), knowledge regarding ideal leadership behaviour can assist organizations to identify and recruit suitable candidates for project leadership. Gehring (2007) therefore suggests that the traits theory is the most important leadership theory applicable to project management and that the selection of project managers should be according to the traits identified as necessary for effective project leadership. Turner (as cited by Turner & Muller, 2005) found problem-solving, goal-orientation, energy and initiative, self confidence, perspective, communication, and negotiation skills to be the seven traits possessed by effective project managers. According to Dvir, Sadeh and Malach-Pines (2006), different management skills are required for different types of projects – and the project manager should be assigned to projects that are compatible with their personality profile.

Gehring (2007) criticizes the application of popular leadership theories to project management and suggests that this application takes for granted the fact that the project manager possesses the required skills or competencies to use the models successfully.

The next section gives details on instruments that are used by researchers to measure leadership and personality.

3.4. Assessing Leadership Style

There are a number of instruments geared towards assessing leadership behaviour and style (including the Leadership Practices Inventory (LPI) by Kouzes and Posner (Fields, 2007; Strang, 2007; Sumner et al., 2006); the Multi-factorial Leadership Questionnaire (MLQ) by Bass and Avolio (Avolio & Bass, 2004; Dulewicz & Higgs, 2005; Bagly, 2007); the Leadership dimensions questionnaire (LDQ) by Dulewicz and Higgs (Dulewicz & Higgs, 2005, Geoghegan, & Dulewicz, 2008, Turner, Müller & Dulewicz, 2009); and the Managerial Practices Survey (MPS) by Yukl, Wall and Lepsinger (Fields, 2007)) and personality (including the MBTI by Briggs and Myers (Brewer, 2005; Dolfi & Andrews, 2007; Martins & Coetzee, 2007); the Big Five personality assessment by John and Srivastava (Groves, McEnrue & Shen, 2008; Dolfi & Andrews, 2007; Zeidner, Matthews & Roberts); the Occupational Personality Questionnaire (OPQ32) by Saville and Holdsworth (Dulewicz & Higgs,1999; Aitken & Crawford, 2008))

One personality assessment tool and two leadership assessment instruments are discussed in this section. The assessment tools discussed were chosen as the literature has shown their effective use in the study of the personality and leadership styles of IS project managers (Brewer, 2005; Gehring, 2007; Sumner et al., 2006; Thite, 2000) and their application in the South African context (Hayward, 2005; Huysamen, 2002).

Personality assessment tools such as the Myers-Briggs type indicator are used in practice to determine personality type and establish suitability for a role that requires leadership such as that of a project manager (Brewer, 2005).

3.3.1 MYERS-BRIGGS TYPE INDICATOR

The Myers-Briggs Type Indicator (MBTI) was developed by Briggs and Myers in the 1940s to assess thinking style and disposition when working in a team (Dolfi & Andrews, 2007; Turner & Müller, 2005). The MBTI is based on the concept that personality can be developed and/or adapted (Dulewicz & Higgs, 1999). The Myers-Briggs Type Indicator is often used to determine a person's personality type based on a selection from each of these four groups (Brewer, 2005):

- Extrovert vs. Introvert
- Sensing vs. INtuitive
- Thinking vs. Feeling
- Judging vs. Perceiving

Brewer (2005) found that leaders are usually typed as ENTJ (extrovert, intuitive, thinking, and judging). Project managers seem to be typed as ESTJ (extrovert, sensing, thinking, and judging) quite often with "Sensing" taking a dominant part of their character (Brewer, 2005; Dolfi & Andrews, 2007). Project managers can use the MBTI to gain an understanding of how their personality type compares to the traits deemed suitable for efficient project leadership (Gehring, 2007). Jackson and Parry (2008) however maintain that anyone can learn to become a better leader in spite of their personality profile.

3.3.2 LEADERSHIP PRACTICES INVENTORY

The Leadership Practices Inventory (LPI) was developed by Kouzes and Posner (2003) to measure leadership according to the five practices they found to be key for good leadership (Sumner et al., 2006). These practices are:

- *Model the way* by showing credibility
- *Inspire a shared vision* by sharing stimulating possibilities
- *Challenge the process* by looking for opportunities to innovate, change, grow, and become better.
- *Enable others to act* by encouraging collaboration and trust
- *Encourage the heart* by acknowledging individual work and encouraging the team spirit

The LPI has been applied in many organizational studies both for research and academic purposes. Sumner et al. (2006) used the Leadership Practices Inventory (LPI) to measure leadership behaviour by self-assessment and assessment by colleague IT project managers associated with the Project Management Institute. Their results showed no significant correlation between project success and project manager leadership self-assessment but observer assessments showed a strong correlation between leadership behaviour and project success (Sumner et al., 2006).

3.4.3. MULTI-FACTORIAL LEADERSHIP QUESTIONNAIRE (MLQ)

Bass and Avolio developed the Multi-factorial Leadership Questionnaire (MLQ) in 1990 to assess transactional, transformational and laissez-faire leadership styles (Table 2) and is often used in research (Küpers & Weibler, 2006). The MLQ is based on a five factor model (Avolio & Bass, 2004):

- *Charisma/Inspirational*: Provides a stimulating and clear "sense of purpose"; provides a good example of ethical conduct which develops "rapport/identification" with the leader and the communicated vision.
- *Intellectual Stimulation*: Encourages followers to question the tried and tested methods of solving problems in order to improve upon them.
- *Individualized Consideration*: Understands the requirements of each follower and is always working on the development of each follower to reach their full potential.
- *Contingent Reward*: Followers have a clear understanding of what is expected of them and the rewards they will receive for meeting expected performance levels.
- *Active Management-by-Exception*: Monitors on how tasks are executed in order to cater for and correct any issues that may arise in order to keep performance levels.
- *Passive Avoidant*: May avoid making any decisions and usually only acts to make corrective actions after issues have become serious.

The MLQ has proven to be a consistent tool for measuring the elements of leadership and has been successfully used to study the interaction between followers and leaders (Brown et al., 2006). Despite the criticism regarding the discriminant validity of the MLQ, it has proven to be applicable in a variety of cultures, circumstances, and organizational levels (Thite, 2000). The MLQ, with modifications has been used successfully to assess the leadership behaviour of IS project managers in Australian organizations (Thite, 2000).

3.3. Summary of the Leadership Literature

The review of the literature found various views on what was required in order to practice effective leadership. Leadership has been expressed in the literature as an attribute that a person is born with; a set of behaviours that a leader can adopt; a result of a relationship created with a team; and even a differing set of actions followed depending on the situation the leader is in. The importance of effective leadership in the organization is unmistakable and can even affect the perceptions of organizational performance (Bohn & Grafton, 2002).

Brewer (2005) found that research and surveys showed that the basic skills that every leader should have include:

- Ability to identify the most important organizational challenges
- The ability to motivate and inspire the people to meet these challenges
- Keep people focused on these important challenges
- Good communication skills

According to Dulewicz and Higgs (2003), leadership research has thus far failed to produce a model that comprehensively describes the requirements for effective leadership. They suggest that the research should explore new ways of defining the requirements for leadership. Aydin, Leblebici, Arslan, Kilic, and Oktem (2005) suggest that a leader requires emotional intelligence in order to be set apart from their peers. Emotional intelligence and emotional management are concepts that have been briefly mentioned as part of the competency theory and as a requirement for leadership in project management.

The next chapter discusses the research models of emotional intelligence and how emotional intelligence is linked to leadership in the literature.

CHAPTER 4: EMOTIONAL INTELLIGENCE

4.1 Introduction

Emotions are the intense feelings that a person, team or organization may experience in relation to another person or thing (Gareis, 2004). Emotions have a definite life-span and can be classified according to Plutchik's 1980 theory of basic emotions (Figure 2) (Gareis, 2004). Emotional intelligence (EI) refers to the emotional, personal, survival and social aspects of intelligence – suggested as more important for every-day use than cognitive intelligence (Prins, 2006). Some researchers are of the opinion that the emotional, rather than the logical aspects of leadership are what are required to manage organizational challenges (Dulewicz & Higgs, 2003). Some researchers further suggest that EI is a requirement for achievement of goals, the differentiating factor between average and exceptional leaders (Aydin, Leblebici, Arslan, Kilic, & Oktem, 2005), and becomes more important as the leader rises within the organizational ranks (Dulewicz & Higgs, 2003).

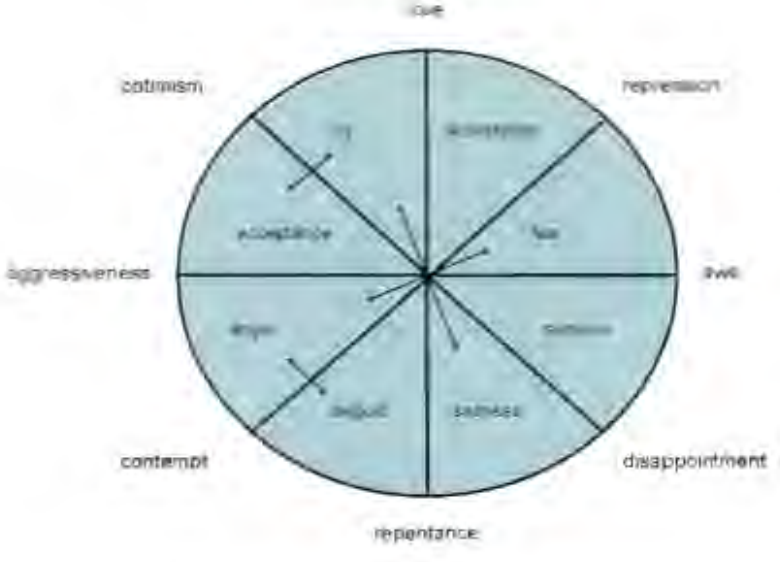

Figure 2: Basic Emotions (Gareis, 2004)

In their research into leadership roles and traits, Belasen and Frank (2008) found that a leader who is self-confident and emotionally secure would be more successful in exercising the appropriate leadership role. The ability to manage emotions in the working environment is more important than ever (Aydin et al., 2005). Several studies have found EI competency to be a predictor of exceptional job performance

and added value to organizations (Blank, 2008). According to Aydin et al. (2005), EI should be taken into account when recruiting candidates by using selection instruments that will ensure that the chosen candidates meet the emotional requirements of the job. Effective leaders are emotionally mature and able to monitor their emotional state and are conscious of their strengths and limitations (Jackson & Parry, 2008).

Theories regarding other forms of human intelligence, other than the tangible and conceptual form i.e. memory and problem solving, have been around for a long while (Brown et al., 2006; Duckett & Macfarlane, 2003). It is not possible to attribute outstanding performance, even in highly technical and complex tasks, to IQ only. Factors such as flexibility, self-confidence, perseverance, personal development and teamwork are not related to IQ but are significant for the achievement of great performance in the work place (Aydin et al., 2005). Emotional, practical or social intelligences are referred to as non-intellective, non-academic or non-cognitive intelligences (Prins, 2006). Though the importance of these forms of intelligence was recognized, concerted efforts to define Emotional Intelligence (EI) were only made in the 1990s (Brown et al., 2006).

There are two main theories on emotional intelligence i.e. the ability model that posits emotional intelligence as an ability that can be developed; and the mixed model that defines emotional intelligence as a combination of behaviour, competencies and traits. This chapter takes a closer look at these theoretical models and how EI is linked to leadership in the literature.

4.2. Theories in Emotional Intelligence

EI is important for any individual to be socially adept (Kerr et al., 2006) and has become an important aspect of attaining success in an organization (Sunindijo & Hadikusumo, 2005). Research conducted by the Carnegie Foundation, the Stanford Research Institute and Harvard University found that the ability to relate well with others contributed about 85% to the reason why people get, keep and excel in their jobs while technical knowledge and skills contribute only 15% (Crosbie, 2005).

Goleman (as cited by Douglas, Frink, & Ferris, 2004, p.3) linked EI to "knowing and managing emotions, self-motivation, and handling relationships" or "the ability to recognize and regulate emotions both within the self and others" (cited by Gardner & Stough, 2002, p.70). Emotional intelligence is not a

substitute for, but is complementary to intellectual intelligence in order to enable the rational management of emotions (Aydin et al., 2005).

Lee, Joshi and Kim (2008), Aydin et al. (2005) and Blank (2008) suggest that emotional intelligence can guide cognitive actions by processing information about emotions in order to solve problems or focus on appropriate behaviour. The next section discusses the literature regarding EI as ability.

4.2.1. THE ABILITY MODEL FOR EMOTIONAL INTELLIGENCE

Salovey and Mayer (as cited by Brown et al., 2006, p. 332) defined emotional intelligence as "the ability to deal with ones emotions and those of others to advantage in problem solving and decision making". The *ability model* (Figure 3) for EI was developed in 1997 based on this definition by Mayer and Salovey (Kerr et al., 2006). Their definition further implies that EI involves the cohesion of two mental processes i.e. thinking and feeling (Kerr, et al., 2006). This model combines intelligence and emotion (Brown et al., 2006) and focuses on how each influences the other (Kerr et al., 2006). Unlike intellectual intelligence which does not develop much after puberty, emotional intelligence is an attainable skill that can be learned, developed and improved over a lifetime (Aydin et al., 2005; Blank, 2008).

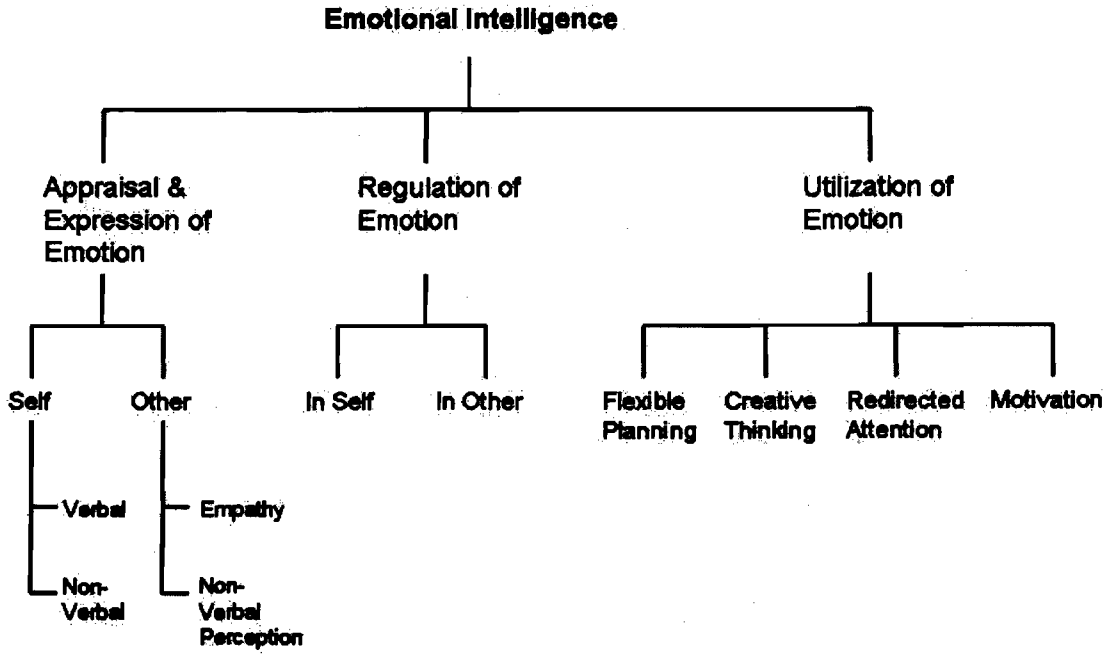

Figure 3: Salovey and Mayer Framework for Emotional Intelligence (Mersino, 2007)

EI is referred to as a form of intelligence that displays the ability to manage emotional information (Kerr et al., 2006). EI is believed to develop over time, shows a relationship to the intelligent quotient (IQ) and can be measured by testing performance (Rosete & Ciarrochi, 2005). Significant relationships have been found between EI as ability and quality social interactions and relationships, task performance and cognitive performance (Lee et al., 2008).

This model has measurement instruments and models that are scientifically derived and psychometrically independent from other means of measuring personality (Brown et al., 2006). Lee et al. (2008) suggest that ability measures of EI are more valid and predictive that those based on personality.

The study by Leban and Zulauf (2004) suggests that EI is exercised by applying reasoning to emotions and understanding how these emotions may have developed, and how they can be managed in different situations. The application of the ability model in organizations had produced various results with some studies finding no correlation between EI and leadership (Weinberger, as cited by Kerr et al., 2006) while Rosete and Ciarrochi (2005) found a correlation between EI and leadership effectiveness in their study of 41 senior executives in a public service organization. Analysis of the EI data collected from three studies found that certain elements of emotional intelligence, such as self-awareness, sensitivity and influence, can improve when the appropriate training is provided (Dulewicz & Higgs, 2004).

The focus now turns to the mixed models, which generally define EI as a combination of traits and competencies derived from personality.

4.2.2. MIXED MODELS OF EMOTIONAL INTELLIGENCE

Mixed models of EI combine both non-cognitive models and competency-based models and use an array of abilities, personality traits, and behaviours within their emotional intelligence framework (Kerr et al., 2006; Rosete & Ciarrochi, 2005).

Bar-On (as cited by Brown et al., 2006, p.332) defined social and emotional intelligence as a "multi-factorial array of interrelated emotional, personal, and social abilities that influence our overall ability to actively and effectively cope with daily demands and pressures". The *mixed model* arose from Bar-On's work in 1997 and combines social behaviour, competencies and traits (as cited by Brown et al., 2006).

This model is perceived by its advocates to be highly valuable to organizational and leadership development because of its correlation with desired organizational outcomes (Brown et al., 2006). The mixed model is the oldest and more generally accepted method of assessing EI (Brown et al., 2006; Douglas et al., 2004).

But, according to Mersino (2007), Goleman's framework of emotional intelligence (published in 1998) (Figure 4) has effectively become the standard by which EI is applied. Goleman (as cited by Douglas et al., 2004) suggests that EI centres on two sets of personal qualities:

- The first set are within the person's character e.g. initiative and empathy
- The second set can be learnt e.g. adaptability and persuasiveness

Douglas et al. (2004) therefore conclude that an individual can develop portions of emotional intelligence.

	Self (Personal Competence)	Other (Social Competence)
Recognition	**Self-Awareness** -Emotional self-awareness -Accurate self-assessment -Self-confidence	**Social Awareness** -Empathy -Organizational awareness -Service
Regulation	**Self-Management** -Emotional self-control -Transparency -Adaptability -Achievement -Initiative -Optimism	**Relationship Management** -Inspirational Leadership -Influence -Developing Others -Change Catalyst -Conflict Management -Building Bonds -Teamwork and collaboration

Figure 4: Goleman's Framework of Emotional intelligence (Mersino, 2007)

Goleman's framework organizes EI competencies into four groups of abilities:

- *Self-awareness* refers to the ability to understand and assess personal feelings, strengths, weaknesses and state of emotions (Mersino, 2007). A self-aware person has a pragmatic view of their vision, values and goals (Goleman, Boyatzis, & McKee, 2002). Self-awareness also promotes making intuitive decisions (Sunindijo & Hadikusumo, 2005).
- *Self-management* is the ability to manage or control emotions so as to avoid succumbing to these emotions or being emotionally impulsive (Mersino, 2007; Sunindijo & Hadikusumo, 2005). Self-management is required for achieving goals as it enables a person to select and focus on the things that are important (Goleman et al., 2002).
- *Social awareness* is achieved by being aware of the emotions of those we come in contact with (Mersino, 2007) by correctly interpreting the non-verbal signs they send (Sunindijo & Hadikusumo, 2005). Social awareness enables a person to be empathetic to those around them and to also express their feelings to others convincingly (Goleman et al., 2002).
- *Relationship management* uses the awareness and management of both personal, and others' emotions in order to build relationships (Mersino, 2007, Goleman et al., 2002).

When Mersino (2007) did a comparison of Goleman's framework and Salovey and Mayer's framework he found that the two models overlap in several areas. Both the ability model and the mixed model for emotional intelligence consider the appraisal of others emotions and the expression of emotions; the ability to empathise with others; the ability to control emotions; and the use of emotions for motivation; in their frameworks. Mersino (2007) suggests that the ease of understanding and applying Goleman's framework, and possibly, the recognition his books have received, has led Goleman's framework to effectively become the model most often used to apply emotional intelligence.

The following section discusses instruments used to assess emotional intelligence.

4.3. Assessing Emotional Intelligence

According to Dulewicz and Higgs (1999), the literature shows extensive discussions on the practicalities of effectively measuring emotional intelligence. Instruments approach EI assessment either by means of problem-solving exercises or by use of self-assessments (Austin, Saklofske, Huang, & McKenney, 2004). Some EI assessment tools provide for several assessors - which provides for a richer, unbiased assessment (Mersino, 2007). Some researchers advocate problem-solving exercises or competence

measures as having a higher probability of producing an effective assessment of EI (Dulewicz & Higgs, 1999). Rosete and Ciarrochi (2005) suggest that self-assessed measures of EI may be difficult to interpret because of a correlation to personality and the possibility of subjective reporting. According to Dulewicz and Higgs (1999), a lack of understanding of how others perceive you makes it difficult to assess your own emotional intelligence. Matthews et al. (as cited by Murphy, 2006) further state that studies have indicated that some individuals may be incapable of properly describing how they function emotionally. Ghorbani, Bing, Watson, Davison, and Mack (2002) further suggest that culture can also influence the outcome of self-reported EI measures.

Several assessment tools for emotional intelligence have been developed (Table 6) based on differing models and assessing EI in different ways. These include inter alia, the first psychometrically studied test for EI – the *Emotional Quotient Inventory (EQi)* developed by Bar-On (1996) as a self-evaluation tool to measure a combination of traits and abilities (Brown et al., 2006; Derksen, Kramer & Katzko, 2002); and the *Emotional Competence Inventory (ECI) 360* measures emotional intelligence based on Goleman's EI framework in order to assess performance in the workplace (Gardner & Stough, 2002; Turner & Muller, 2006). The Mayer Salovey Caruso Emotional Intelligence Test (MSCEIT) is a measuring instrument based on the ability model.

Mayer et al. (2000)	Measurement method	Theoretical foundations	Developed tests of emotional intelligence (selected by Kerr et al., 2006)
Ability Models	Ability	Original ability model: Mayer & Salovey (1997)	MEIS in 1999 by Mayer, Caruso & Salovey MSCEIT in 2002 by Mayer, Salovey & Caruso
Mixed Models	Self report Peer report	Additional EI concepts	SREIT in 1998 by Schutte, Malouff, Hagelthy, Cooper, Golden & Dornheim SUEIT in 2001 by Palmer & Stough TMMSei in 1995 by Salovey, Mayer, Goldman, Turvey & Palfai WEIP in 2002 by Jordan, Ashkanasy, Hartel and Hooper EQ in 1998 by Goleman EQI in 1997 by Bar-On EIQ in 1999 by Dulewicz & Higgs EQ-MAP in 1997 by Cooper & Sawaf

Table 6: Classification of the main models and tests of EI (adapted from Kerr et al., 2006).

4.3.1 MAYER SALOVEY CARUSO EMOTIONAL INTELLIGENCE TEST (MSCEIT)

Mayer, Salovey, and Caruso developed their model based on the EI model developed by Salovey and Mayer (Kerr et al., 2006; Mersino, 2007; Rosete & Ciarrochi, 2005). The MSCEIT is an ability measure EI in which the participants perform tasks that show the ability to (Mersino, 2007; Rosete & Ciarrochi, 2005):

- Perceive emotion accurately (experiential)
- Use emotion to facilitate thought (experiential)
- Understand emotion (reasoning)
- Manage emotion (reasoning).

The MSCEIT produces an assessment for the ability to experience emotion and another for the ability to manage emotion (Kerr et al., 2006; Mersino, 2007; Rosete & Ciarrochi, 2005). Figure 5 shows the structure of the MSCEIT.

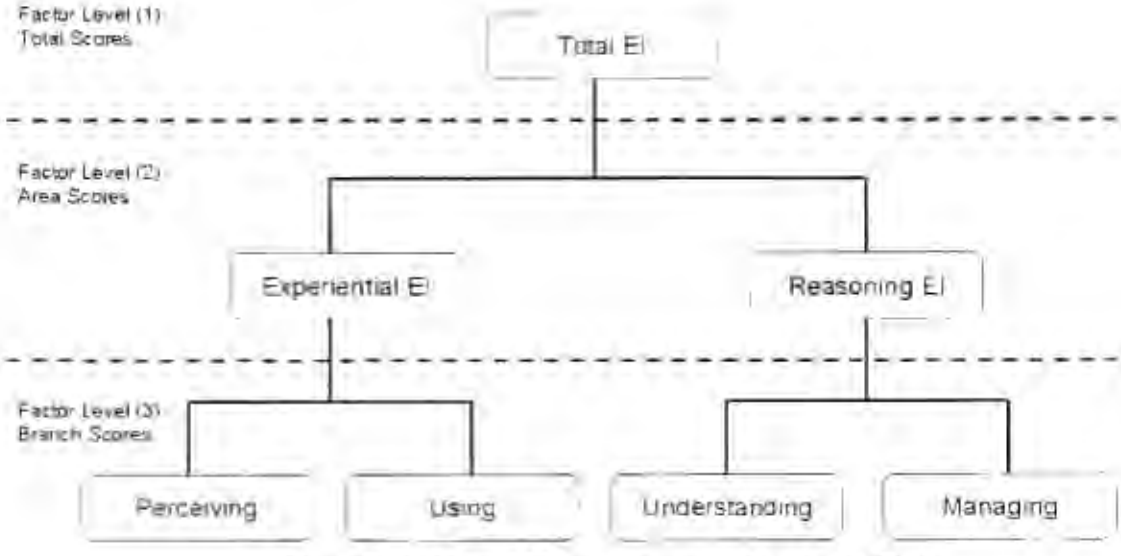

Figure 5: The MSCEIT factor structure (Kerr et al., 2006)

The MSCEIT tool is based on the principle that EI is about solving problems using and concerning emotions (Goldenberg, Matheson & Mantler, 2006; Rosete & Ciarrochi, 2005). The MSCEIT tool can be used as both as a self-assessment and multi-assessment tool (Mersino, 2007). Research suggests that the MSCEIT is a reliable instrument to assess emotional intelligence (Kerr et al., 2006).

Leban and Zulauf (2004) successfully used the MSCEIT tool to assess the EI ability of project managers in organizations in various industries and found the EI ability to enhance the project managers' leadership style and the project outcome.

4.3.2 SWINBURNE UNIVERSITY EMOTIONAL INTELLIGENCE TEST (SUEIT)

The SUEIT is an instrument developed by Palmer and Stough (2001) for use specifically in the workplace (Downey, Papageorgiou, & Stough, 2006). The SUEIT was developed from an analytical study of six EI measurement tools, which produced the five EI factors (Downey et al., 2006; Prins, 2006)

- Emotional recognition and expression (Internally)
- Understanding other's emotions
- Emotions direct cognition
- Emotional management
- Emotional control

Downey et al. (2006) used the SUEIT to measure the emotional intelligence of Australian female managers while Prins (2006) used the same tool to assess the EI of South African nurses.

Mersino (2007, p.9) criticizes all EI assessment tools for lacking the "the ability to consistently and reliably measure EI in individuals" though they may differ in the framework of EI competencies on which they are based.

4.3.3 OTHER FACTORS AFFECTING EMOTIONAL INTELLIGENCE

Mayer, Salovey and Caruso (2004) posit that emotional intelligence should develop with age. The study by Dulewicz and Higgs (1999) found a significant correlation between age and sensitivity as an element of emotional intelligence. The older participants in the research were more prone to be sensitive.

Having discussed the theoretical models applied to emotional intelligence and the tools used to assess emotional intelligence, the focus turns to how emotional intelligence has been associated with leadership.

4.4 Emotional Intelligence and Leadership

By the beginning of the 21st century, Gardner and Stough (2002), found that there was an increased interest in studying the efficacy of using EI to determine the effectiveness of a leader. Rosete and

Ciarrochi (2005) suggest that EI could be the key to explaining why an intelligent and experienced leader may not successfully meet the demands placed on them by their environment.

Research shows that there is a positive relationship between emotional intelligence and leadership (Brown et al., 2006; Douglas et al., 2004, Leban & Zulauf) - with some advocates even claiming that EI is twice as important as the technical and cognitive skills of a leader. Early philosophers such as Socrates and Descartes advocated self knowledge (an EI competence) as a necessary precedence to learning and leading others (Kienke, 1998). A study of general managers in the UK and Ireland by Dulewicz and Higgs (2000) found that IQ contributed 27%, EQ 36 % and VIQ 19 % to their advancement or success in their organizations. A 2002 study found that a team that consisted of unskilled members with high EI performed better than a team of skilled members with a low EI (Douglas et al. 2004). Turners' (2007) study found that individual performance and job satisfaction increases when the project team is introduced to EI and emotional competencies. An organization provides its employees with many opportunities to experience various emotions which will in turn affect the way they think, feel and act (Prins, 2006).

The management of emotions, both those of the leader and the followers, is therefore essential for leadership (Brown et al., 2006). Emotional intelligence enables leaders to adapt to changes to their situation and adequately provide for the emotional needs of followers (Jackson & Parry, 2008). Kerr et al. (2006) suggest that leadership is essentially an emotional process that involves the leader recognizing, evoking and managing follower emotions. Morehouse (2007) suggests that the organizational culture can encourage or improve a leaders' emotional intelligence.

Earlier research suggested that the transformational leadership style could be linked to EI (Rosete & Ciarrochi, 2005). The study by Leban and Zulauf (2004) found this to be true when they measured the EI and transformational leadership style of project managers. Research by Gardner and Stough in 2002 also found that transformational leaders were more capable of controlling their emotions and identifying and applying emotional knowledge for successful social interaction and problem solving (Morehouse, 2007). Emotional appeals were found to be characteristic of emotionally intelligent and transformational people – thus an emotionally aware leader might be more likely to understand and influence his followers (Brown et al., 2006). Choi (2006) posits that empathy, sensitivity to followers' emotions and even sharing in these emotions are all behaviours displayed by charismatic leaders. Studies by Palmer et

al. (2001) and Barling et al. in 2000 (as cited by Rosete & Ciarrochi, 2005) found strong correlations between transformational leadership practices and the ability to monitor and control emotions. Leban and Zulauf (2004) also found suggestions in the literature of a relationship between EI and transformational leadership (Table 7), and their study confirmed an EI contribution to the ability of project managers to perform transformational leadership. The study of Australian female managers by Downey et al. (2006) found a strong correlation between transformational leadership behaviour and high levels of emotional intelligence and intuition.

Emotional intelligence factors (Dulewicz and Higgs)	Transformational leadership factors (Alimo-Metcalfe)
Self-awareness	Individual consideration
Emotional resilience	Decisive, achieving, determined
Motivation	Involves others in values
Interpersonal sensitivity	Networks
Influence	Change Management
Decisiveness	Accessible
Conscientiousness and integrity	Intellectual versatility (integrity/openness)

Table 7: Relationship between EI and transformational leadership (Leban & Zulauf, 2004)

The results of the study by Barling, Slater and Kelloway (2000), showed a significant correlation between a leaders emotional intelligence and perceived leadership style. According to Gardner and Stough (2002), leaders that are emotionally intelligent are perceived to show greater commitment to their organizations, and are happier in their work.

Research into the relationship between personality, EI and leadership found a stronger correlation between that the ability to recognize and understand others emotions and transformational leadership as compared to other personality measures (Rosete & Ciarrochi, 2005). Research by Kerr et al. (2006) led them to conclude that EI be included among the criteria to be considered when recruiting, selecting, training and developing for management roles. Emotionally intelligent leaders also work better and therefore attain bigger achievements. Research by Turner and Muller (2006) found that the emotional aspects of leadership played the most significant role in determining project performance. The study by Sunindijo and Hadikusumo (2005) showed major correlations between leadership behaviours and aspects of EI that led them to conclude that:

- Self-awareness encourages delegation
- Self-management is related to being proactive

Social awareness promotes sharing and open communication

Inspiration can be defined as the ability to change emotions or ways of thinking (Rafferty & Griffin, 2004). Blank (2008) defined inspirational leadership as the act of using a desirable vision as a means to guide and motivate followers. According to Rafferty and Griffin (2004), some researchers suggest that leadership can only be defined as inspirational if emotional appeals are employed to influence followers. Kupers and Weibler (2006) suggest that the success of an inspirational leader is dependant on their awareness of others' emotions and their ability to control his/her own emotions. Goleman (as cited by Mersino, 2007) described six inspirational leadership styles linked to EI competencies. The first four styles will affect the team positively while the last two will cause disruption.

Visionary Leadership. The leader is able to give a description of the end result and is able to connect each team member's work with the desired outcome. This leadership style is thought to be the most effective as each member feels that what they do is important and approaches their work with enthusiasm and inspiration (Goleman et al., 2002; Mersino, 2007).

Coaching Leadership. This leader focuses on personal development of the individual team members. Coaching is given on specific tasks while encouraging and giving the team member feedback (Mersino, 2007). Coaching encourages loyalty in team members as they sense that their leader cares about them (Goleman et al., 2002).

Affiliative Leadership. This leader concentrates on building relationships with team members by creating a friendly and harmonious environment. Affiliative leadership is ideal when trying to improve team morale and communication, encourages loyalty and strengthens bonds within the team (Goleman et al., 2002; Mersino, 2007).

Democratic Leadership. This leadership style is the most effective when the leader is uncertain on which decision to make (Goleman et al. 2002). The leader uses input from experienced team members to make informed decisions team members will be committed to while keeping team spirit high (Goleman et al., 2002; Mersino, 2007).

Pacesetting Leadership. This leader is often a high achiever who expects excellence from his/her team and exemplifies this excellence (Goleman et al., 2002; Mersino, 2007). This leadership style can sometimes be used when working with an experienced and competent team but will otherwise leave team members feeling inadequate (Mersino, 2007).

Commanding Leadership. This leader needs the team members to do things as they say without question (Mersino, 2007). This leadership style is sometimes termed as coercive and is the least effective as it diminishes morale, enthusiasm and pride in the team members' work (Goleman et al., 2002). This leadership style is best applied in an emergency situation (Mersino, 2007).

Table 8 shows the underpinning emotional intelligence competencies that each leadership style described above requires in order to be applied effectively (Mersino, 2007). Goleman, Boyatzis, and McKee (2002) felt that a leaders' success in achieving results was dependant on the emotional effect of the leaders' actions and words on his/her followers.

Leadership Style	EI Competencies
Visionary	- Inspirational Leadership - Self- Confidece - Self-Awareness - Empathy
Coaching	- Developing Others - Self Awareness - Empathy
Affiliative	- Relationship Management - Empathy - Conflict Management
Democratic	- Teamwork and Collaboration - Conflict Management - Influence
Pacesetting	- Achievement - Initiative
Commanding	- Influence - Achievement - Initative

Table 8: Leadership Styles and EI Competencies (Adapted from Mersino, 2007)

EI detractors suggest that EI as a concept could be seen as a fable or a management craze (Douglas et al., 2004). Other researchers discourage the reference to emotional intelligence as a scientific term because of the inability to measure the construct accurately (Dulewicz, Higgs, & Slaski, 2003). Matthews, Emo, Roberts, and Zeider (as cited by Murphy, 2006) found little scientific evidence of EI being vital for the achievement of career or personal success and further state that the use of EI measures for the selection or allocation of employees was unsuitable. Matthews et al (as cited by Murphy, 2006) found that there are some beliefs about emotional intelligence that are inadequately substantiated in the literature. Some of their criticisms of the EI construct include: the differing and conflicting definitions of EI, the lack of convergence between self and ability-based reports; the possible overlap with personality constructs such as the Big Five; and the suggestion that EI is a strong predictor of outcomes in real-world settings and interventions to increase EI would be cost-effective.

4.5. Summary of the Emotional Intelligence Literature

Emotional intelligence is related to a set of skills or abilities that are different, but complimentary to intellectual intelligence (Blank, 2008). Emotional intelligence is suggested as the differentiating factor between those who excel and display efficient leadership and those who achieve average results (Aydin et al., 2005; Belasen & Frank, 2008). Some researchers therefore suggest that EI should be measured in order to determine the suitability of a candidate for a certain job or for a position of leadership (Aydin et al., 2005).

The literature has shown the requirement for effective leadership in the project environment. Further, several researchers strongly recommend emotional intelligence as a requirement for effective leadership. The next section discusses project management, the competencies required for effective project leadership, and the role that emotional intelligence plays in project leadership.

CHAPTER 5: EMOTIONALLY INTELLIGENT LEADERSHIP FOR IS PROJECT MANAGEMENT

5.1 Introduction

A project can be classified as short-term organization created to perform a specific business function (Garets, 2004). The short term management structure put in place to carry out the required project activities is discarded when the project is complete (Ng & Walker, 2008).

Cleland (1995) suggests four main tasks that a project leader should concentrate on:

- identifying, developing and communicating a project vision
- identifying the resources that are required in order to achieve the vision
- align people and resources in order to create a conducive environment
- gain stakeholder commitment

The requirement for effective IS project managers is rising as organizations become more and more project based and the number of IS projects increases. It has become important for organizations to place individuals who have the correct skills to be successful in these critical project management roles (Brewer, 2005). Managing critical and complex IS projects involves not only system delivery, but also entails the careful integration of input and skills from varied technical experts; the combination of technology, skills development and training; and the re-defining of management processes and customer interfaces (Bennis, 1999; Ng & Walker, 2008). A number of studies have however highlighted the scarcity of capable project managers within the IS field (Hoving, 2007).

Several standards and guidelines exist that can be applied in the IS project management field. The Information Technology Infrastructure Library (ITIL) provides guidelines for best practices (Hoving, 2007). The guide to the project management body of knowledge (PMBOK® Guide) provides a framework to assist organizations manage projects and covers general management skills as well as the skills particular to the management of projects such as scope, cost, quality, time, human resources, project integration, communication, procurement and risk management (Kendra & Taplin, 2004).

Section 5.2 discusses the competencies required for effective project management followed by an examination of what the research reveals as the requirements for effective IS project leadership in Section 5.3. An investigation into the use of emotional intelligence for the purposes of project management follows in Section 5.4. A summary concludes this chapter in Section 5.5.

5.2 Information System Project Management Competencies

A project manager in the IT/IS field should have a basic knowledge of IT systems as well as the basic project management competencies (Kendra & Taplin, 2004). The basic PM competencies about which every project manager should be knowledgeable include: Time Management; Risk Management, Scope Management, Cost Management; Quality Management; Communication Management; Human Resources Management and; Procurement Management (Brewer, 2005, Cleland, 1995).

The Project Manager Competency Development Framework (PMCDF) published by the Project Management Institute (2007) was developed to provide organizations and individuals with guidelines regarding the management of a project manager's professional development. The PMCDF depicts a project manager's competence development in three dimensions (Figure 6):

- *Knowledge*: Measured by passing an appropriate examination
- *Performance*: Measured by assessing project related actions
- *Personal*: Measured by assessing behaviour

Figure 6: Graphical Overview of the PMCD Framework (adapted from Project Management Competency Development Framework) (Project Management Institute, 2007)

Earlier research emphasis on project management tools and techniques is questionable as it has become evident that a project manager's behaviour and personal competencies are more relevant to their performance than the project management tools and techniques that are used (Thomas & Mengel, 2008).

The PMCDF (Project Management Institute, 2007) recognizes that project managers require skills that will allow them to work together with others effectively. The framework indicates that personal competencies are required in conjunction with knowledge and performance competencies, in order to deliver most projects. Brewer (2005) agrees and states that project managers need several other skills, other than the project management competencies, in order to perform in their jobs. These skills, generally termed as soft skills, include but are not limited to: leadership, team-building, communication, relationship management, influencing, and decision-making skills (Brewer, 2005).

Each of the personal competencies consists of a number of competence elements that are required in order to gain the given personal competence (Figure 7). The two personal competencies that are of particular interest are Leading and Cognitive Ability. The PMCDF (Project Management Institute, 2007) defines these competencies as follows:

- *Leading* – to control and deal with issues by guiding, encouraging and motivating project team members and stakeholders in order to attain the project objectives.
- *Cognitive Ability* – uses the proper amount of awareness and decision-making to successfully guide a project in an ever-changing environment.

According to Pant and Baroudi (2008), successful project management requires a mix of inter-personal skills, technical competencies, cognitive aptitude, empathy, ability to understand the state of affairs, and ability to dynamically apply suitable leadership behaviour. Brewer (2005) further emphasises that the most important responsibility faced by the project manager is to lead the project team successfully. As such, the project's success or failure will depend on the leadership shown by the project manager (Cleland, 1995).

The next section expands on the leadership requirements for information system project management.

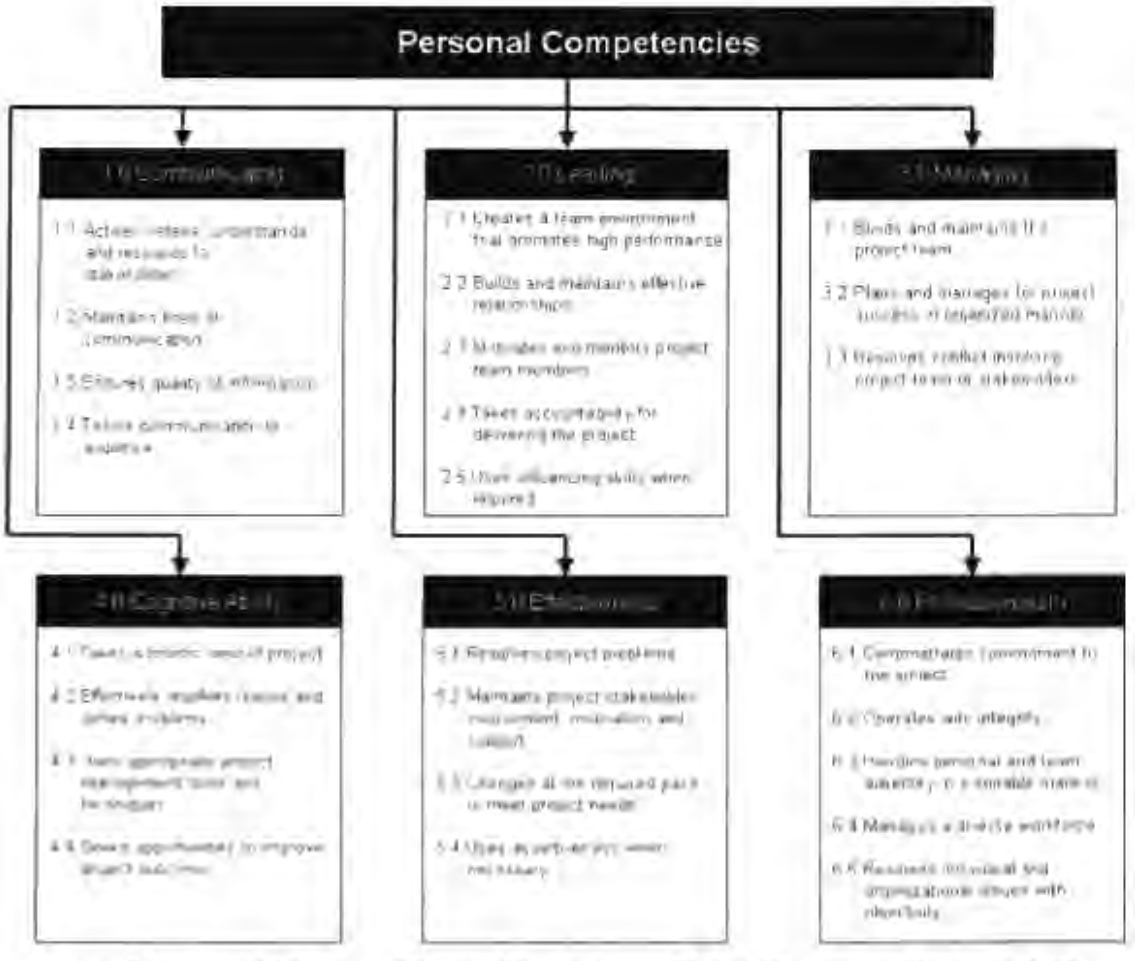

Figure 7: Units and Elements of Personal Competence (Project Management Institute, 2007)

5.1 Information System Project Leadership

Leadership is essential to any team environment (Wang et al., 2009). As a leader, a project manager is responsible for the duration of the project, for ensuring that the project team receive what they need in order to achieve the project goals and objectives (Cleland, 1995). Shi and Chen (2006) suggest the five most important attributes a project manager should have are: to have a sense of responsibility, be proactive, be confident, be able to handle pressure and be able to make decisions.

A project manager requires business skills, political skills (Leban & Zulauf, 2004; Ng & Walker, 2008), interpersonal skills and structured management skills in order to be effective (Lee-Kelley & Leong, 2003). The literature shows that an effective leader acts as a role model; provides mentorship and empathy, encourages enthusiasm, loyalty and confidence, and builds trust (Wang et al., 2005). The project manager also has to apply their interpersonal skills in order to be effective in the role of a coach, advisor, facilitator, appraiser, enabler, change agent, and relationship builder (Klenke, 1998). Cheng, Dainty and Moore (2005) further suggest self-control, flexibility, conceptual thinking, initiative and achievement orientation as competencies required for effective project management.

A project manager requires the skills to manage both the technical aspects i.e. control of cost, time and scope, and the soft aspects i.e. relationships and leadership, in order to complete a project successfully (Bourne, 2007). The project manager's role has further evolved into one which requires more leadership abilities and not just management abilities (Thomas & Mengel, 2008). Project management literature highlights the importance of leadership skills such as people-management and communication in order to achieve project success (Thite, 2000). The communication of the project vision is key to providing team members with meaningful inspiration to achieve the project goal (Ng & Walker, 2008). Chen and Lee (2007) found that technical ability, organizational structure, project attributes (e.g. size or duration), and the resources that are available to a project manager, are all factors that could determine the project managers' leadership behaviour. The importance of a project managers' leadership ability increases with project size and complexity (Sumner et al., 2005).

A literature review by Turner and Müller (2005) on project manager leadership concluded that:

- A project manager reaches a knowledge saturation point where upon only leadership style and personality can help increase their competence
- Different leadership styles should be applied during the different stages of the project life cycle
- Project manager leadership style plays an important role in the success of a culturally diverse project
- The project manager leadership style plays a role in project team cohesion
- Project managers leadership styles tend to be people rather than task oriented
- Project manager emotional intelligence, as well as customer and project team satisfaction, has an impact on perceptions of how successfully the project was managed.

Muzio, Fisher, Thomas, and Peters (2007, p.31) felt that a project manager should display the transformational leadership qualities that will enable them to organize and connect with their team members "at all levels of motivation, behaviour, aspiration and need". Smith and Bailey (2006) propose that a transformational project manager is a decision-maker, motivates the team, is sensitive to interpersonal relationships, and is self-aware and conscientious.

Lee-Kelley and Leong (2003) did not find a specific combination of leadership style or skill that would be appropriate for managing different projects. Mersino (2007) and Gehring (2007) suggest that a proficient project manager should be flexible enough to vary the leadership style they use and apply as the situation requires. Wang et al. (2005) further caution that no single leadership style is applicable to all IS projects.

Turner and Muller (2005) suggest that, for better performance, leadership style should be adjusted in order to be suitable for:

- The stage in the project and the type of project team (Table 9)
- The type of change the project is aiming to achieve (Table 10)

Leadership Style	Stage	Team Type	Team Nature
Laissez-faire	Feasibility	Egoless	Experts with shared responsibility
Democratic	Design	Matrix	Mixed discipline working on several tasks
Autocratic	Execution	Task	Single discipline working on separate tasks
Bureaucratic	Close-out	Surgical	Mixed team working on single task

Table 9: Leadership styles, Project Team Types and the Project Life Cycle (Turner & Müller, 2005).

Leadership Style	Relatively Stable	Context-Significant Change	Transformational Change
Goal-oriented	Good Fit	Moderate Fit	Poor Fit
Involving	Moderate Fit	Good Fit	Moderate Fit
Engaging	Poor Fit	Moderate Fit	Good Fit

Table 10: Performance of Different Leadership Styles on Change Project (Turner & Müller, 2005).

A study by Thite (2000, p.239) showed the following leadership characteristics as vital for successful project managers:

- Provide an environment whereby the project team can exercise some creativity
- Encourage and stimulate team members intellectually
- Goal-orientated and show commitment to "ideals, beliefs and values"

- Manages appropriate rewards for performance
- Monitors and controls to maintain team direction.

Research by Keegan and Den Hartog (2004) failed to show a major connection between a project managers' leadership style and the project team's motivation, commitment or stress. The temporary nature of a project is a challenge to the process required for the project team to indentify with and build trust in the project leader and therefore also impedes the impact of the project manager's leadership style (Keegan & Den Hartog, 2004).

Thomas and Mengel (2008) found that shared leadership, emotional intelligence, social competence, skills in organizational politics, communication; and the importance of vision, values and beliefs are essential for project managers. Leban and Zulauf (2004) also state that a project managers' leadership and related EI could be significant for organizational success. Gareis (2004) further suggests that the PMBOK® Guide should include measures and development methods regarding emotional competencies in recognition of the fact that project managers require the social competence to manage emotions.

One of the critical factors to successfully implementing an information system is the efficiency of the project leadership (Wang et al., 2005). The challenges presented to leading an IS project include the scarcity of technical skills, the characteristics of IS staff, the dynamic environment, high turnover and the involvement of various stakeholders (Sumner et al., 2005). Wang et al. (2005) recognized the ability to manage people, emotions, stress, communication and bureaucracy as essential leadership skills for IS project managers. According to Klenke (1998), transformational IS project managers create a vision for the deployment of technology and systems that will enhance the organizations' politics and culture. Charismatic leadership is posited as responsible for unifying the project team and improving the team's performance (Wang et al., 2005). The leadership style of IS project managers has had to adjust to place more importance on the softer, human aspects of project management (Thamhain, 2004b).

"Project management is about effecting a change" (Christenson & Walker, 2004). Kendra and Taplin (2004) define a *change agent* as a person whose responsibility is to initiate and sustain a change initiative. The number of successful projects continues to decline and project failure is on the increase despite the growth of the project management profession (Kendra & Taplin, 2004). Due to the high failure rate of change initiatives in organizations, the ability to successfully implement a change

initiative differentiates successful organizations from the rest (Dulewicz & Higgs, 2003). According to Mäkilouko (2004), project leadership requires greater emphasis on the aspect of change management than other leadership roles. The ability of the IS project manager to act as a change agent is therefore vital for the achievement of IS project success (Kendra & Taplin, 2004). Studies into the requirements for the successful implementation of Enterprise Resource Planning (ERP) projects highlighted the need to plan for change and implementation management (Legris & Collerette 2006). The success of ERP system implementation relies on the leadership style of the project manager because of the requirement for thorough organization and team collaboration (Wang et al., 2005).

Organizations are keen to find management methods that will increase the success rate of IT projects (Kendra & Taplin, 2004). The following section discusses the use of emotional intelligence for effective project management.

5.4. Emotional Intelligence for Information System Project Management

Lee et al. (2008) describe EI as the ability to emotionally adjust to any social situation, and further suggest that it is important for the performance of every IS professional especially because they often work in teams made of members with differing interests. EI is important for all types of managers and leaders of all types but Is of particular importance for project managers because of the following factors (Mersino, 2007):

- The *uniqueness* of each project. The project manager will regularly experience a change in the project team, sponsors, and stakeholders whose emotions they will have to assess, understand, and manage - and with whom they will have to build relationships.
- The *temporary* nature of projects. By definition, a project has a beginning and an end – which puts a time pressure on the PM to quickly develop relationships and create a positive team environment.
- PM level of *power and authority*. Project managers rarely have the direct authority to direct project team members to do what is required, but have to employ other means in order to get the project team to complete the required tasks.

Mersino (2007, p.6) ascertains that a PM should gain an appreciation and "mastery of emotional inteiligence concepts" in order to have a successful career . An emotionally skilled project manager is aware of the impact that emotions have on their project success (Gareis, 2004). A study by Sunindijo and

Hadikusumo (2005) found that project managers with a higher measure of EI are more likely to use effective leadership behaviours such as encouraging open communication and participation. A study by Lee-Kelley and Leong (2003) suggests that the self-confidence and inner conviction that came from a project manager's experience and self-awareness enabled them to deliver projects successfully. Dolfi and Andrews (2007) further suggest that experience as a project manager develops the ability to adapt to different personality types that are part of the project team, and the flexibility to work in different working situations.

In order to be effective in a complex and uncertain environment, Thomas and Mengel (2008) suggest that a project manager requires intellectual (IQ) and emotional (EQ) competency, and the ability to find meaning (SQ). A 2005 survey of 109 people in the project management field found that they felt that EI was significant in achieving success in their current and future roles (Mersino, 2007). Gareis (2004) suggests that the project team members experience different emotions at different stages of a project. The project manager should not neglect the emotional part of a project, but should instead exercise their EI to recognize and manage these emotions as they occur (Gareis, 2004; Leban & Zulauf, 2004). EI may be just as essential as technical skills for any professional involved in systems development (Lee et al., 2008). Project managers require emotional intelligence in order to create the project environment and build the relationships that are essential for project success (Thomas & Mengel, 2008).

Mersino adapted Goleman's framework of emotional intelligence (Figure 8) to reflect the needs of project managers and focus on what he felt were the EI aspects most relevant to project managers (Mersino, 2007). Mersino added numbers to the competencies to suggest the order in which mastery of these competencies should be gained. Mersino added a fifth competency to Goleman's framework called "Team leadership". According to Mersino's (2007) EI framework for project managers, *Team leadership* is an EI competence that focuses on the emotional skills required to lead a project team effectively by means of communication, conflict management and inspirational leadership (Mersino, 2007).

The project leadership style of IS project managers is influenced by their general intelligence, personality, social interactions, interpersonal relationships, IQ, and performance in emotional tasks (Lee et al., 2008; Sumner et al., 2006).

Figure 8: Mersino's Emotional Intelligence Framework for Project Management (Mersino, 2007)

According to Rutner, Hardgrave and McKnight (2008), IT professionals need to hone their interpersonal skills in order to gain a better understanding of the business, communicate more efficiently with other parts of the business and better meet the stakeholders' needs. Many project managers come from a technical background which is typically characterised by logical, predictable and structured environment. This background does not give them the tools required to deal with the changeable, emotional and unsystematic arena of human interaction (Srića, 2008). Many projects fail, not because of a lack of knowledge or professional skills (Srića, 2008), but because relationship management, a significant and intricate part of project management, of all project stakeholders is not managed efficiently (Shurville & Williams, 2005).

5.5. Summary of the IS Project Management Literature

Technical knowledge alone, i.e. control of time, cost and scope, is not enough for the project manager to successfully lead a project team (Brewer, 2005, Thomas & Mengel, 2008). Some of the attributes required for effective project leadership include being a: decision-maker, team motivator (Smith & Bailey, 2006); coach, advisor, facilitator, appraiser, enabler, change agent, and relationship builder (Klenke, 1998).

The literature suggests that the leadership style displayed by the project manager should differ depending on: the type of project; the experience of the project team and even; the different stages of the project life-cycle (Lee-Kelley & Leong, 2003; Turner & Müller, 2005; Wang et al., 2005).

The IS project manager requires emotional intelligence and flexibility in order to efficiently determine and apply the correct leadership style to the correct situation (Gehring 2007; Mersino, 2007). Furthermore; age and experience as a project manager are factors that will assist the project manager to develop the emotional intelligence, adaptability and flexibility to manage projects (Dolfi & Andrews, 2007; Dulewicz & Higgs, 1999; Kelley & Leong, 2003; Mayer et al., 2004).

The research also shows that the unique situation of the project manager, i.e. limited authority, time constraints, and the management of projects made up of different project teams with varied goals and objectives, makes the leadership skills and emotional intelligence of a project manager vital to achieve a successful conclusion to a project (Mersino, 2007; Ng & Walker, 2008).

The next chapter offers a summary of the reviewed literature and concludes with a discussion of the identified gaps in the literature.

CHAPTER 6: SUMMARY OF THE LITERATURE

Effective leadership is a skill that has received attention from both philosophers and researchers from as far back as 500 B.C. Theories regarding leadership suggest that traits such as physical appearance or personality (Belasen & Frank, 2008; Brewer, 2005); behaviour such as flexibility and communication skills (Sunindijo & Hadikusumo, 2005; Turner & Müller, 2005); and adaptability to each situation (Arvonen & Pettersson, 2002; Lee-Kelley & Leong, 2003) are all requirements for leadership.

Emotional intelligence is posited as the factor that separates good leaders from great leaders (Rosete & Ciarrochi, 2005). Emotional intelligence theories suggest that EI can either, be learnt and improved over time (Aydin et al., 2005; Lee et al., 2008), or is a combination of social behaviour, personality and traits (Brown et al., 2006; Kerr et al., 2006). EI is even suggested as a requirement for candidate selection in order to improve the chances of effective performance (Blank, 2008)

The ideal project manager should display all the "technical, behavioural, and instinctive skills" required to perform as a project manager (Brewer, 2005, p. 172). The literature shows that the project manager not only needs to be a good leader (Sumner et al., 2005; Wang et al., 2005), but should also be adept at managing the emotional part of their project (Leban & Zulauf, 2004)

The review of the literature found that studies of project managers, their leadership style and emotional intelligence cover various aspects:

- **Exploration of project manager leadership style, characteristics and behaviour**

Jacques, Garger and Thomas (2008) explored the leadership style of MBA students as compare to graduate project management students. The results of their study found the graduate PM students rated higher in concern for people and also had a better balance between concern for tasks and concern for people. Though the literature emphasises transformational leadership as key for project management success, the study by Neuhauser (2007) found female project managers to practice and attach more importance to managerial skills and transactional leadership. Research by Lee-Kelley and Leong (2003) also found female project managers to be more task-oriented and socio-independent while nearly half the males they studied were relationship-oriented.

Chen and Lee (2007) identified decision-making and the ability to give and seek information as the most important leadership behaviours for a project manager while the study by Dolfi and Andrews (2007) suggests that optimism an essential characteristic required to meet the challenges of the project management work environment. Cheng, Dainty and Moore (2005) found that high-performing project managers display key behaviours that separate them from average project managers.

- **Relationship between project type, project manager leadership style and project success**

The study by Lee-Kelley and Leong (2003) didn't identify a specific combination of leadership style or skill that would be appropriate for managing different projects. Indeed, the study by Müller and Turner (2007) found that different project types require a different set of leadership competencies (i.e. emotional (EQ), managerial (MQ) and intellectual (IQ)) from the project manager – which would have an impact on the project success. They identified emotional competence as often a contributor to project success.

When compared to line managers, the study by Keegan and Den Hartog (2004) showed project managers to display the same transformational leadership behaviour as line managers but the temporary nature of projects lessens the impact on the team. Nevertheless, Sumner et al. (2005) found that the project managers who exhibit positive leadership behaviours for the five leadership practices experienced more project success.

- **Relationship between project type, project manager traits and project success**

The results of the study by Dvir, Sadeh and Malach-Pines (2006) gave tentative support to the hypothesis that project manager personality and project type fit is essential for project success. Gehring (2007) found that only seven personality types, of the 16 personality types as defined by the Myers-Briggs type indicator, display the necessary competencies for project leadership.

- **Relationship between project manager leadership style and project success**

Prabhakar (2005) found that successful project managers practice transformational leadership and a relationship-orientated approach. The Australian study by Thite (2000) found that IS project managers, their superiors and their subordinates all agreed that the transformational leadership style produces better results by supplementing it with transactional leadership at the appropriate time.

- **Relationship between emotional intelligence and leadership behaviour**

Leban and Zulauf (2004) found that EI aids transformational leadership behaviour, which in turn has a positive impact on project performance. The study by Turner (2007) found that individual performance and job satisfaction increase when the project team is introduced to EI and emotional competencies. Smith and Bailey (2006) investigated the relationship between the EI and leadership behaviour of IS project managers but the sample data of forty six IS project managers in Cape Town failed to support the hypothesis of a strong correlation between EI and leadership behaviour.

An overview of the literature survey (Figure 9) shows that, in the context of the project manager, there have been studies on how leadership style, emotional intelligence and characteristics have an effect on project success. Other studies have investigated the relationship between the project type and the project managers' leadership style. The literature further represents the relationship between characteristics and gender to the project managers' leadership style.

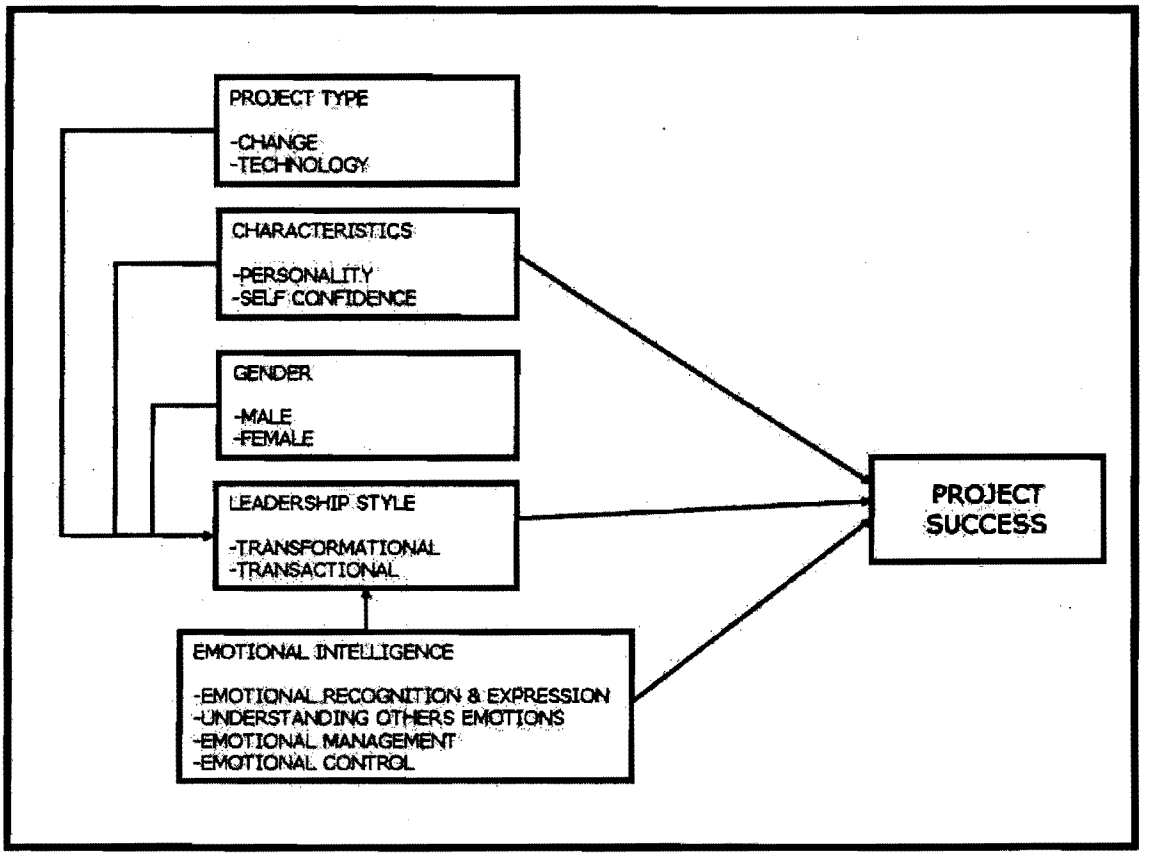

Figure 9: Constructs identified in the literature

6.1. Identified Gaps in the Literature

Sumner et al. (2006) found that a significant number (about 34 %) of IS projects were not delivered on time and had cost more than budgeted while another 31 % had to be scaled down, changed or discarded. Various factors can lead to the project success of failure (Chen & Lee, 2007). The management of projects as if they were all the same can lead to project failure (Dvir, Sadeh, & Malach-Pines, 2006) and using project management methods alone does not secure project success (Kendra & Taplin, 2004). Project leadership is suggested to be a contributing factor to the success or failure of a project (Christenson & Walker, 2004; Müller & Turner, 2007). A project managers' leadership and related EI could be significant to organizational success because the projects they manage are often critical for the organizations' success (Leban & Zulauf, 2004).

The literature shows that different leadership styles are better suited to different project types. The literature further suggests that project manager leadership style has a positive correlation to project success. The studies by Barling et al. (2000) and Palmer et al. (2001) show that the emotional intelligence of a project manager has an effect on the leadership behaviours displayed.

Despite the importance of project leadership, there have been only a few empirical studies into the nature of leadership in IS projects and as a result, important aspects of IS project leadership are not known (Lee-Kelley & Leong, 2003; Sumner et al., 2005; Wang et al., 2005). Previous research conducted mainly in the United States, Australia and China has provided some insight into the relationship between the leadership behaviour and emotional intelligence of project managers. Wang et al. (2005) felt that further investigations were required to gain an understanding of project manager leadership styles. Indeed, there is limited research into the leadership behaviours and emotional intelligence of IS Project Managers in South Africa.

A study of the EI levels and leadership styles of South African IS project managers will give insight into their proficiency with the soft skills that have been purported as having an effect on leadership style and in turn have an impact on project success. EI has been linked to transformational leadership style in the literature (Leban & Zulauf, 2004; Rosete & Ciarrochi, 2005) and has further been suggested as a selection criterion for leadership positions (Aydin et al., 2005; Bourne, 2007). Research into the relationship between leadership style and emotional intelligence of South African IS project managers

will provide input into the suitable selection of project managers for projects based on leadership style. This would provide valuable input to organizational efforts to improve the success rate of IS projects.

CHAPTER 7: THE RESEARCH DESIGN

7.1. Organization of the Research Design

A discussion of the research questions and expected results emerging from the literature review follows in Section 7.2. The research model and the research hypotheses used for this study are discussed in Sections 7.3 and 7.4 respectively.

The research approach and paradigm can be found in Section 7.5 which is followed by a discussion of the research method Section 7.6. Details of the research strategy, i.e. the research phases, target population and ethics are discussed in Section 7.7.

Section 7.8 discusses the research instruments used for this study which is followed by Section 7.9 detailing the data collection, the survey respondents and the analysis methods applied to the data. The chapter comes to a conclusion with a summary of the research in Section 7.10.

7.2. Research Questions

The first question is regarding the leadership skills displayed by IS Project Managers in South Africa. This gives rise to the question:

- **What leadership behaviours do South African IS Project Managers display?**

According to the studies by Eagly and Johnson (1990) and Burke and Collins (2001), females tend to display more democratic and transformational leadership styles than their male counterparts. However, a study by Lee-Kelley and Leong (2003) of UK-based project managers found that the majority of female project managers were task-oriented or performed best in environments where they had lots of control while almost half of the males in their study were relationship-orientated.

Though some studies have reported differences in the leadership behaviours displayed by male and female leaders (Campbell, 2007), others have found no difference by gender in the propensity to display transformational leadership behaviour (Mandell & Pherwani, 2003). Avolio and Bass (2004) suggest that female leaders are more likely to show lower scores for transactional leadership and higher scores for transformational leadership than their male counterparts. Jackson and Parry (2008) however criticize the evidence of females displaying more transformational leadership than males as feeble and in fact the literature does not show a consensus on differences in leadership style based on gender.

Burke and Collins (2001) however suggest that when self-rating on leadership style, females tend to report higher scores for transformational and contingent reward leadership than males. Eagly and Carli (2003) posit that female leaders look for leadership styles that do not contradict societal expectations of women being fair and compassionate and thereby avoid challenges to their authority. This study expects to find that female South African IS Project Managers will rate themselves as more transformational than their male counterparts.

The second question assesses the project manager's emotional intelligence. The question regarding EI is:

- **How emotionally intelligent are South African IS Project Managers?**

The study by Dawda and Hart (2000) found no considerable difference between the total or composite EQ scores of males and females. However, studies by Groves (2005) and Mandell and Pherwani (2003) found female managers to show better emotional skills than their male counterparts and the significant differences in the emotional intelligence scores suggested that females probably manage their own and others emotions better than their male counterparts.

The age of the participant has been found to play a role in their emotional intelligence as some studies have found that older participants have received higher scores for EI (Goldenberg et al., 2006; Dulewicz & Higgs, 1999).

As per the 2006 study by Smith and Bailey, this study expects to find that South African IS project managers will display a generally high level of emotional intelligence. Older participants will score higher total EI scores. The study expects to find higher emotional intelligence scores for female participants.

The third question is regarding a possible relationship between the type of projects that the project manager is most comfortable with, their leadership style and emotional intelligence.

- **Is there a relationship between the project type that the project manager prefers and their leadership style or emotional intelligence?**

A strong correlation between transformational leadership style and projects that bring about change is expected from the analysis of the data. The study should find a strong correlation between high levels of emotional intelligence and a project manager preference for projects that bring about change.

The fourth question seeks to determine if there is a correlation between the project manager's occupational background (technical or business) and their EI.

- **Is there a relationship between IS Project Manager occupational background and their EI or leadership behaviour?**

According to Thite (2000), Klenke (1998) and Wang et al. (2005), technically skilled individuals are generally lacking in soft skills. Sumner et al. (2005, 2006) found that many technical leaders get promotions to the position of project managers because of their technical skills even though research has shown IT professionals generally lacking in soft skills. This study expects to find that project managers with a technical background will display lower levels of both emotional intelligence and transformational leadership behaviour.

The fifth question seeks to determine the correlation between the project manager's occupational background (technical or business) and the kind of projects they prefer to manage.

- **Is there a relationship between IS Project Manager occupational background and their preferred projects?**

This study expects to find a strong positive correlation between a technical occupational background and a preference for technical projects.

The final question will seek to find correlations between the leadership behaviour and emotional intelligence:

- **Is there a relationship between the emotional intelligence and the leadership behaviour of South African IS Project Manager?**

Mandell and Pherwani (2003) found strong correlations between emotional intelligence and transformational leadership. Their findings further suggest that this correlation occurs similarly for both males and females. According to Palmer, Stough, Harmer, and Gignac (2009), higher levels of emotional intelligence are related to high levels of transformational leadership.

This study expects to find positive correlations between the emotional intelligence and leadership behaviour of the surveyed project managers. The transformational leaders should show high levels of EI.

A research model was developed to give an illustration of the constructs that would be assessed in order to answer the research questions above. The next section discusses the research model.

7.3. The Research Model

The research will focus on the relationships between emotional intelligence, occupational background (technical or business), preferred project type, and transformational leadership, gender and age. Figure 10 shows the proposed research model. The independent variables emotional intelligence, preferred project type, age, gender and occupational background influence the dependent variable of transformational leadership.

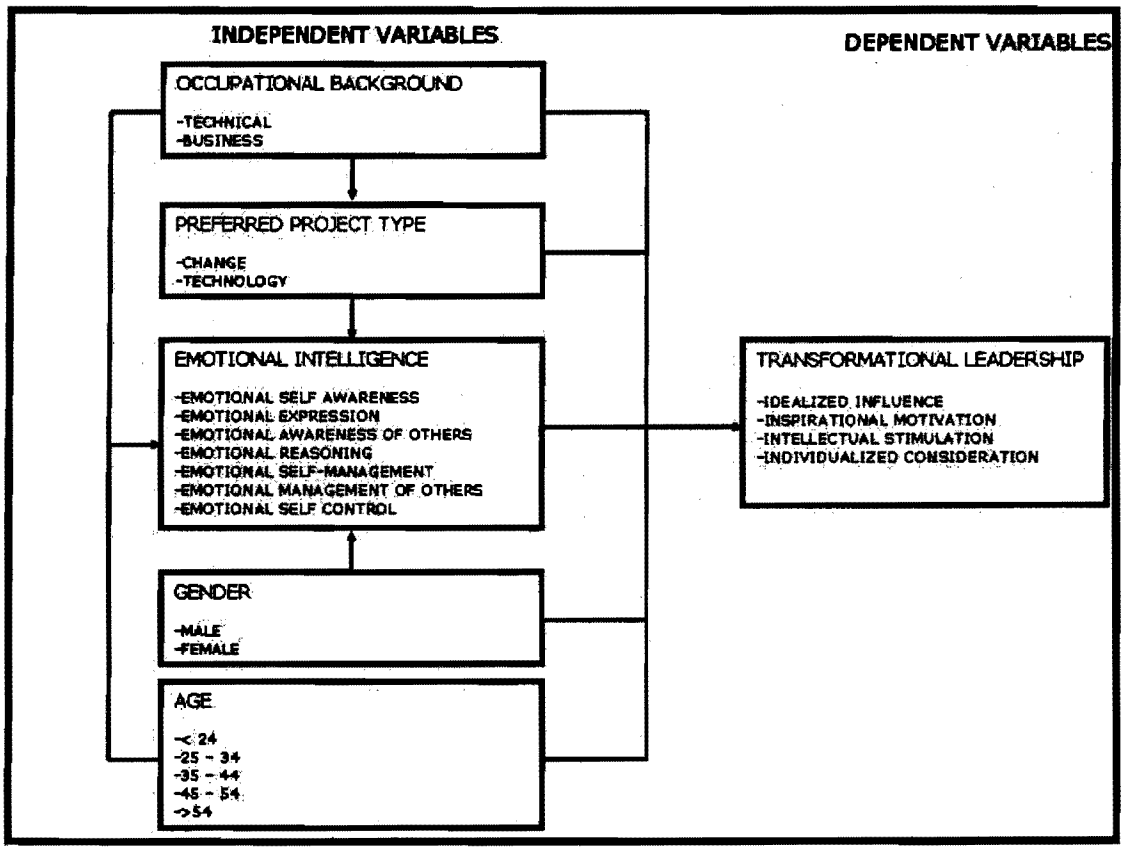

Figure 10: Proposed Research model

7.4. Proposed Hypotheses

The researcher proposed the following hypotheses based on the research questions:

1. H_{01}: There is no relationship between the emotional intelligence and transformational leadership style of IS project managers
   H_{A1}: High levels of EI link to high levels of transformational leadership in IS project managers

2. H_{02}: There is no relationship between the preferred project type and transformational leadership of IS project managers
   H_{A2}: A preference for change projects links to high levels of transformational leadership in IS project managers

3. H_{03}: There is no relationship between the occupational background and transformational leadership of IS project managers
   H_{A3}: A technical background positively correlates to low levels of transformational leadership in IS project managers
   H_{B3}: A business background positively correlates to high levels of transformational leadership in IS project managers

4. H_{04}: There is no relationship between gender and transformational leadership of IS project managers
   H_{A4}: Female IS project managers display higher levels of transformational leadership
   H_{A4}: Male IS project managers display lower levels of transformational leadership

5. H_{05}: There is no relationship between age and transformational leadership of IS project managers
   H_{A5}: IS project managers below 34 years of age display lower levels of transformational leadership than those in the older age groups

6. H_{06}: There is no relationship between the preferred project type and emotional intelligence of IS project managers

H_{A5}: Low levels of EI in IS project managers positively correlate to a preference for technical projects

7. H_{07}: There is no relationship between occupational background and the emotional intelligence of IS project managers
   H_{A7}: Low levels of EI in IS project managers positively correlate to a technical background

8. H_{08}: There is no relationship between gender and emotional intelligence of IS project managers
   H_{A8}: Female IS project managers display higher levels of emotional intelligence
   H_{B8}: Male IS project managers display lower levels of emotional intelligence

9. H_{09}: There is no relationship between age and emotional intelligence of IS project managers
   H_{A9}: IS project managers above 34 years of age display higher levels of emotional intelligence than those in the lower age groups.

10. H_{010}: There is no relationship between occupational background of IS project managers and the project type they prefer to manage
    H_{A10}: There is a positive relationship between the occupational background of IS project managers and the project type they prefer to manage

7.5. Research Approach and Paradigm

The philosophical perspective to this research is positivistic as it seeks to gather quantifiable data from the sample group. The researcher will use a quantitative research approach, by way of an online survey, with the view to gather data from a wide sample group. This is an empirical study that will use deductive methods on the gathered data to test the proposed research model (Figure 10).

The next section provides details of the research method and a discussion on self-reporting research instruments.

7.6. Research Method

Field study research is the research method employed for this study. The research instruments to gather data for both leadership and emotional intelligence will be self-report questionnaires.

7.6.1. FACTORS FOR AND AGAINST SELF-REPORT QUESTIONNAIRES

Self-report survey instruments are sometimes criticized for being prone to the candidates' inclination to rate themselves favourably and as such, an individual can be an unreliable source of information about themselves or their capabilities (Groves, McEnrue, & Shen, 2008). The self-reported abilities can turn out to be decidedly different to the actual ability of the candidate (Petrides & Furnham, 2000). The self-reported ratings for leadership behaviour often show more proficiency than the ratings from others with male self-ratings showing a larger difference when compared to ratings by followers (Burke & Collins, 2001).

Although data gathered from self-report questionnaires may not be perfect, there is a considerable increase in their use within the body of research as more studies find significant correlations between self-ratings and observer ratings (Eid, Johnsen, Bartone & Nissestad, 2008).

The next section discusses the preparations for the study and details the procedures the researcher followed in order to achieve the research objectives.

7.7. Research Strategy

7.7.1. RESEARCH PHASES

There are two main phases to this study. The first phase entailed the consolidation of both the leadership and emotional intelligence questionnaires into one online questionnaire that was hosted on the University of Cape Town website. Participants could access the online questionnaire via a link placed within an introductory email (Appendix A) or on the South African Project Management website (www.pmisa.co.za).

The second phase involved the analysis of the data collected from the online survey in order to answer the research questions.

7.7.2. RESEARCH POPULATION

The targeted research population (Figure 11) includes all professional project managers tasked with information system projects in South Africa. The research relied mainly on snowball sampling to gather data. The introductory email (Appendix A) was sent to colleagues in the IS project management field as well as to email address lists from past Project Management students at a training institution with branches in Cape Town and Johannesburg. The introductory email requested recipients to forward the email to other IS project managers in South Africa.

Figure 11: Targeted Sample Population

7.7.3. ETHICS

The researcher used the data gathered from this study strictly for the purposes of this research only. The introductory email (Appendix A) informed respondents that no personal information would be collected apart from gender and age in order to determine the demographics of the sample group. Appendix B details the demographic information that was collected. The final results will be sent to the email address supplied by the respondents who indicated that they would like to receive them.

An ethics form was submitted to the Ethics Committee of the Department of Information Systems at the University of Cape Town giving details of the research instruments that were to be used and provided

proof that these instruments would be used with the express permission of their respective authors. The ethics form also provides details of the data collection and analysis methods.

According to Boudreau, Gefen and Straub (2001), researchers within the Information Systems field are not as rigorous in their studies as they should be. The next section discusses the research instruments used for this study and gives details of their reliability.

7.8. Research Instruments

Muzio et al. (2007) found a scarcity in research regarding the quantitative measurement of soft skills in relation to project management and attributed this to the fact that soft skills were more difficult to measure than technical abilities.

Validation of research instruments is crucial in positivist, quantitative research as the data gathered using these instruments provides the base for the analyses and findings. The ability of the research instruments to provide reliable and accurate results will have an impact on the quality of the research findings (Boudreau, Gefen & Straub, 2001). Some researchers have found the choice of a research instrument that is lacking in reliability or validity to be a major limitation to their studies (Prins, 2006; Smith & Bailey, 2006).
The three basic methods conventionally used to test the reliability of a research instrument are: internal consistency; alternative forms and; test-retest; while construct validity, content validity and concurrent validity test the validity of the instrument (Hayword, 2005).

A discussion of the Genos Emotional Intelligence Inventory and the Multi-factor Leadership Questionnaire follows.

7.8.1. THE GENOS EMOTIONAL INTELLIGENCE INVENTORY

The Genos Emotional Intelligence Inventory has been selected as the research instrument to gather EI data. According to Palmer et al. (2009), Genos EI was originally conceived and published as the Swinburne University Emotional Intelligence Test (SUEIT) by Ben Palmer and Con Stough in 2001. Since then, the SUEIT has undergone revision and is now widely used in both research and industry as the Genos EI and is intended to measure EI behaviour in the workplace. These measures of EI are to assist with selection, and learning and development of employees in the workplace (Palmer et al., 2009).

There are three versions of the Genos EI: a 14-item short version, a 31-item concise version and a 71-item full version.

The 31-item concise version was chosen for this study because it includes a total EI score and is recommended for research purposes by the authors. The questions used in the 31-item Genos EI concise questionnaire (APPENDIX C) are scored on a 5-point Likert scale: 1= Almost Never; 2=Seldom; 3=Sometimes; 4=Usually; 5=Almost Always

The Genos Emotional Intelligence Inventory provides a total score for EI as well as a score for each of the following seven subscales:

- Emotional self awareness
- Emotional expression
- Emotional awareness of others
- Emotional reasoning
- Emotional self-management
- Emotional management of others
- Emotional self-control

According to Palmer et al. (2009), the complete 70-item Genos EI inventory was intended for use in the work-place. The authors recommend the 31-item Concise version of the Genos EI inventory for research. Though the subscale reliabilities for the Concise version are lower than those of the complete version they are above .70 and the authors attributed this to the fact that the subscales are based on four or five items.

According to the authors of the Genos EI, the internal consistency reliability of the self-report instrument has been tested as the instrument was utilized for studies in America, Australia, India, South Africa and Asia. Studies of large samples in the workplace showed an average Genos EI total score internal consistency reliability of approximately .96. The authors report test-retest correlations of .83 after a two month interval and .72 after a six month interval. These findings suggest adequate test-retest stability and internal consistency reliability of the scores from the Genos EI self-report inventory (Palmer et al., 2009).

Correlations of the Genos EI scores with those from the Trait Meta-Mood Scale (TMMS), organizational commitment, SUEIT and transformational leadership ascertain the concurrent validity of the instrument (Palmer et al., 2009).

7.8.2. THE MULTI-FACTOR LEADERSHIP QUESTIONNAIRE

The Multifactor Leadership Questionnaire (MLQ) created by Bass and Avolio in 1990 measures transformational, transactional and laissez-faire leadership. The MLQ is referred to as one of the most often used and researched leadership assessment tool (Küpers & Weibler, 2006; Vinger & Cilliers, 2006)

The MLQ comes in two versions: the 5X-Long, and the 5X-Short. The questions used in the 45-item MLQ 5X-Short questionnaire (Appendix D) used for this study are scored on a 5-point Likert scale: 0= Not at all; 1=Once in a while; 2=Sometimes; 3=Fairly often; 4=Frequently, if not always. Among others, the MLQ can provide scores for Transformational Leadership, and its subscales, as a subscale of the leadership style construct. Transformational Leadership consists of the following subscales:

- Idealized Influence
- Inspirational Motivation
- Intellectual Stimulation
- Individualized Consideration

The other scores provided by the MLQ, i.e. Transactional Leadership, Laissez faire leadership, Extra effort, Effectiveness and Satisfaction are not used for the purposes of this research. The MLQ is criticized by Mandell and Pherwani (2003) for not classifying respondents as either transactional or transformational but rather provides a score for each leadership style. It is therefore possible for a respondent to achieve high scores for both transactional and transformational leadership style.

Several researchers have found the MLQ to be a reliable and valid instrument for the assessment of transformational leadership (Brown et al., 2006; Huysamen, 2002; Mandell & Pherwani, 2003; Vinger & Cilliers, 2006) and suitable for the South African environment (Huysamen, 2002).

The discriminant validity of the MLQ has however come under criticism in previous versions of the instrument and led the authors to revise the instrument (5X) in order to attend to these problems (Avolio & Bass, 2004; Thite, 1999, 2000).

The authors report consistency in results of the MLQ (5X) when applied to different regions, cultures and raters. The authors found the reliabilities of all the leadership factor scales to surpass the norms for internal consistency proposed in the literature.

7.9. Data Collection, Assumptions and Analysis

A pilot study was conducted with five IS project managers to test the usability and the average time taken to complete the online questionnaire. The questionnaire was amended where possible before it was made available to the sample population.

The online questionnaire was accessible from the 9th of February 2009 until the 15th of May 2009 (a period of 70 working days). A total of 74 participants accessed the online survey using the link provided either by email or on the PMISA website. Only 51 participants completed the survey and 2 of these results were discarded. The responses from 49 information system project managers (n = 49) was analyzed determine the relationship of the leadership style and emotional intelligence of IS project managers.

The key assumption of this research was that only information systems project managers would answer the questionnaire and none that were involved in other disciplines such as construction or engineering. Another assumption was that IS Project Managers have ready access to the internet and email.

As requested by the authors, the data collected pertaining to emotional intelligence was input into an Excel spreadsheet and sent to Genos for analysis. The researcher used the scoring manual provided by Avolio and Bass (2004) to score the data pertaining to leadership.

Statistica® was the statistical tool used for the analysis of the research data in this study. The emotional intelligence and leadership scores were input into Statistica® in order to conduct descriptive statistics, correlation and factor analysis.

7.10. Summary of the Research Objectives and Methodology

This chapter has outlined the research objective and the methodology used for the study of leadership style and emotional intelligence of South African IS project managers. The results of this study will add value to the body of knowledge about IS project managers by providing an insight into the soft skills that are reported to play a big role in project success.

A positivist philosophical paradigm with a quantitative approach was employed. The research instrument used is a combination of two validated instruments: the Genos EI to gather the emotional intelligence data, and the MLQ to gather leadership style data.

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Both the MLQ and the Genos EI have been used in the South African environment and have been found suitable for the environment (Palmer et al., 2009; Huysamen, 2002) and the MLQ has been successfully used to measure the leadership style of IS project managers (Thite, 2000).

The data collection was by means of an online survey and the limitations and assumptions of this study have been detailed in this chapter. The next chapter discusses the techniques used and results of the data analysis once sufficient data had been gathered.

CHAPTER 8: ANALYSIS OF THE RESULTS

8.1. Organization of the Analysis of the Results

The demographics of the sample are discussed in Section 8.2. Section 8.3 provides the findings after analysis of the leadership and emotional intelligence data. The results from the data and the proposed hypotheses are discussed in Section 8.4. The answers the data provided to the research questions are provided in Section 8.5. The assumptions and limitations to the research are found in Section 8.6. The chapter is brought to a conclusion with a summary of the results in Section 8.8.

The researcher has provided figures and tables in the Appendices for completeness of information and to enable a more detailed look at the statistical data should it be required.

8.2 Demographics

The sample consists of 27 males and 22 females (Figure 12) with 66.1 % of the sample aged between 25 and 44 years. A total of 14 participants were over the age of 44 and only 2 participants were less than 24 years of age (Figure 13). More than half of the participants (57.1%) have been employed in the IS field for more than 10 years though only 9 participants (18.4 %) have been practicing IS project management for that length of time (Figure 14). More than half of the participants (53.1%) have been practicing project management between two and ten years (Figure 15).

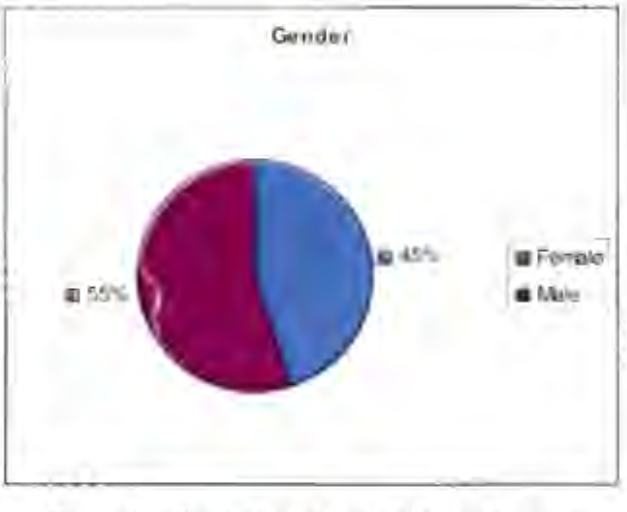

Figure 12: Gender breakdown of sample group

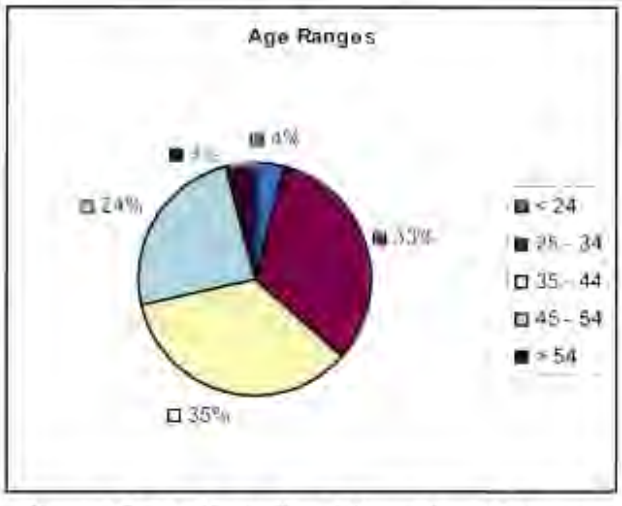

Figure 13: Age Range breakdown of sample group

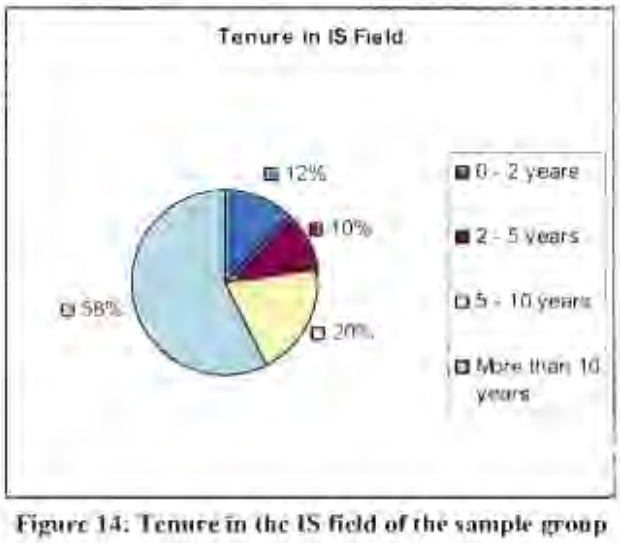

Figure 14: Tenure in the IS field of the sample group

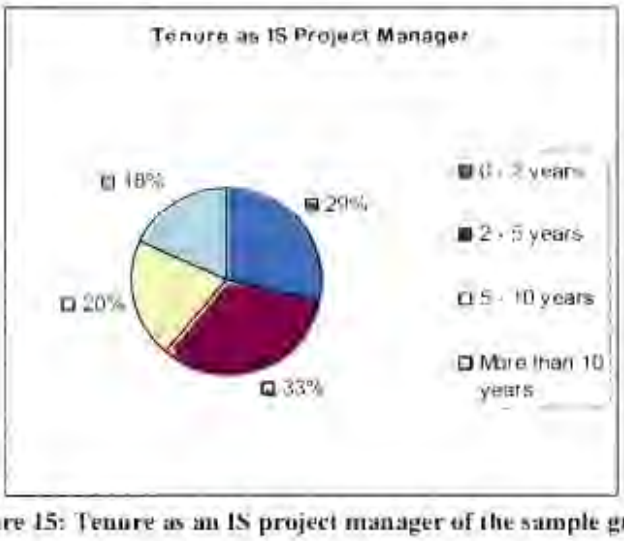

Figure 15: Tenure as an IS project manager of the sample group

The survey participants were asked to select a category that describes their professional background and the type of project that they preferred to manage. More than half of the participants selected change projects (27 participants) as the type of project they preferred to manage as opposed to technical projects. Most of the participants had a technical background (22 participants making 45 % of the sample) and most of this group (15 participants) selected technical projects as the type of project they preferred to manage (Figure 16).

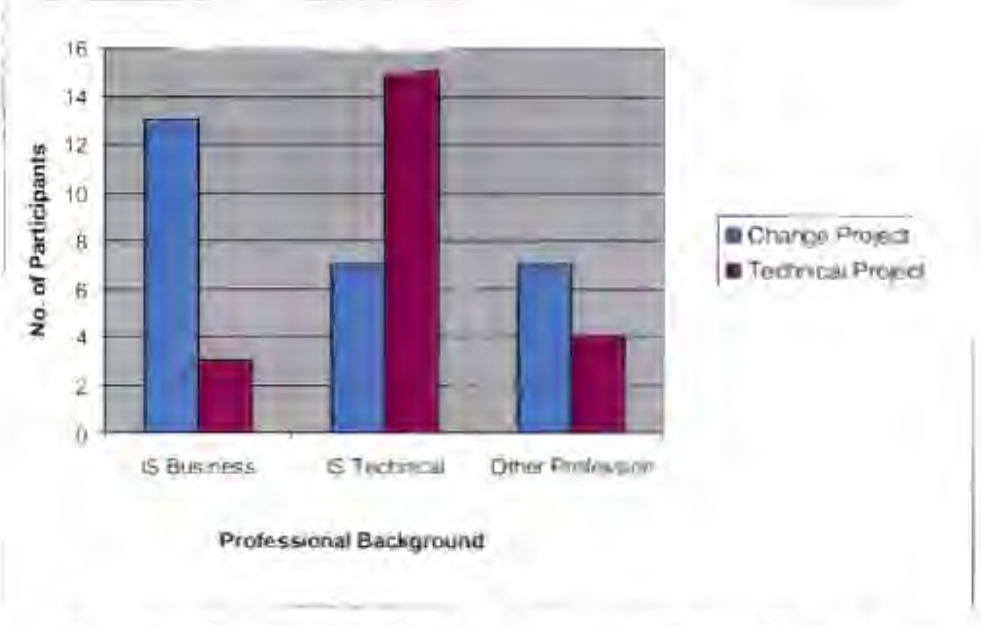

Figure 16: Participant Professional background and Preferred Project type

The next section details the results of the analysis of the transformational leadership and emotional intelligence data and the correlation between these two constructs. Both the Pearson coefficient (r) and the Spearman coefficient (r') were used as to analyze the strength of the relationships between the constructs. The significance of these correlations (p) as well as the fit to the models (F) was analyzed.

8.3. Analysis of the Results

8.3.1. The Transformational leadership Data

The leadership data was scored by adding the results together as per the MLQ manual in order to arrive at a score for each construct measured by the MLQ (as detailed in Section 7.8) for each of the survey participants. The researcher used only the Transformational leadership scores for this study. Figure 17 illustrates the range of total scores for transformational leadership (TL) that the 49 participants achieved

out of a possible 80. More than half of the participants (28) scored a TL score of 60 and above. The lowest TL score by a participant was 35 and the highest was 80.

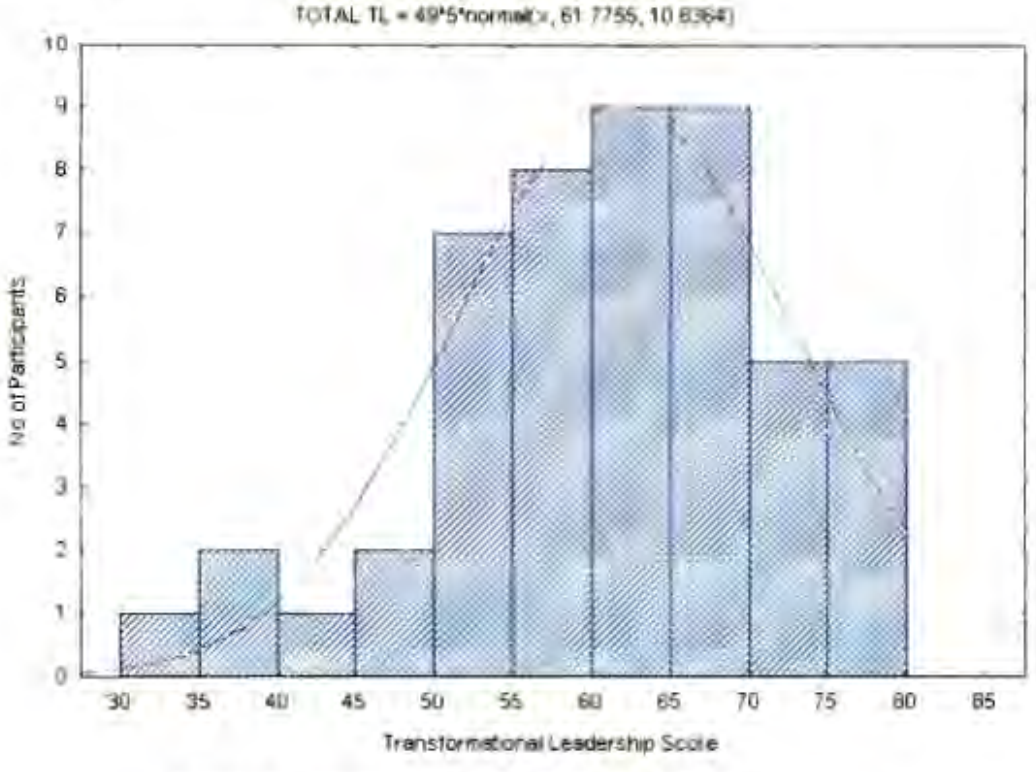

Figure 17: Histogram of Transformational Leadership scores

The MLQ gives a score for TL using five subscales as discussed in Section 7.8. Each of these subscales is measured by four items of the MLQ resulting in a score out of 16 points for each subscale and out of 80 for the construct. Table 11 shows the means, standard deviations and reliabilities of each subscale. Apart from *Individualized Consideration*, all the other constructs displayed a Cronbach alpha greater than 0.7 which suggests valid and reliable measures for the subscales. Analysis of the TL construct found the construct to be reliable with a Cronbach alpha of 0.9 (Table 12). The subscales of the TL construct were also found to be inter-correlated with the strongest correlation (r= 0.89; p= 0) being between *Idealized Influence - Behaviour* and *Inspirational Motivation* (Table 18). The *Inspirational Motivation* subscale had the strongest correlation to total TL (r= 0.93; p= 0) while the *Intellectual Stimulation* subscale (Table 18) showed the weakest correlation to TL (r= 0.80; p= 0).

The ANOVA (F= 0.59, p=0.45) indicates that there is no significant relationship between the project type selected as a preference by the participants and their total TL (Table 21). Participants who selected change projects displayed an average TL of 62.85 (SD 11.50) while those who selected technical projects scored an average TL of 60.45 (SD 10.07). Rank order correlations (Table 22 and Table 23) showed that *Inspirational Motivation* subscale had the strongest positive correlation to total TL for both participants who selected technical projects (r'=0.88, p=0) and those who selected change projects (r'=0.93, p=0).

	Mean	StDv.	Cronbach alpha
Idealized Influence (Attributed)	12.02040	2.61000	0.747306
Idealized Influence (Behaviour)	12.46940	2.69337	0.777869
Inspirational Motivation	12.75510	2.26872	0.780439
Intellectual Stimulation	12.34690	2.47951	0.804610
Individualized Consideration	12.18370	2.51391	0.631683

Table 11: Mean, Standard Deviation and Reliability of the Transformational Leadership subscales

Summary for scale: Mean=61.7755 Std.Dv.=10.8364 Valid N:49 **Cronbach alpha: .912759** Standardized alpha: .914415 Average inter-item corr.: .696225					
	Mean if deleted	**Var. if deleted**	**StDv. if deleted**	**Item Total Correlation**	**Alpha if deleted**
Idealized Influence (Attributed)	49.75510	73.61350	8.579831	0.783822	0.892083
Idealized Influence (Behaviour)	49.30612	71.06955	8.430276	0.819995	0.884414
Inspirational Motivation	49.02041	75.24448	8.674357	0.691901	0.872746
Intellectual Stimulation	49.42857	79.10204	8.893932	0.685104	0.911733
Individualized Consideration	49.59184	77.09871	8.780587	0.726450	0.903688

Table 12: Item analysis of the Transformational Leadership style construct

The number of years in the IS field is not correlated to the participants' TL (F= 1.82, p=0.16). It is interesting to note that the participants who have been in the IS field for 5 – 10 years showed a lower TL average of 58.80 (SD 10.05) when compared to the TL average of 64.80 (SD 12.07) for those who have been in the IS field for 2 – 5 years (Table 24). The six participants who have been in the IS field for 0 – 2 years display the lowest average TL score of 54.17 (SD 18.29). Rank order correlations show that subscale with the most significant correlation to TL is *Inspirational Motivation* (r'= 0.88, p=0) for the participants with an IS tenure of more than 10 years (Table 28); *Individualized Consideration* (r'=0.94, p=0) for the participants with an IS tenure 5 – 10 years (Table 27); *Idealized Influence – Attributed* (r'=0.97, p=0) for the participants with an IS tenure 2 – 5 years (Table 26); while *Idealized Influence –*

Behaviour has a significant correlation to the TL score for participants in the IS field for 2 years or less (Table 25).

Table 29 shows that participants with tenure of 5 – 10 years as an IS project manager show a lower average TL of 61.30 (SD 9.00) than those with tenure of 2 – 5 years with an average TL of 62.88 (SD 10.18). The number of years as an IS project manager showed a significant correlation (Table 30) to the *Idealized Influence - Behaviour* subscale (F = 3.06, p= 0.04). The Kruskal-Wallis test confirmed this correlation (Table 31) and found the project managers with 2 – 5 years experience as IS project managers were significantly different to the other tenures. Participants with tenure of 0 – 2 years as IS Project Managers showed *Inspirational Motivation* (r'= 0.96, p=0) as strongest correlation to TL (Table 32). *Idealized Influence - Behaviour* has the strongest link for participants with 2 – 5 years (r'=0.88, p=0) and those with more than 10 years (r'=0.96) tenure as an IS project manager (Table 33 and Table 35). The strongest subscale correlation to TL for participants with tenure of 5 – 10 years as an IS project manager (Table 34) is *Idealized Influence – Attributed* (r'=0.97, p=0).

Male IS project managers scored a lower average TL score of 60.41 (SD = 8.81) as compared to their female counterparts (Table 36) who scored an average TL score of 63.45 (SD = 12.91). Analysis of variance found that there was no significant link (p= 0.33) between the gender of the IS project manager and their TL (Table 37). Spearman rank order correlations show that *Inspirational Motivation* has the strongest correlation to TL for both the male (r'= 0.86, p=0) and female (r'= 0.92, p=0) participants (Table 38 & Table 39).

When the data was analyzed according to the five age ranges (Table 40), age was found to have a significant link to total TL (p= 0.04), the *Inspirational Motivation* subscale (p= 0.04) and the *Individualized Consideration* subscale (p= 0.02). The average scores for TL generally increased with each older age range and the *Inspirational Motivation* and the *Individualized Consideration* subscales. However, because there were only two participants each in the "<24" and ">54" age ranges, further analysis was done after combining these age ranges to the "25 – 34" and "45 – 54" respectively. The ANOVA shows no significant link (Table 41) between age and TL (p= 0.18). The participants in the "< 34" age range showed the lowest average TL of 58.06 (SD 12.81) while the participants in the "35 – 44" age range displayed the highest average TL of 64.41 (SD 8.97). Spearman rank correlations (Table 42, Table 43, and Table 44) show that the *Inspirational Motivation* subscale has the strongest correlation to TL for

all three age ranges (r'= 0.93 for "<34" age range; r'= 0.90 for "35 – 44" age range and; r'= 0.93 for "> 44" age range).

The ANOVA (Table 46) showed that the occupational background of the IS project manager is not significant for their TL (p= 0.27).The 11 participants (22%) who indicated that they had an occupational background outside of the IS field by selecting "Other" as their occupational background showed a higher average TL of 66.27 (SD 86.70) than those who had a either a business (AVG 61.38; SD 12.84) or a technical (AVG 59.82; SD 9.99) background in IS (Table 45). The *Idealized Influence – Attributed* subscale (Table 48) showed the strongest correlation to TL for participants with a technical background (r'=0.89, p=0) while the *Inspirational Motivation* subscale showed the strongest correlation to TL for participants with a Business background (r'=0.93, p=0) and those with a background outside the IS field (r'=0.94, p=0) (Table 47 and Table 49 respectively).

8.3.2. The Emotional Intelligence Data

The data collected using the Genos Emotional Intelligence Inventory was sent to Genos for scoring (Appendix F). The scored data gives a total Emotional Intelligence score (out of 155) and a score for each subscale as detailed in Section 7.8. The minimum scored by the survey participants was 87 and the highest score was 151. As illustrated in Figure 18, 32 of the participants (approximately 65% of the sample group) achieved EI scores above 120.

Appendix F shows the subscale reliabilities provided from this scoring but it should be noted that this data is for 51 participants and includes the two cases that were later discarded. The means and standard deviations for each subscale were calculated (Table 13) for the 49 participants and found the *Emotional Reasoning* subscale had the highest average score of 20.6 while *Emotional Management of Others* had the lowest average score of 15.6. Analysis of the emotional intelligence construct (Table 14) found the reliability of the responses to be good (Cronbach alpha = 0.889928). Reliabilities for the subscales cannot be provided as the constructs of the subscales were not provided to the researcher. The EI subscales *Emotional Expression* and *Emotional Management of Others* showed the strongest correlation (r= 0.73; p= 0) (Table 20). The *Emotional Expression* subscale had the strongest correlation to total EI (r= 0.85; p= 0) while the *Emotional Self-Awareness* subscale (Table 20) showed the weakest correlation to EI (r= 0.71; p= 0).

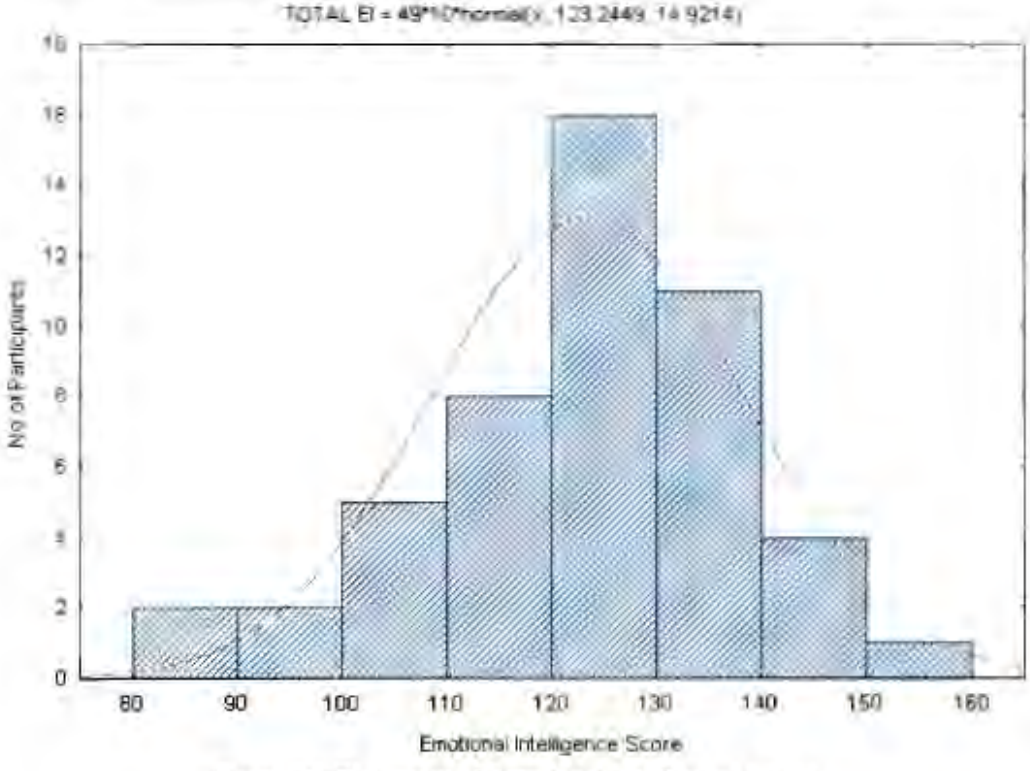

Figure 18: Histogram of Emotional Intelligence scores

	Mean	StDv.
Emotional Self-Awareness	16.2244898	2.434691169
Emotional Expression	18.97959184	3.602602045
Emotional Awareness of Others	16.24489796	2.046649826
Emotional Reasoning	20.59183673	3.161738812
Emotional Self-Management	19.57142857	2.753785274
Emotional Management of Others	15.6122449	2.548008426
Emotional Self-Control	16.02040816	2.376006768

Table 13: Means and Standard Deviations of the Emotional Intelligence subscales

Summary for scale: Mean= 123.245 Std.Dv.=14.9214 Valid N 49
Cronbach alpha: .889928 Standardized alpha: .887824
Average inter-item corr.: .567457

	Mean if deleted	Var. if deleted	StDv. if deleted	Item Total Correlation	Alpha if deleted
Emotional Self-Awareness	107.0204	173.1220	13.16758	0.617776	0.881646
Emotional Expression	104.2653	141.4194	11.89199	0.754316	0.868889
Emotional Awareness of Others	107.0000	176.3469	13.24186	0.720508	0.874028
Emotional Reasoning	102.6531	160.1858	12.65645	0.607547	0.885796
Emotional Self-Management	103.6735	163.6485	12.79052	0.674375	0.879109
Emotional Management of Others	107.6327	158.9263	12.60660	0.630663	0.883386
Emotional Self-Control	107.2245	169.6027	13.02316	0.701541	0.877064

Table 14: Item analysis of the Emotional Intelligence style construct

Though gender is not significant to total EI (p= 0.47), gender showed a significant relationship to (p= 0.03) the *Emotional Awareness of Others* subscale (Table 50). Table 51 shows that females show a greater significance to this correlation (R: 30.591) than males (R: 20.444). The average total EI was slightly lower for males at 121.85 (SD 12.02) than for females at 124.95 (SD 18.01). Spearman rank correlations show that the *Emotional Management of Others* subscale (Table 53) showed the strongest correlation to total EI for the female participants (r'= 0.94) while *Emotional Awareness of Others* (Table 52) showed the strongest correlation to total EI for males (r'= 0.74; p = 0).

Age shows a significant correlation to the *Emotional Self-Awareness* (F=2.57; p= 0.06) and the *Emotional Awareness of Others* (p= 0.04) subscales when tested using the five age ranges provided in the demographics (Table 55). The lowest averages for total EI (Table 54) were for the two participants over the age of 54 years at 121 (SD 22.63) and the two participants below the age of 24 years at 92.5 (SD 0.70). However when these participants were combined with the "25 – 34" age group and the "45 – 54"age group, the three age ranges (Table 56) show no significant correlation between age and total EI (F=0.54; p= 0.58). Spearman rank order correlations found that *Emotional Management of Others* showed the strongest correlation to total EI (r'= 0.94; p = 0) for the participants below 34 years of age (Table 57) while *Emotional Expression* (r'=0.87) and *Emotional Awareness of Others* (r'= 0.84) showed the strongest correlations to total EI for the "35 – 44" (Table 58) and ">44" (Table 59) age ranges respectively.

Table 60 shows that the participants who had the least experience in the IS field, i.e. 0 – 2 years, had the lowest average EI score of 112.3 (SD 25.5) while the participants who had been in the IS field for 5 – 10 years had the highest average EI of 124.2 (SD 12.69). ANOVA (Table 61) shows that the number of years in the IS field was strongly correlated to the *Emotional Self-Awareness* subscale (F=2.85; p= 0.05) but was not correlated to total EI (F=1.69; p=0.18). The Kruskal-Wallis test (Table 62) however showed no significant correlation between tenure in the IS field and total EI (p= 0.33) nor any of the subscales. *Emotional Self Awareness* and *Emotional Expression* equally have the strongest correlation (r'= 0.99) for participants who had been working in the IS field for 2 years or less (Table 63). *Emotional Self Awareness* has the strongest correlation to total EI (r'= 0.95) for participants with 2 – 5 years experience in the IS field (Table 64). *Emotional Management of Others* had the strongest correlation to total EI for both the participants with 5 to 10 years (r'= 0.78, p=0) and those with more than 10 years (r'=0.82, p=0) experience in the IS field (Table 65 and Table 66).

The number of years the participants had been practicing IS project management (Table 67) is not correlated to their total EI (F=0.68; p=0.56). Participants with tenure of between 5 – 10 years as an IS project manager showed the highest average for total EI of 127.90 (SD 11.44) while those with 2 or less years as an IS project manager showed the lowest total EI of 119.43 (SD 17.33). Spearman rank order correlations show that *Emotional Management of Others* (r'= 0.93) had the strongest correlation to total EI for participants with less than 2 years experience as an IS project manager (Table 68). *Emotional Expression* showed the strongest correlation for participants with 2 to 5 years (r'= 0.95) experience and those with 5 to 10 years experience (r'= 0.91) as an IS PM. Participants with more than 10 years experience as IS project managers to show *Emotional Self Awareness* (r'= 0.91) as the strongest correlation to total Ei (Table 69).

The 22 participants with a technical background (Table 70) scored the lowest average total EI score of 119.68 (SD 14.30) while the 16 participants with a business background scored the highest average total EI score of 126.38 (SD 17.65). Occupational background showed a strong correlation (Table 71) to *Emotional Self-Management* (F = 4.60; p= 0.01). Participants with a Business occupational background were the most significant (R: 33.719) to this correlation (Table 72) followed by those who had other occupational backgrounds outside of IS (R: 22.727) while the participants with a technical occupational background have the least significance (R: 19.795) to the correlation. Spearman rank order correlations show that the subscales that have the strongest correlation to total EI are the *Emotional Awareness of Others* subscale (r'= 0.86) for participants with a business background (Table 73); *Emotional Expression* (r'=0.87) for participants with a technical background (Table 74); and *Emotional Management of Others* for participants with an occupational background outside of the IS field (Table 75).

Table 76 shows that on average, participants who selected change projects as the type of project they preferred to manage showed a slightly higher average total EI construct of 124.96 (SD 15.14) than those who selected Technical projects with an average of 121.14 (SD 14.71).The ANOVA (Table 77) shows that the project type selected as a preferred project to manage showed no correlation to the total EI (F= 0.79; p= 0.37). The *Emotional Management of Others* showed the strongest correlation to total EI (r'= 0.88) for participants who selected technical projects (Table 79) as the project they preferred to manage while *Emotional Awareness of Others* showed the strongest correlation (r'= 0.9) to total EI for the participants who selected change projects (Table 78).

8.3.3 *Correlation between Transformational Leadership and Emotional Intelligence*

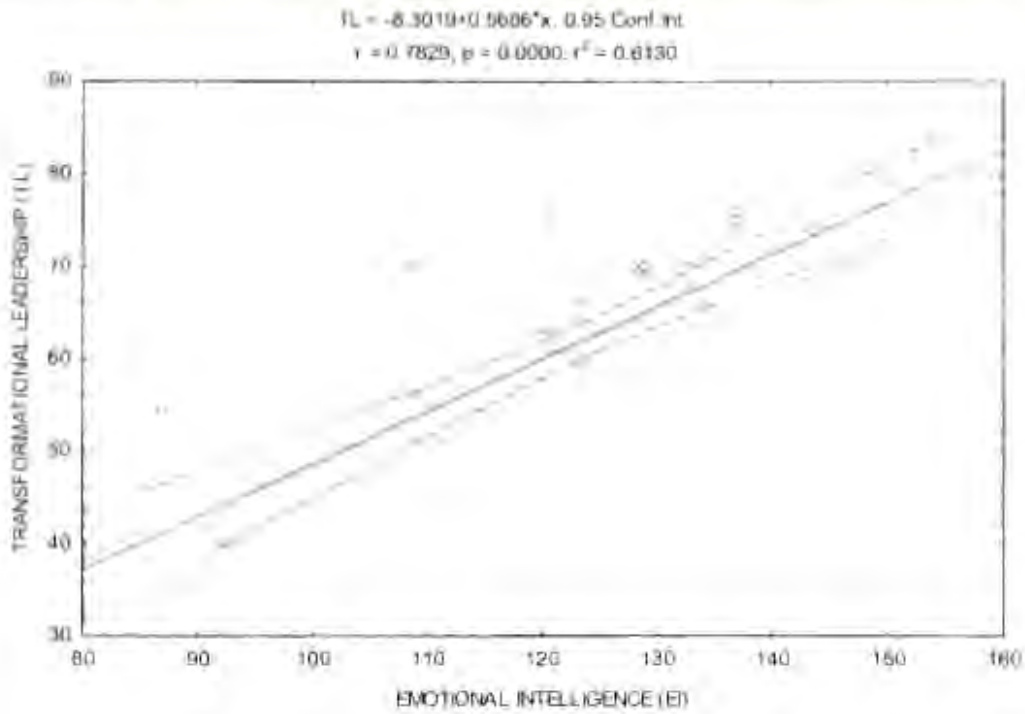

Figure 19: Scatter plot of Transformational Leadership and Emotional Intelligence data

Figure 19 illustrates the positive relationship between EI and TL that became evident upon analysis of the data. The EI score increases from about 90 for participants with a low TL of 34, to about 152 for participants with a high TL score of 80. There is evidence of an increase in TL with an increase in EI. The pattern of the graph suggests a positive correlation between the two constructs for the sample. Pearson's coefficient confirms (Table 82) that there is a strong positive correlation between the total EI and total TL of IS project managers (r= 0.78). Table 82 shows that *Intellectual Stimulation* is the TL subscale that had the strongest correlation to EI (r= 0.74), closely followed by *Inspirational Motivation* (r= 0.73). *Emotional Reasoning* is the EI subscale with the strongest correlation to TL (r= 0.81) followed by *Emotional Awareness of Others* (r= 0.74). The EI subscales showed positive correlations to the TL subscales but only the correlation between the *Emotional Self Management* subscale and the *Individualized Consideration* subscale (r^2= 0.23; p= 0.11) was found to be insignificant.

The positive correlation between EI and TL (Table 84) is stronger and more significant for female IS project managers (r^2 = 0.80; p= 0.000007) than it is for their male counterparts (r^2= 0.67; p= 0.000122).

The youngest participants (Table 85), i.e. 34 years and below (r'= 0.87; p= 0.000002) as well as the participants who were between 35 and 44 years of age (r'= 0.77; p=0.000257) showed a strong positive correlation between EI and TL. Table 86 shows that the participants older than 44 years of age show a weak and insignificant correlation between EI and TL (r'= 0.49; p= 0.072638).

The participants those with the shortest tenure in the IS field show a significant correlation between EI and TL (Table 87) and display a stronger positive correlation (r'= 0.99, p= 0.000309) than participants with more than 10 years in the IS field (Table 88) (r= 0.70; p= 0.000038). Both the participants with 2 to 5 years tenure (r= 0.70; p= 0.188120) and those with 5 to 10 years tenure (r'= 0.59, p= 0.069884) showed positive but insignificant correlations between EI and TL.

Participants with 5 to 10 years tenure as an IS project manager (Table 89) showed the strongest significant positive correlation between EI and TL (r'= 0.91; p = 0.000246). The participants with more than 10 years experience as IS project managers (Table 90) however displayed a positive but insignificant correlation between the two constructs (r'= 0.61; p= 0.077316).

Participants with a technical background (Table 91) have the weakest correlation between EI and TL (r' =0.68; p= 0.000478) while the correlation was stronger for participants with a business background (r'= 0.80; p = 0.000222). Table 92 shows that the correlation between the two constructs was the strongest and most significant for the participants with an occupational background outside the IS field (r'= 093; p=0.000037).

IS project managers who selected technical projects as the projects they prefer to manage (Table 94) show a stronger positive correlation between their EI and TL (r'= 0.77; p= 0.000027) than those who selected change projects (Table 93) as the preferred project to manage (r'=0.72; p= 0.000021).

Having completed a discussion of the outcome of the data analysis, the next section determines whether the gathered data proves the proposed hypotheses or not.

8.4. Discussion of the Hypotheses

8.4.1. Hypothesis 1

H_{01}: There is no relationship between the emotional intelligence and transformational leadership style of IS project managers

H_{A1}: High levels of EI link to high levels of transformational leadership in IS project managers

Table 82 shows that there is a significant positive correlation between EI and TL (r= 0.78; p= 0). Spearman rank order correlations (Table 83) confirm the significance of this positive correlation (r'= 0.762090; p=0). **The researcher rejects the null hypothesis (H_{01}) and concludes that there is a positive linear relationship between the EI and TL of IS project managers at the 5% level of significance.** Figure 19 illustrates the relationship between the EI and TL of IS project managers.

8.4.2. Hypothesis 2

H_{02}: There is no relationship between preferred project type and transformational leadership style of IS project managers

H_{A2}: A preference for change projects links to high levels of transformational leadership in IS project managers

Table 21 shows that the correlation (F= 0.588200; p= 0.446952) between TL and the preferred project type is not significant at the 5% level of significance. Figure 23 illustrates that the IS project managers' TL can not be predicted with confidence based on the project type they prefer to manage. **The researcher accepts the null hypothesis (H_{02}) and concludes that there is no indication of a relationship between the preferred project type and TL of IS project managers.**

8.4.3. Hypothesis 3

H_{03}: There is no relationship between the occupational background and transformational leadership style of IS project managers

H_{A3}: A technical background positively correlates to low levels of transformational leadership in IS project managers

H_{B3}: A business background positively correlates to high levels of transformational leadership in IS project managers

The correlation between the occupational background of IS project managers (Table 46) and their TL is not significant (F= 1.335505; p=0.273031). Figure 26 illustrates the relationship between the occupational background of the IS project manager and their TL. **The researcher accepts the null hypothesis (H_{03}) that there is no relationship between the occupational background and TL of IS project managers.**

8.4.4. Hypothesis 4

H_{04}: There is no relationship between gender and the transformational leadership style of IS project managers

H_{A4}: Female IS project managers display higher levels of transformational leadership

H_{B4}: Male IS project managers display lower levels of transformational leadership

Table 37 shows that the relationship between the gender of IS project managers and their TL is not significant (F= 0.957681, p= 0.332782) at the 5% level of significance. Figure 24 illustrates that the relationship between the IS project manager's TL and gender. **The researcher accepts the null hypothesis (H_{04}) that there is no relationship between gender and TL for this sample group.**

8.4.5. Hypothesis 5

H_{05}: There is no relationship between age and the transformational leadership style of IS project managers

H_{A5}: IS project managers below 34 years of age display lower levels of transformational leadership than those in the older age groups

A significant correlation (F= 2.785165; p= 0.037981) is found between age and the total TL score when correlations are tested against the 5 age groups (Table 40). Significant correlations were also found between age and the *Inspirational Motivation* (F= 2.830399; p= 0.035713) and *Individualized Consideration* (F= 3.188268; p= 0.021991) subscales. However, because of the small number of participants in the less than 24, and greater than 54 years (2 participants each), three age groupings

were also tested for correlations to transformational leadership. The correlation between age and TL (F=1.767550; p= 0.182150) is not significant at the 5 % level of significance (Table 41). Figure 25 illustrates that the relationship between the TL of the IS project managers in the 3 age ranges. **The researcher accepts the null hypothesis (H_{05}) that there is no relationship between the age and TL for this sample group.**

8.4.6. Hypothesis 6

H_{06}: There is no relationship between the preferred project type and emotional intelligence of IS project managers

H_{A6}: Low levels of EI in IS project managers positively correlate to a preference for technical projects

Table 21 shows that there is no significant relationship between the project type preferred by the IS project manager and their EI (F= 0.793834; p= 0.377482). Figure 30 illustrates the relationship between EI and the project type the IS project manager prefers to manage. **The researcher accepts the null hypothesis (H_{06}) that there is no relationship between the preferred project type and the EI.**

8.4.7. Hypothesis 7

H_{07}: There is no relationship between occupational background and the emotional intelligence of IS project managers

H_{A7}: Low levels of EI in IS project managers positively correlate to a technical background

A significant correlation was found between occupation background and the EI subscale *Emotional Self Management* (F= 4.607585; p= 0.015000) at the 5% level of significance (Table 71). IS project managers with a business background were the most significant to this correlation (R: 33.719). There is however no significant relationship (F=1.149987; p= 0.325575) between total EI and the occupational background of the IS project manager at the 5% level of significance. Figure 29 illustrates the relationship between EI and the occupational background of the IS project managers. **The researcher accepts the null hypothesis (H_{07}) that there is no relationship between occupational background and EI.**

8.4.8. Hypothesis 8

H_{08}: There is no relationship between gender and emotional intelligence of IS project managers

H_{A8}: Female IS project managers display higher levels of emotional intelligence

H_{B8}: Male IS project managers display lower levels of emotional intelligence

Table 50 shows that there is a significant relationship (F= 5.222383; p= 0.026854) between gender and the EI subscale *Emotional Awareness of Others* at the 5% level of significance. As shown in Table 51, this correlation is more significant for the IS project managers of female gender (R: 30.591) than the male IS project managers (R: 20.444). **The correlation between total EI and gender (F= 0.5118891; p= 0.474883) is however not significant at the 5% level of significance and the researcher accepts the null hypothesis (H_{08}) that there is no relationship between gender and EI.** Figure 27 illustrates that the EI of the IS project manager cannot be predicted with confidence based on gender.

8.4.9. Hypothesis 9

H_{09}: There is no relationship between age and emotional intelligence (EI) of IS project managers

H_{A9}: IS project managers above 34 years of age display higher levels of emotional intelligence than those in the lower age groups.

When tested against the 5 age groups (Table 55), significant relationships are found between age and the EI subscales *Emotional Self Awareness* (F= 3.431279; p = 0.015867) and *Emotional Awareness of Others* (F= 2.681699; p= 0.043735). The correlation between age and EI (F= 2.572229; p= 0.050788) is very close to the 5% level of significance. However, because of the small number of participants in the less than 24, and greater than 54 years (2 participants each), three age groupings were also tested for correlations to EI. The resulting correlation between age and EI (F= 0.549507; p= 0.580976) is not significant at the 5 % level of significance (Table 56). Figure 28 illustrates the relationship between age and the EI of the IS project manager. **The researcher accepts the null hypothesis (H_{09}) that there is no relationship between the age and TL for the IS project managers in this sample group.**

8.4.10. Hypothesis 10

H_{010}: There is no relationship between occupational background of IS project managers and the project type they prefer to manage

H_{A10}: There is a positive relationship between the occupational background of IS project managers and the project type they prefer to manage

Table 80 shows that, of the 22 IS project managers with an IS technical background, 15 preferred to manage technical projects. Out of the 16 IS project managers with an IS business background, 13 preferred to manage change projects. Pearson correlation (Table 81) found that the correlation between the IS project manager's occupational background and their preferred project type is significant (p= 0.00837) at the 5% level of significance. **The researcher rejects the null hypothesis (HO_{10}) and concludes that there is sufficient evidence of a relationship between occupational background and the project type the IS project manager prefers to manage.** Figure 31 illustrates the relationship between occupational background and the project type they prefer to manage.

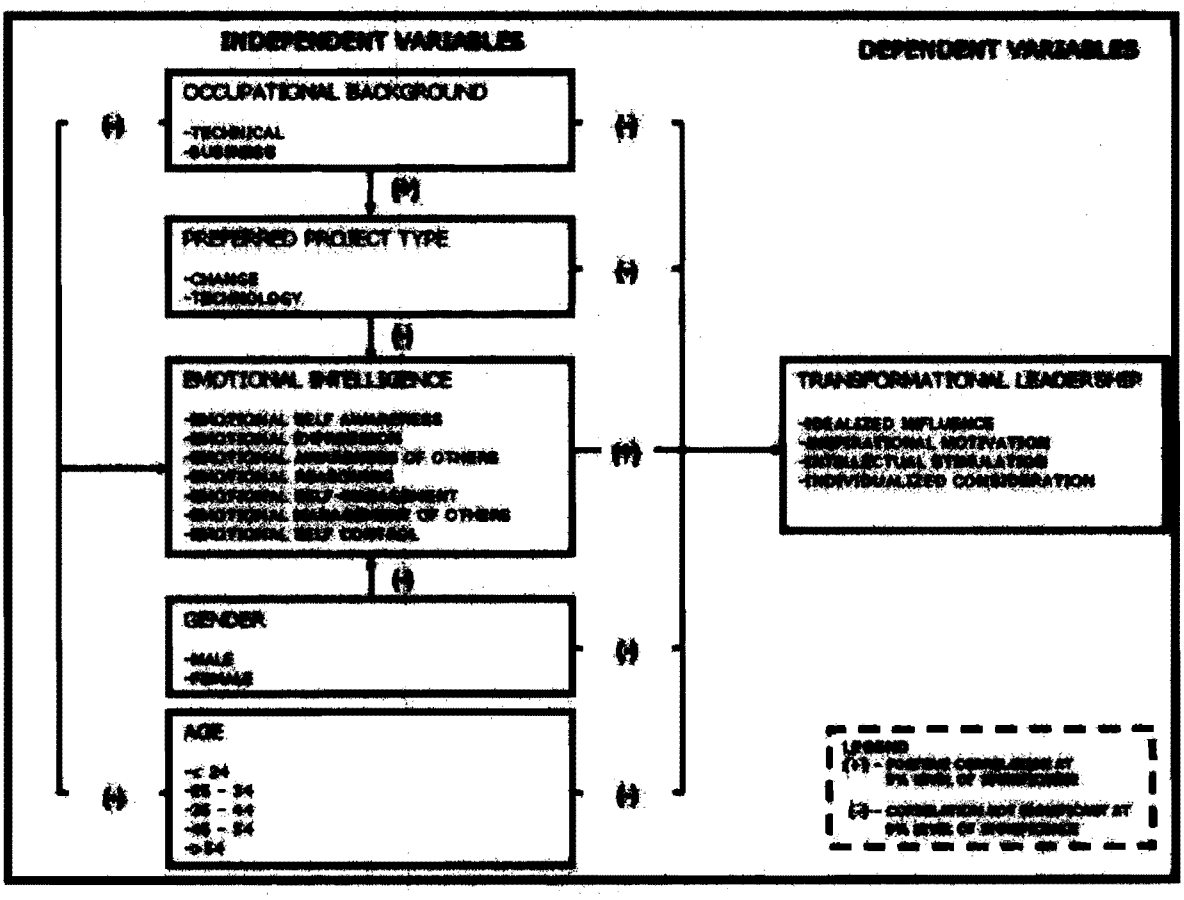

Figure 20: Significance of relationships between the constructs

The analysis of the sample data revealed the strength of the relationships between the constructs and also highlighted the significance of these relationships. As illustrated in Figure 20, only two relationships were significant (shown in green) while the rest were not significant. The results of the data analysis also provide the researcher the means to answer the research questions which are discussed in the next section.

8.5. Discussion of the Research Questions

- **What leadership behaviours do South African IS Project Managers display?**

The South African IS project managers in the sample show slightly higher average self-rater scores (Table 19) than those of the normative sample (Table 16) for all the transformational leadership subscales except for the *Individualized Consideration* subscale. The sample group displayed an average rating of 3.05 (SD 0.63) as compared to the average for the normative group of 3.15 (SD 0.52) for the *Individualized Consideration* subscale. Though this could not be explained by the data, it is possible that, as IS project managers, the sample group do not have their own teams to manage and perhaps do not have the opportunities to exercise and nurture *Individualized Consideration* as a skill.

The researcher found that there was no general consensus in the literature as to the relationship between leadership style and gender. However, according to Burke and Collins (2001), females display higher self-rated scores for leadership. This was indeed the finding in this study whereby the average transformational leadership self-rating of the female IS project managers of 63.45 (SD12.91) was higher than the average self-rating of the male IS project managers 60.41 (SD 8.82).

- **How emotionally intelligent are South African IS Project Managers?**

The South African IS project managers scored slightly lower averages (Table 20) for the two EI subscales *Emotional Self Awareness* 16.22 (SD 2.43) and *Emotional Management of Others* 15.61 (SD 2.55) than the normative sample (Table 15) averages or 16.60 (SD 4.79) and 15.80 (SD 5.23) respectively. The other four subscales showed slightly higher average scores than the normative sample averages. The total average EI score of 123.24 (SD 14.92) for the IS project managers in the sample was higher than the normative sample of 121.86 (SD 13.84).

Contradictory to expectations, the older IS project managers in the sample did not show distinctly higher EI scores than the younger IS project managers. As illustrated in Figure 28, the various age ranges showed similar EI scores. It is interesting to note that, similarly to the findings of Smith and Bailey (2006), the IS project managers with the most project management experience did not show the highest EI scores.

This study also found, in agreement with previous research (Groves, 2005; Mandell & Pherwani, 2003; Smith & Bailey, 2006), that female IS project managers showed a higher average EI self-rating of 124.95 (SD 18.01) as compared to the average score of 121.85 (SD 12.02) for their male counterparts (Figure 27).

- **Is there a relationship between the project type that the project manager prefers and their leadership style or emotional intelligence?**

The data showed that IS project managers with a technical background generally preferred to manage technical projects. The IS project managers with a technical background also showed lower and EI and TL scores. Contrary to expectations, there was no significant relationship between the type of project that the IS project manager prefers to manage and their transformational leadership ($F= 0.79$; $p= 0.38$) or emotional intelligence ($F= 0.59$; $p= 0.45$). As illustrated in Figure 23 and Figure 30 there are only slight differences between the TL and EI of the IS project managers when grouped by preferred project type.

- **Is there a relationship between IS Project Manager occupational background and their EI or leadership behaviour?**

The literature refers to the lack of leadership skills in leaders with a technical background (Srića, 2008; Sumner et al., 2005, 2006; Thite, 2000; Wang, Chou & Jiang, 2005; Willcoxson & Chatham, 2006). This study found that the IS project managers with an IS Business occupational background did indeed display slightly higher TL scores than the IS project managers with an IS Technical or other professional background (Table 45). It is interesting to note that the IS project managers with an occupational background outside the IS field showed the highest average TL scores.

As illustrated in Figure 29, IS project managers with an IS Business background showed generally higher average scores for EI 126.38 (SD17.65) than the IS project managers with an IS Technical or other

professional background. However, this study also found the relationship between the occupational background of the IS project manager and their EI (F= 1.15; p= 0.33) or TL (F= 1.34; p= 0.27) was not statistically significant.

- **Is there a relationship between IS Project Manager occupational background and their preferred projects?**

As expected, a strong positive (r' = 0.34) and significant (p= 0.02) correlation was found between occupational background and the type of project the IS project manager prefers to manage. The illustration in Figure 31 shows that the number of IS project managers with an IS technical background who prefer to manage technical projects is high. This could be due to the fact that the IS project manager will probably prefer to manage projects that are related to their previous experience and a field with which they are familiar.

- **Is there a relationship between the emotional intelligence and the leadership behaviour of South African IS Project Manager?**

As expected, a strong (r= 0. 78) and significant (p= 0) correlation was found between the EI and TL of South African IS project managers. As illustrated in Figure 19, high scores for EI were correlated to high scores of TL. The correlation between EI and TL is stronger for the female IS Project Managers (r= 0.87; p= 0) than their male counterparts (r= 0.62; p= 0.0006) as illustrated in Figure 32.
Surprisingly, the correlation between EI and TL was strongest and most significant for the IS project managers who are in the youngest age range, i.e. "<34" (r'= 0.87; p= 0), followed by those in the "35 – 44" age range (r'= 0.78; p= 0.0003). The oldest age range showed a weak correlation between EI and TL (r'= 0.49; p= 0.07) that was not significant at the 5% level of significance. Neither the number of years that the participants had been working within the IS field (Figure 33), nor the number of years they have been an IS project manager (Figure 34) had an influence on the relationship between EI and TL. Occupational background does not influence the relationship between EI and TL as illustrated in Figure 35 and neither does the type of project the IS project manager prefers to manage (Figure 36).

8.6. Assumptions and Limitations

One of the limitations of this study was the use of self-reported data. This data was fallible because of the "possibility of perception error and bias" (Neuhauser, 2007, p. 27). The use of snowball sampling

prevented the researcher from controlling who answered the questionnaire in order to prevent bias of the sample population to the Western Cape province of South Africa where the researcher resides. Though research has shown that 360 degree or feedback from multiple raters produces better results (Burke & Collins, 2001), the researcher was unable to utilise this method due to practical considerations.

Other researchers might be interested in the application of these findings in various organizations and with other practitioners (Lee & Baskerville, 2003). Bartlett, Kotrlik and Higgins (2001) suggest that the reliability, validity and generalizability of the research findings are dependent on the quality of the data collected and the size of the sample. According to Brown et al. (2006), a larger sample size provides greater statistical power and is crucial for robust statistical analysis and the generalizability of results. However, Lee and Baskerville (2003) argue that a larger sample size in statistical study does not increase the generalizability of the findings. Nevertheless, the researcher suggests that caution be exercised in generalizing and interpreting the results and further research be conducted to test the findings in various settings.

8.7. Recommendations for Future Research

The research used self-reporting instruments to measure both the transformational leadership and emotional intelligence constructs. Future research can make used of 360 degree instruments that may highlight differences between self-reported data from IS project managers and data from colleagues, peers, followers and superiors.

The small sample size could be seen as a short-coming to this study of IS project managers and larger sample sizes are required to test attributes that influence the relationship between the transformational leadership and emotional intelligence of IS project managers. As the sample group consisted only of project managers in the IS field, a possible bias could be present in the data. Further insight into emotional intelligence and transformational leadership within the Project Management profession can be gained by extending this research to project managers in other professional fields.

The effectiveness of the project managers' emotional intelligence and transformational leadership in achieving project success in today's project-based organizations is also worth studying.

Clarke (2009) found that training provided to project managers had a positive impact on their emotional intelligence. Further research should be conducted to investigate the impact of this training to the transformational leadership displayed by the project managers.

8.8. Summary of the Results

The sample consists of 49 South African IS project managers with a range of ages and gender, and who have varying experience within the IS field and specifically as IS project managers. These project managers also come from dissimilar occupational backgrounds and some prefer to manage change projects while others technical projects.

The TL and EI data provided from the self-ratings by the sample group proved to be valid, reliable and comparable to the normative samples for both the MLQ and the Genos EI.

The data analysis shows that there is a strong positive correlation ($r= 0.78$; $p= 0$) between the EI and TL of the sample group. *Intellectual Stimulation* is the TL subscale that shows the strongest correlation to EI ($r= 0.74$; $p = 0$) while *Emotional Reasoning* is the EI subscale with the strongest correlation to TL ($r= 0.81$; $p=0$).

Gender is not significant to the TL ($F= 0.96$; $p= 0.33$) nor the EI ($F= 0.52$; $p= 0.47$) of the IS project manager. However, the correlation between EI and TL is stronger for the female IS project managers ($r= 0.87$; $p=0$) than it is for their male counterparts ($r= 0.62$; $p= 0$).

Age is not significant to the TL ($F= 1.77$; $p= 0.18$) nor the EI ($F= 0.54$; $p= 0.58$) of the IS project manager. The 18 youngest members of the sample i.e. those with less than 34 years of age show a strong significant correlation between EI and TL ($r'= 0.87$; $p=0$). The 14 oldest participants however show a weak correlation between EI and TL ($r'= 0.49$; $p= 0.07$) that is not significant at the 5% level.

Tenure in the IS field is not significant to the TL ($F= 1.82$; $p= 0.16$) nor the EI ($F= 1.69$, $p=0.18$) of the IS project manager. More than half of the participants (28) have been in the IS field for more than 10 years and they showed a significant positive correlation between their EI and TL scores ($r' = 0.70$; $p= 0$).

Tenure as an IS project manager also not significant to the TL (F= 2.16; p=0.11) or the EI (F= 0.69; p=0.56) of the IS project manager. The correlation between EI and TL was not significant for the 9 participants who had been project managers for more than 10 years (r'= 0.62, p= 0.08) at the 5% level of significance. This correlation was however significant (p< 0.05) for all the participants who had been IS project managers for less than 10 years.

The occupational background of the IS project manager is not significant for their TL (F= 1.34; p=0.27) or EI (F=1.15; p=0.33). The 11 IS project managers with a background outside of the IS field showed the strongest significant correlation between EI and TL (r'= 0.93; p= 0).

The type of project that the IS project manager prefers to manage is not significant to their TL (F= 0.59; p= 0.45) or EI (F= 0.79, 0.38). The correlation between EI and TL is positive and significant regardless of the type of project that they prefer to manage. There is a weak but significant positive correlation (r'= 0.34; p= 0.02) between the IS project manager's occupational background and the type of project they prefer to manage.

This chapter has detailed the results of the data analysis of the sample data, discussed the limitations of the study, and has provided suggestions for further research in this area. The next chapter concludes this research paper with an overview of the research problem, the methods applied to investigate these questions, and the conclusions drawn from the findings.

CHAPTER 9: CONCLUSION

Increasing numbers of organizations have become project based and the number of IS projects they undertake is greater than ever. These IS projects have the goal of implementing systems and changes that are aimed at increasing operating efficiencies and turnover for the organizations. The IS project manager is therefore tasked with the successful implementation of projects which will in turn lead to organizational success. The IS project manager therefore plays a key role for the organization in which they practice.

An IS project manager can be faced with several challenges in the course of managing an IS project that can become complex because of unclear goals, high risks, scarcity of resources, technical and organizational dynamics in addition to the constraints of time, cost and scope.

Research regarding project managers in general has sought to determine inter alia, the characteristics, traits, personality, leadership style and emotional intelligence that are required in order to manage projects effectively and successfully. Much of this research has been conducted outside South Africa and was not specific to the IS project manager. The researcher identified one study by Smith and Bailey (2006) which aimed to examine the leadership style and emotional intelligence of IS project managers in South Africa. Due to limitations with the instrument used to measure leadership in their study, Smith and Bailey (2006) called for further research in this area.

The main aim of this study was to measure the emotional intelligence and leadership style of IS project managers in South Africa and to determine the relationship between these two constructs. The study further sought to determine if factors such as age, gender, occupational background, tenure as an IS project manager or how long an individual had worked in the IS field had any influence on EI, leadership style, or the relationship between the two constructs.

The study used quantitative methods to gather data for this research project. Members of the Project Management Institute of South Africa (PMISA), past Project Management students at a training institution with branches in Cape Town and Johannesburg, and colleagues in the IS project management profession were requested to complete an online questionnaire. The online questionnaire consisted of all the items from the MLQ to measure leadership, the Genos EI to measure emotional intelligence as

well as some demographic questions. The sample group of 49 IS project managers had a good mix across gender, age and occupational background. Though the sample size may be seen as small, it was sufficient to represent the South African IS project manager population and the data collected was adequate for statistical analysis.

The analysis of the data collected from the survey found that South African IS project managers scored an average of 123.245 (SD 14.9214) out of 155 points for emotional intelligence and an average of 61.7755 (SD 10.8364) out of 80 points for transformational leadership. None of the demographic factors showed a significant relationship to the emotional intelligence or transformational leadership of the sample group. This could be an indication that an IS project manager is capable of exercising transformational leadership and emotional intelligence regardless of their age, gender or occupational background. The duration that the IS project manager had been in the IS field or had been practicing project management was not found to be significant to the EI or TL that they display.

Previous studies into the relationship between emotional intelligence and transformational leadership of project managers in various industries in the United States found a strong correlation between the two constructs. This study also found a strong and significant positive relationship between the emotional intelligence and transformational leadership ($r= 0.7829$, $p= 0$) of the South African IS project managers that participated in this study. Neither age nor gender had a significant influence on the relationship between the two constructs though it was noted that the female IS project managers showed a stronger correlation. Female IS project managers also showed higher scores for both TL and EI.

Organizations have a vested interest in their IS project managers being successful in the implementation of IS projects. The results indicate that an IS project manager with a high emotional intelligence score is more likely to practice transformational leadership behaviours. Transformational leadership in the project environment can motivate team members to improve their efficiencies and achieve better results and successful project implementation. Considering the supposed importance of emotional intelligence and transformational leadership for the efficiency of IS project managers, organizations that would like to grow these skills within their organizations should include courses to enhance these skills as part of the training programmes provided for employees.

Organizations should further ensure that they provide a working environment that enables the creation of the relationships that are a requirement for the practice of both transformational leadership and emotional intelligence. Organizations should also provide their IS project managers with tools that can assist to manage and reduce the time spent with tasks such as planning, developing risk and issue logs and so forth. This could free up some time to allow the IS project managers to engage their project team and other stakeholders and make use of their transformational leadership and emotional intelligence skills.

This study also found that IS project managers with a technical occupational background showed lower average transformational leadership and emotional intelligence scores when compared to their counterparts. IS project managers with a highly technical background especially should consider enrolling for courses that will enable them to enhance and be more aware of the benefits of emotional intelligence. The results have indicated that none of the demographic factors, including the IS project manager's occupational background, have a significant effect on the relationship between emotional intelligence and transformational leadership. With the correct interventions, these IS project managers can also begin practicing more transformational leadership behaviours with the possible result of performing more efficiently.

There was a significant relationship between the occupational background of the IS project manager and the type of projects that they prefer to manage. This indicates that a majority of the IS project managers in the sample group prefer to manage projects within the IS area that they are familiar with. Perhaps, by applying emotional intelligence, these project managers can successfully venture outside their normal IS area and be successful in other areas.

The sample group in this study showed that *Emotional Reasoning* is the EI subscale with the strongest correlation to TL. This could be as a result of the environment that IS project managers operate in that requires the management of professionals in a technical field with whom emotional reasoning could be more useful in achieving results. Surprisingly, *Emotional Self Management* showed the weakest correlation to TL and could be an indication of a growth area that IS project managers should take cognisance of.

This research study has shown that emotional intelligence and transformational leadership are important competencies for IS project managers practicing in South African organizations. This study has found that South African IS project managers who are high in emotional intelligence will display more transformational leadership which will lead to more efficient teams and a higher rate of successful project implementation.

This study has provided some insight into the emotional intelligence and leadership style of IS project managers practicing in South African organizations. There have however been some limitations to this study that should be taken into consideration. It would be helpful for South African organizations and IS project managers for this study to be extended to explore appropriate means of increasing awareness and the use of emotional intelligence and transformational leadership for more effective management of IS projects. An investigation into the perceived effects of transformational leadership and emotional intelligence on cohesion within the project team, project management efficiencies and project success is also recommended. These studies would enable organizations to gain an understanding of the usefulness of nurturing the transformational leadership and emotional intelligence of their IS project managers and provide guidance on how to go about it.

This study did not investigate the relationship between emotional intelligence and transactional leadership. The results of this study do not provide evidence of the effect of transactional leadership on the project team and on project success. Further research into the merit of transactional leadership in IS projects will be valuable in understanding the effects of the different types of leadership that the IS project manager can exercise.

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APPENDICES

APPENDIX A: INTRODUCTORY EMAIL

Department of Information Systems
Leslie Commerce Building
Engineering Mall, Upper Campus
OR Private Bag, Rondebosch 7701
Cape Town
Tel: (021) 650-2261
Fax No: (021) 650-2280

Dear Information Systems Project Manager,

As an Information Systems Masters student at the University of Cape Town, I am conducting research to measure the relationship between the emotional intelligence and leadership style of IS project managers

I invite you to participate in this research that will enable me to understand if factors such as gender, age, technical background and tenure as a project manager have an effect on the emotional intelligence and leadership style employed by IS project managers in South Africa.

The online questionnaire will take approximately 10 minutes to complete, and is accessible by clicking on the following link: http://www.commerce.uct.ac.za/ISPM/. This questionnaire will be available until the 15th of November 2008.

The UCT ethics committee has approved the use of this online questionnaire. The data collected will be stored electronically and the researcher assures the anonymity and confidentiality of all content. Please provide your email address at the end of the questionnaire should you wish to receive the results of the research.

Please forward this email to other IS Project Managers in your organization or who are known to you in order to assist in gathering a comprehensive amount of data.
Please feel free to contact the researcher or Professor Derek Smith via the contact details below should you have any queries.

Thank you for you time and participation.
Yours sincerely,

Olivia Kirabira
Masters Student (Information Systems)
University of Cape Town
Email: KRBOLI001@uct.ac.za

Prof. Derek Smith
Supervisor – Dept. Information Systems
University of Cape Town
Email: Derek.Smith@uct.ac.za

APPENDIX B: DEMOGRAPHIC INFORMATION

The demographic data detailed below will be collected in order to add statistical value to the emotional intelligence and leadership style data collected. The respondent can select only one of the options given for each question.

1. Gender:
   - Female
   - Male

2. Age range:
   - < 24
   - 25 – 34
   - 35 – 44
   - 45 – 54
   - > 54

3. Number of years in the field of Information Systems:
   - 0 – 2 years
   - 2 – 5 years
   - 5 – 10 years
   - More than 10 years

4. Number of years as an IS Project Manager:
   - 0 – 2 years
   - 2 – 5 years
   - 5 – 10 years
   - More than 10 years

5. Before becoming an IS Project Manager, my background was in a:
   - Technical area – e.g. Networks, Systems Analyst etc
   - Business area – e.g. Business Analyst.
   - Other

6. I prefer to manage projects that deal with:
   - Technical deliverables – e.g. Technical infrastructure change
   - Change – e.g. Business Process change

APPENDIX C: GENOS EI CONCISE VERSION

The Genos Emotional Intelligence Inventory – Concise version is made of 31 items designed to measure emotional intelligence in the workplace context. The inventory makes use of a five-point Likert scale. Figure 21 gives details of the research instrument.

		Almost Never	Seldom	Sometimes	Usually	Almost Always
1	I demonstrate to others that I have considered their feelings in decisions I make at work.	1	2	3	4	5
2	I fail to recognise how my feelings drive my behaviour at work.	1	2	3	4	5
3	I respond to events that frustrate me appropriately.	1	2	3	4	5
4	I find it difficult to identify my feelings on issues at work.	1	2	3	4	5
5	I express how I feel to the wrong people at work.	1	2	3	4	5
6	I fail to handle stressful situations at work effectively.	1	2	3	4	5
7	When someone upsets me at work I express how I feel effectively.	1	2	3	4	5
8	I consider the way others may react to decisions when communicating them.	1	2	3	4	5
9	When I get frustrated with something at work I discuss my frustration appropriately.	1	2	3	4	5
10	When I am under stress I become impulsive.	1	2	3	4	5
11	I fail to identify the way people respond to me when building rapport.	1	2	3	4	5
12	I understand the things that make people feel optimistic at work.	1	2	3	4	5
13	I take criticism from colleagues personally.	1	2	3	4	5
14	I am effective in helping others feel positive at work.	1	2	3	4	5
15	I communicate decisions at work in a way that captures others' attention.	1	2	3	4	5
16	I gain stakeholders' commitment to decisions I make at work.	1	2	3	4	5
17	I appropriately communicate decisions to stakeholders.	1	2	3	4	5
18	I express how I feel at the appropriate time.	1	2	3	4	5
19	I understand what makes people feel valued at work.	1	2	3	4	5
20	I effectively deal with things that annoy me at work.	1	2	3	4	5
21	I appropriately respond to colleagues who frustrate me at work.	1	2	3	4	5
22	I find it difficult to identify the things that motivate people at work.	1	2	3	4	5
23	I fail to keep calm in difficult situations at work.	1	2	3	4	5
24	I am aware of my mood state at work.	1	2	3	4	5
25	I help people deal with issues that cause them frustration at work.	1	2	3	4	5
26	I remain focused when anxious about something at work.	1	2	3	4	5
27	I fail to resolve emotional situations at work effectively.	1	2	3	4	5
28	I am aware of how my feelings influence the decisions I make at work.	1	2	3	4	5
29	I have trouble finding the right words to express how I feel at work.	1	2	3	4	5
30	When upset at work I still think clearly.	1	2	3	4	5
31	I don't know what to do or say when colleagues get upset at work.	1	2	3	4	5

Figure 21: The 31-item Genos EI Concise version (Genos Emotional Intelligence Inventory - Concise (Self-Assessment), 2008)

APPENDIX D: MULTI-FACTOR LEADERSHIP QUESTIONNAIRE

The Multi-factor Leadership Questionnaire (5X-Short) contains 45 items (Figure 22) and can provide a score for Transformational Leadership, Transactional Leadership, Laissez faire leadership, Extra effort, Effectiveness and Satisfaction. The MLQ uses a 5-point Likert scale ranging from "Not at All" to "Frequently, if not always"

Not At All 0	Once in a While 1	Sometimes 2	Fairly Often 3	Frequently, if not Always 4
1 I provide others with assistance in exchange for their efforts	0	1	2	3	4
2 I re-examine critical assumptions to question whether they are appropriate	0	1	2	3	4
3 I fail to interfere until problems become serious	0	1	2	3	4
4 I focus attention on irregularities, mistakes, exceptions, and deviations from standards	0	1	2	3	4
5 I avoid getting involved when important issues arise	0	1	2	3	4
6 I talk about my most important values and beliefs	0	1	2	3	4
7 I am absent when needed	0	1	2	3	4
8 I seek differing perspectives when solving problems	0	1	2	3	4
9 I talk optimistically about the future	0	1	2	3	4
10 I instill pride in others for being associated with me	0	1	2	3	4
11 I discuss in specific terms who is responsible for achieving performance targets	0	1	2	3	4
12 I wait for things to go wrong before taking action	0	1	2	3	4
13 I talk enthusiastically about what needs to be accomplished	0	1	2	3	4
14 I specify the importance of having a strong sense of purpose	0	1	2	3	4
15 I spend time teaching and coaching	0	1	2	3	4
16 I make clear what one can expect to receive when performance goals are achieved	0	1	2	3	4
17 I show that I am a firm believer in "If it ain't broke, don't fix it."	0	1	2	3	4
18 I go beyond self-interest for the good of the group	0	1	2	3	4
19 I treat others as individuals rather than just as a member of a group	0	1	2	3	4
20 I demonstrate that problems must become chronic before I take action	0	1	2	3	4
21 I act in ways that build others' respect for me	0	1	2	3	4
22 I concentrate my full attention on dealing with mistakes, complaints, and failures	0	1	2	3	4
23 I consider the moral and ethical consequences of decisions	0	1	2	3	4
24 I keep track of all mistakes	0	1	2	3	4
25 I display a sense of power and confidence	0	1	2	3	4
26 I articulate a compelling vision of the future	0	1	2	3	4
27 I direct my attention toward failures to meet standards	0	1	2	3	4
28 I avoid making decisions	0	1	2	3	4
29 I consider an individual as having different needs, abilities, and aspirations from others	0	1	2	3	4
30 I get others to look at problems from many different angles	0	1	2	3	4
31 I help others to develop their strengths	0	1	2	3	4
32 I suggest new ways of looking at how to complete assignments	0	1	2	3	4
33 I delay responding to urgent questions	0	1	2	3	4
34 I emphasize the importance of having a collective sense of mission	0	1	2	3	4
35 I express satisfaction when others meet expectations	0	1	2	3	4
36 I express confidence that goals will be achieved	0	1	2	3	4
37 I am effective in meeting others' job-related needs	0	1	2	3	4
38 I use methods of leadership that are satisfying	0	1	2	3	4
39 I get others to do more than they expected to do	0	1	2	3	4
40 I am effective in representing others to higher authority	0	1	2	3	4
41 I work with others in a satisfactory way	0	1	2	3	4
42 I heighten others' desire to succeed	0	1	2	3	4
43 I am effective in meeting organizational requirements	0	1	2	3	4
44 I increase others' willingness to try harder	0	1	2	3	4
45 I lead a group that is effective	0	1	2	3	4

Figure 22: The 45-item Multi-factor Leadership Questionnaire (Avolio & Bass, 2004)

Descriptive Statistics[1] for MLQ 5X, 2004 Normative Sample						
	Total Sample (N=27, 285)			Self Ratings (N=3,375)		
Scale	Mean	SD	Range	Mean	SD	Range
IIA	2.94	0.76	4.00	2.95	0.53	3.50
IIB	2.77	0.72	4.00	2.99	0.59	3.75
IM	2.92	0.76	4.00	3.04	0.59	3.50
IS	2.78	0.71	4.00	2.96	0.52	3.50
IC	2.85	0.78	4.00	3.16	0.52	3.00

Table 16: Descriptive Statistics for MLQ 5X 2004 Normative Sample (Avolio & Bass, 2004)

Intercorrelations among MLQ Factor Scores[1] for Self ratings in the US					
	IIA	IIB	IM	IS	IC
IIA	(.67)				
IIB	.49**	(.64)			
IM	.54**	.58*	(.76)		
IS	.39**	.44**	.43**	(.64)	
IC	.46**	.42**	.41**	.45**	(.62)

[1] N = 3,755. Numbers in parentheses are reliability scores.
[2] p < .05, **p < .01

Table 17:Inter-correlations among MLQ Factor Scores for self ratings in Normative Sample (Avolio & Bass, 2004)

APPENDIX E – STATISTICAL DATA

E – 1. Transformational Leadership

Correlations (TRANSFORMATION LEADERSHIP STYLE)
Marked correlations are significant at p < .05000
N=49 (Casewise deletion of missing data)

	Means	Std. Dev.	IIA		IIB		IM		IS		IC		TOTAL	
			r	p	r	p	r	p	r	p	r	p	r	p
IIA	12.02041	2.61000	1.000000		[illegible]	[illegible]	0.785451	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IIB	12.46939	2.69337	[illegible]	[illegible]	1.000000	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IM	12.75510	2.26872	0.785451	[illegible]	[illegible]	[illegible]	1.000000	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IS	12.34694	2.47951	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	-	[illegible]	[illegible]	[illegible]	[illegible]
IC	12.18367	2.51391	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	-	[illegible]	[illegible]
TOTAL	61.77551	10.83641	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	-

Table 18: Correlations within the Transformational Leadership Construct

TRANSFORMATION LEADERSHIP STYLE			
Scale	Means	Std. Dev.	Range
IIA	3.00510	0.65250	2.25000
IIB	3.11735	0.67334	2.50000
IM	3.18878	0.56718	2.00000
IS	3.08673	0.61988	3.00000
IC	3.04592	0.62848	2.00000

Table 19: Means and Standard Deviations of Transformational Leadership for comparative purposes

E - 2. Emotional Intelligence

Correlations (EMOTIONAL INTELLIGENCE)
Marked correlations are significant at p < .05000
N=49 (Casewise deletion of missing data)

	Means	Std. Dev.	ESA		EE		EAO		ER		ESM		EMO		ESC		TOTAL	
			r	p	r	p	r	p	r	p	r	p	r	p	r	p	r	p
ESA	16.2245	2.43469	1.000000	.														
EE	18.9796	3.60260			1.000000	.												
EAO	16.2449	2.04665					1.000000	.										
ER	20.5918	3.16174							1.000000	.								
ESM	19.5714	2.75379									1.000000	.						
EMO	15.6122	2.54801											1.000000	.				
ESC	16.0204	2.37601													1.000000	.		
TOTAL	123.2449	14.92136															1.000000	.

Table 20: Correlations within the Emotional Intelligence construct

E – 3. Preferred Project Type and Transformational Leadership

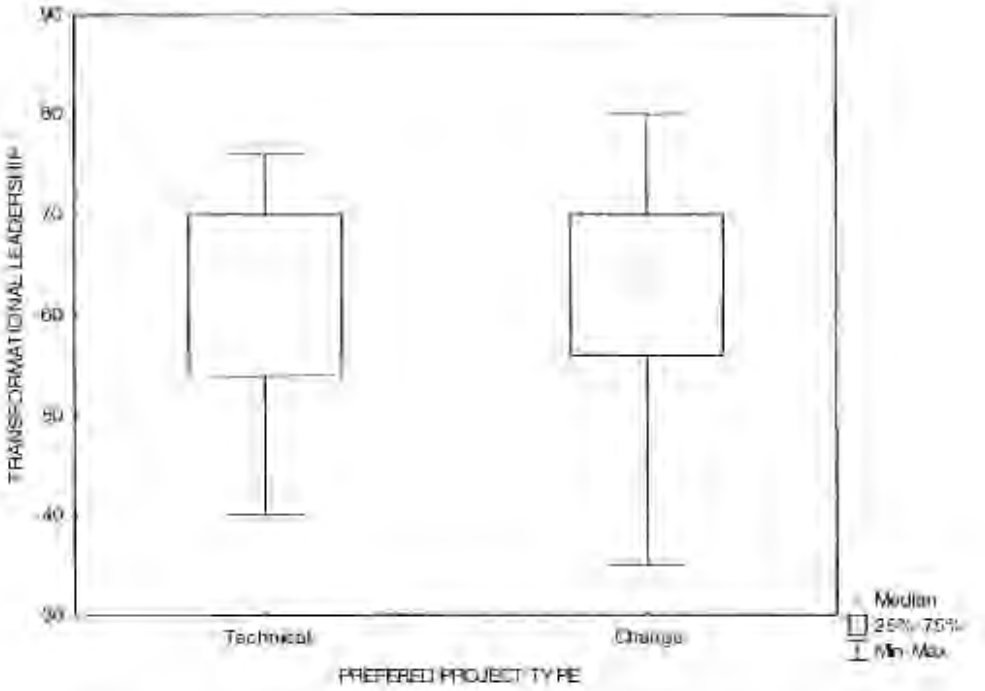

Figure 23: Box plot of Transformational leadership by Preferred Project Type

TRANSFORMATIONAL LEADERSHIP	Analysis of Variance (PREFERRED PROJECT TYPE) Marked effects are significant at p < .05000							
	SS Effect	df Effect	MS Effect	SS Error	df Error	MS Error	F	p
IIA	3.43077	1	3.43077	323.549	47	6.8840	0.498367	0.483703
IIB	0.91284	1	0.91284	347.291	47	7.3892	0.123537	0.726801
IM	7.52183	1	7.52183	239.439	47	5.0945	1.476103	0.227369
IS	3.62898	1	3.62898	291.473	47	6.2016	0.585172	0.448116
IC	0.76276	1	0.76276	302.584	47	6.4380	0.118479	0.732225
TOTAL	69.66866	1	69.66866	5566.867	47	118.4439	0.588200	0.446952

Table 21: Analysis of Variance of Transformational Leadership scores by Preferred Project Type

TRANSFORMATIONAL LEADERSHIP	Spearman Rank Order Correlations: **PREFERRED PROJECT=CHANGE** MD pairwise deleted Marked correlations are significant at p < .05000											
	IIA		IIB		IM		IS		IC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
IIA	1.000000											
IIB			1.000000									
IM					1.000000							
IS							1.000000					
IC									1.000000			
TOTAL											1.000000	

Table 22. Spearman Rank Order Correlations of TL for participants who preferred Change projects

TRANSFORMATIONAL LEADERSHIP	Spearman Rank Order Correlations. **PREFERRED PROJECT=TECHNICAL** MD pairwise deleted Marked correlations are significant at p < 05000											
	IIA		IIB		IIM		IIS		IIC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
IIA	1.000000											
IIB			1.000000									
IIM					1.000000							
IIS							1.000000					
IIC									1.000000			
TOTAL											1.000000	

Table 23: Spearman Rank Order Correlations of TL for participants who preferred Technical projects

E - 4. Tenure in the Information Systems Field and Transformational Leadership

YEARS IN INFORMATION SYSTEMS FIELD	N	TRANSFORMATIONAL LEADERSHIP											
		IIA		IIB		IM		IS		IC		TOTAL	
		MEAN	STD DEV	MEAN	STD DEV	MEAN	STD DEV	MEAN	STD DEV	MEAN	STD DEV	MEAN	STD DEV
0 - 2 YRS	6	10.66667	3.265986	10.33333	3.386247	11.33333	3.723797	10.83333	4.915960	11.00000	3.521363	54.16667	18.29116
2 - 5 YRS	5	12.80000	2.387467	14.20000	3.492850	13.20000	2.489980	12.40000	2.073644	12.20000	2.949576	64.80000	12.07063
5 - 10 YRS	10	11.30000	2.750757	12.00000	3.018462	12.40000	1.955050	12.20000	2.201010	10.90000	2.330951	58.80000	10.05319
> 10 YRS	28	12.42857	2.425613	12.78571	2.043185	13.10714	1.931019	12.71429	1.882810	12.89286	2.096545	63.92857	8.29961
TOTAL	49	12.02041	2.609995	12.46939	2.693372	12.75510	2.268724	12.34694	2.479506	12.18367	2.513907	61.77551	10.83641

Table 24: Means and Standard Deviations of TL subscales and total score per Years in the IS field

TRANSFORMATIONAL LEADERSHIP	Spearman Rank Order Correlations YRS IS= 0 - 2 YEARS MD pairwise deleted Marked correlations are significant at p < .05000											
	IIA		IIB		IM		IS		IC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
IIA	1.000000		[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IIB	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	
IM	1.000000		[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]
IC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]
TOTAL	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	

Table 25: Spearman Rank Order Correlations of TL for participants with 0 - 2 years in the IS field

TRANSFORMATIONAL LEADERSHIP	Spearman Rank Order Correlations YRS IS= 2 - 5 YEARS MD pairwise deleted Marked correlations are significant at p < .05000											
	IIA		IIB		IM		IS		IC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
IIA	1.000000		[illegible]	[illegible]	0.526316	0.362245	0.526316	0.362245	0.729996	0.161423	[illegible]	[illegible]
IIB	[illegible]	[illegible]	1.000000		0.344124	0.570656	0.344124	0.570656	[illegible]	[illegible]	[illegible]	[illegible]
IM	0.526316	0.362245	0.344124	0.570656	1.000000		[illegible]	[illegible]	-0.054074	0.931185	0.461690	0.433766
IS	0.526316	0.362245	0.344124	0.570656	[illegible]	[illegible]	1.000000		0.106148	0.862571	0.564288	0.321723
IC	0.729996	0.161423	[illegible]	[illegible]	-0.054074	0.931185	0.106148	0.862571	1.000000		0.790569	0.111367
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	0.461690	0.433766	0.564288	0.321723	0.790569	0.111367	1.000000	

Table 26: Spearman Rank Order Correlations of TL for participants with 2 – 5 years in the IS field

TRANSFORMATIONAL LEADERSHIP	Spearman Rank Order Correlations YRS IS= 5 - 10 YEARS MD pairwise deleted Marked correlations are significant at p < .05000											
	IIA		IIB		IM		IS		IC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
IIA	1.000000		0.467695	0.172864	[illegible]	[illegible]	0.108364	0.765718	[illegible]	[illegible]	[illegible]	[illegible]
IIB	0.467695	0.172864	1.000000		[illegible]	[illegible]	0.270192	0.450247	[illegible]	[illegible]	[illegible]	[illegible]
IM	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		0.277615	0.437396	[illegible]	[illegible]	[illegible]	[illegible]
IS	0.108364	0.765718	0.270192	0.450247	0.277615	0.437396	1.000000		0.338743	0.368333	0.368052	0.309685
IC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.338743	0.368333	1.000000		[illegible]	[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.368052	0.309685	[illegible]	[illegible]	1.000000	

Table 27: Spearman Rank Order Correlations of TL for participants with 5 – 10 years in the IS field

TRANSFORMATIONAL LEADERSHIP	Spearman Rank Order Correlations. **YRS IS=MORE THAN 10 YEARS** MD pairwise deleted Marked correlations are significant at p < 05000											
	IIA		IIB		IM		IS		IC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
IIA	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IIB	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IM	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]
IC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	

Table 28: Spearman Rank Order Correlations of TL for participants with > 10 years in the IS field

F- 5. Tenure as an Information Systems Project Manager and Transformational Leadership

YEARS AS INFORMATION SYSTEMS PM	N	TRANSFORMATIONAL LEADERSHIP											
		IIA		IIB		IM		IS		IC		TOTAL	
		MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV
0 - 2 YRS	14	10.92857	2.702258	10.92857	2.947340	11.78571	2.778449	11.92857	2.947340	11.28571	2.785362	56.85714	12.55056
2 - 5 YRS	16	12.18750	2.344319	13.62500	2.526526	13.00000	2.065591	12.31250	2.548692	11.75000	2.542964	62.87500	10.18414
5 - 10 YRS	10	12.00000	3.018462	12.20000	2.097618	12.70000	1.888562	11.90000	1.791957	12.50000	1.900292	61.30000	8.99444
> 10 YRS	9	13.44444	2.006932	13.11111	2.260777	13.88889	1.763834	13.55556	2.185813	14.00000	1.870829	68.00000	8.63134
TOTAL	49	12.02041	2.609995	12.46939	2.893372	12.75510	2.268724	12.34694	2.479508	12.18367	2.513907	61.77551	10.83641

Table 29: Means and Standard Deviations of TL subscales and total score by Years as an IS Project Manager

TRANSFORMATIONAL LEADERSHIP	Analysis of Variance (YEARS AS IS PM) Marked effects are significant at p < .05000							
	SS Effect	df Effect	MS Effect	SS Error	df Error	MS Error	F	p
IIA	35.3913	3	11.7971	291.588	45	6.4797	1.820613	0.156971
IIB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IM	25.7152	3	8.5717	221.945	45	4.9188	1.742647	0.171808
IS	17.6137	3	5.8712	277.488	45	6.1664	0.952135	0.423542
IC	44.9898	3	14.9966	258.357	45	5.7413	2.612070	3.062856
TOTAL	708.9663	3	236.3221	4927.564	45	109.5014	2.158165	0.106151

Table 30: Analysis of Variance of Transformational Leadership scores by Years as an IS Project Manager

TRANSFORMATIONAL LEADERSHIP	KRUSKAL-WALLIS ANOVA BY RANKS (N=49) YEARS INFORMATION SYSTEMS PROJECT MANAGER					
	SUM OF RANKS				H (2, N=49)	p
	0 - 2 YRS (N=6)	2 - 5 YRS (N=5)	5 - 10 YRS (N=10)	> 10 YRS (N=28)		
IIA	267.0000	411.0000	262.0000	295.0000	5.1851	0.1587
IIB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IM	273.5000	424.5000	239.0000	288.0000	4.5368	0.2090
IS	320.5000	409.5000	200.5000	294.5000	4.2458	0.2361
IC	278.5000	367.0000	263.5000	316.0000	6.8315	0.0775
TOTAL	264.5000	431.5000	229.0000	300.0000	6.1535	0.1044

Table 31: Kruskal-Wallis Anova Test for TL Grouped by Years as an IS Project Manager

TRANSFORMATIONAL LEADERSHIP	Spearman Rank Order Correlations **YRS IS PM=0 - 2 YEARS** MD pairwise deleted Marked correlations are significant at p < .05000											
	IIA		IIB		IM		IS		IC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
IIA	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IIB	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IM	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IS	0.577194	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]
IC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	

Table 32: Spearman Rank Order Correlations of TL for participants with 0 – 2 years as an IS Project Manager

TRANSFORMATIONAL LEADERSHIP	Spearman Rank Order Correlations. **YRS IS PM=2 - 5 YEARS** MD pairwise deleted Marked correlations are significant at p < .05000											
	IIA		IIB		IIM		IIS		IIC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
IIA	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	0.142001	0.599861	[illegible]	[illegible]	[illegible]	[illegible]
IIB	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IIM	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		0.487800	0.055264	0.487530	0.056420	[illegible]	[illegible]
IIS	0.142001	0.599861	[illegible]	[illegible]	0.487800	0.055264	1.000000		0.335889	0.203403	[illegible]	[illegible]
IIC	[illegible]	[illegible]	[illegible]	[illegible]	0.487530	0.056420	0.335889	0.203403	1.000000		[illegible]	[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	

Table 33: Spearman Rank Order Correlations of TL for participants with 2 – 5 years as an IS Project Manager

TRANSFORMATIONAL LEADERSHIP	Spearman Rank Order Correlations. **YRS IS PM=5 - 10 YEARS** MD pairwise deleted Marked correlations are significant at p < .05000											
	IIA		IIB		IIM		IIS		IIC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
IIA	1.000000		0.631582	0.050149	0.625390	0.053149	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IIB	0.631582	0.050149	1.000000		[illegible]	[illegible]	0.190640	0.597804	0.474927	0.165418	[illegible]	[illegible]
IIM	0.625390	0.053149	[illegible]	[illegible]	1.000000		0.162513	0.653744	0.465492	0.175171	[illegible]	[illegible]
IIS	[illegible]	[illegible]	0.190640	0.597804	0.162513	0.653744	1.000000		[illegible]	[illegible]	[illegible]	[illegible]
IIC	[illegible]	[illegible]	0.474927	0.165418	0.465492	0.175171	[illegible]	[illegible]	1.000000		[illegible]	[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	

Table 34: Spearman Rank Order Correlations of TL for participants with 5 – 10 years as an IS Project Manager

TRANSFORMATIONAL LEADERSHIP	Spearman Rank Order Correlations: YRS IS PM=MORE THAN YEARS MD pairwise deleted Marked correlations are significant at p < .05000											
	IIA		IIB		IM		IS		IC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
IIA	1.000000		[illegible]	[illegible]	0.625023	0.071888	0.564676	0.113179	0.104348	0.769344	[illegible]	[illegible]
IIB	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	0.656707	0.054675	[illegible]	[illegible]
IM	0.625023	0.071888	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IS	0.564676	0.113179	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]
IC	0.104348	0.769344	0.656707	0.054675	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	

Table 35: Spearman Rank Order Correlations of TL for participants with > 10 years as an IS Project Manager

F - 6. Gender and Transformational Leadership

GENDER	N	TRANSFORMATIONAL LEADERSHIP											
		IIA		IIB		IM		IS		IC		TOTAL	
		MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV
MALE	27	11.70370	2.145027	12.11111	2.606697	12.37037	1.904411	12.25926	2.011364	11.96296	2.425529	60.40741	8.81982
FEMALE	22	12.40909	3.096220	12.90909	2.793003	13.22727	2.617375	12.45455	3.003505	12.45455	2.649839	63.45455	12.91263
TOTAL	49	12.02041	2.609995	12.46939	2.693372	12.75510	2.268724	12.34694	2.479508	12.18367	2.513907	61.77551	10.83641

Table 46: Means and Standard Deviations of TL subscales and total score per Gender

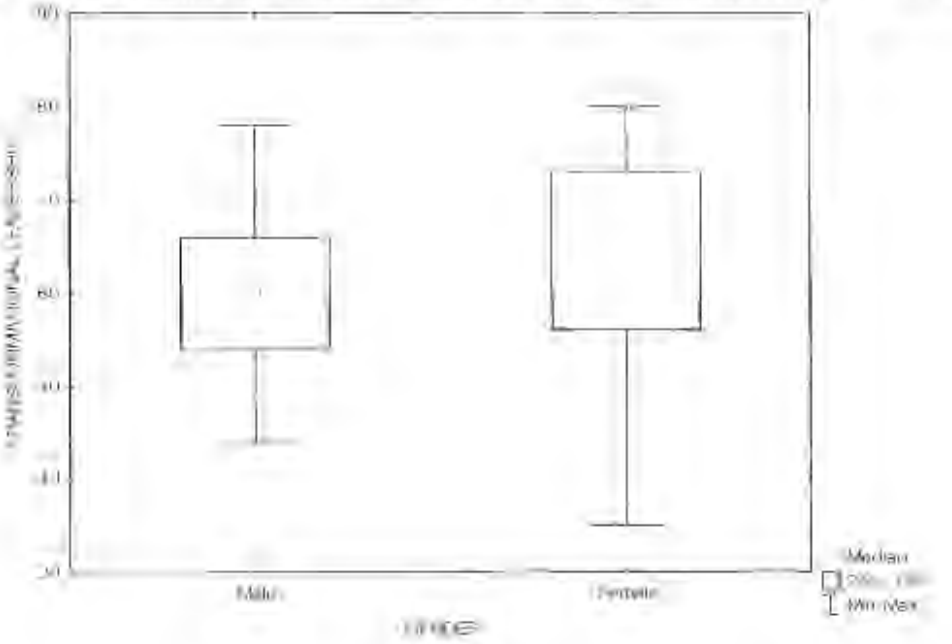

Figure 24: Box plot of Transformational Leadership grouped by Gender

TRANSFORMATIONAL LEADERSHIP	Analysis of Variance (GENDER) Marked effects are significant at p < .05000							
	SS Effect	df Effect	MS Effect	SS Error	df Error	MS Error	F	p
IIA	6.0318	1	6.0318	320.948	47	6.8287	0.883301	0.352104
IIB	7.7192	1	7.7192	340.485	47	7.2444	1.065551	0.307235
IM	8.9013	1	8.9013	238.160	47	5.0672	1.756636	0.191451
IS	0.4623	1	0.4623	294.640	47	6.2689	0.073746	0.787148
IC	2.9294	1	2.9294	300.418	47	6.3919	0.458306	0.501735
TOTAL	112.5575	1	112.5575	5523.973	47	117.5313	0.957681	0.332782

Table 37: Analysis of Variance of Transformational Leadership scores by Gender

TRANSFORMATIONAL LEADERSHIP	Spearman Rank Order Correlations **GENDER=MALE** MD pairwise deleted Marked correlations are significant at p < .05000											
	IIA		IIB		IM		IS		IC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
IIA	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	0.322361	0.101028	[illegible]	[illegible]	[illegible]	[illegible]
IIB	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IM	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IS	0.322361	0.101028	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]
IC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	

Table 38: Spearman Rank Order Correlations of Transformational Leadership for Male participants

TRANSFORMATIONAL LEADERSHIP	Spearman Rank Order Correlations GENDER=FEMALE MD pairwise deleted Marked correlations are significant at p < .05000											
	IIA		IIB		IM		IS		IC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
IIA	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IIB	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IM	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]
IC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	

Table 39: Spearman Rank Order Correlations of Transformational Leadership for Female participants

E - 7. Age and Transformational Leadership

TRANSFORMATIONAL LEADERSHIP	Analysis of Variance (AGE) Marked effects are significant at p < .05000							
	SS Effect	df Effect	MS Effect	SS Error	df Error	MS Error	F	p
IIA	34.431	4	8.6076	292.549	44	6.6488	1.294608	0.286818
IIB	45.075	4	11.2689	303.129	44	6.8893	1.635706	0.182254
IM	90.561	4	[illegible]	196.500	44	[illegible]	[illegible]	[illegible]
IS	56.102	4	14.0255	239.000	44	5.4318	2.582102	0.050107
IC	[illegible]	4	[illegible]	[illegible]	44	[illegible]	3.168288	[illegible]
TOTAL	[illegible]	4	284.7022	[illegible]	44	[illegible]	[illegible]	[illegible]

Table 40: Analysis of Variance of Transformational Leadership scores by Age in 5 Age Groups

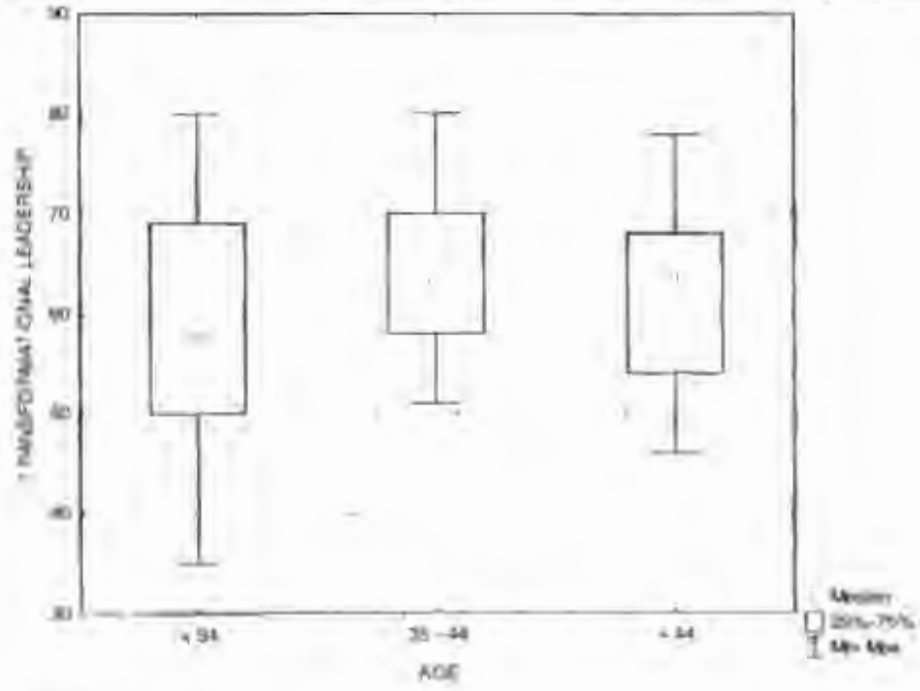

Figure 25: Box plot of Transformational Leadership grouped by 3 Age groups

TRANSFORMATIONAL LEADERSHIP	Analysis of Variance (AGE) Marked effects are significant at p < .05000							
	SS Effect	df Effect	MS Effect	SS Error	df Error	MS Error	F	p
IIA	4.1687	2	2.0843	322.811	46	7.0176	0.297014	0.744448
IIB	11.9058	2	5.9529	336.298	46	7.3108	0.814255	0.449251
IM	12.4263	2	6.2132	234.635	46	5.1008	1.218084	0.305158
IS	29.3878	2	14.6939	265.714	46	5.7764	2.543779	0.089574
IC	36.3759	2	18.1879	266.971	46	5.8037	3.133843	0.052974
TOTAL	402.2542	2	201.1271	5234.276	46	113.7886	1.767550	0.182150

Table 41: Analysis of Variance of Transformational Leadership scores by Age in 3 Age Groups

TRANSFORMATIONAL LEADERSHIP	Spearman Rank Order Correlations **AGE=<34** MD pairwise deleted Marked correlations are significant at p < .05000											
	IIA		IIB		IM		IS		IC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
IIA	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IIB	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IM	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]
IC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	

Table 42: Spearman Rank Order Correlations of TL for participants who are less than 34 years of age

TRANSFORMATIONAL LEADERSHIP	Spearman Rank Order Correlations. AGE=35 - 44 MD pairwise deleted Marked correlations are significant at p < .05000											
	IIA		IIB		IM		IS		IC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
IIA	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	0.460178	0.063069	[illegible]	[illegible]	[illegible]	[illegible]
IIB	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	0.370184	0.143575	[illegible]	[illegible]
IM	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IS	0.460178	0.063069	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		0.461151	0.062442	[illegible]	[illegible]
IC	[illegible]	[illegible]	0.370184	0.143575	[illegible]	[illegible]	0.461151	0.062442	1.000000		[illegible]	[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	

Table 43: Spearman Rank Order Correlations of TL for participants who are between 35 and 44 years of age

TRANSFORMATIONAL LEADERSHIP	Spearman Rank Order Correlations AGE=> 44 MD pairwise deleted Marked correlations are significant at p < .05000											
	IIA		IIB		IM		IS		IC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
IIA	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	0.244646	0.399251	0.510124	0.062368	[illegible]	[illegible]
IIB	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	0.369663	0.193305	[illegible]	[illegible]	[illegible]	[illegible]
IM	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		0.320108	0.264531	[illegible]	[illegible]	[illegible]	[illegible]
IS	0.244646	0.399251	0.369663	0.193305	0.320108	0.264531	1.000000		0.320271	0.264274	0.448174	0.108015
IC	0.510124	0.062368	[illegible]	[illegible]	[illegible]	[illegible]	0.320271	0.264274	1.000000		[illegible]	[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.448174	0.108015	[illegible]	[illegible]	1.000000	

Table 44: Spearman Rank Order Correlations of TL for participants > 44 years of age

F. 8. Occupational Background and Transformational Leadership

OCCUPATIONAL BACKGROUND	N	TRANSFORMATIONAL LEADERSHIP											
		IIA		IIB		IM		IS		IC		TOTAL	
		MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV
TECHNICAL	22	12.00000	2.329929	11.95455	2.497185	12.45455	2.385018	11.59091	1.918806	11.81818	2.556716	59.81818	9.99350
BUSINESS	16	11.87500	2.825479	12.37500	3.159641	12.56250	2.502499	12.62500	3.283799	11.93750	2.670050	61.37500	12.84199
OTHER	11	12.27273	3.036146	13.63636	2.157440	13.63636	1.501514	13.45455	1.694912	13.27273	2.053821	66.27273	8.69587
TOTAL	49	12.02041	2.609995	12.46939	2.693372	12.75510	2.268724	12.34694	2.479508	12.18367	2.513907	61.77551	10.83641

Table 45: Means and Standard Deviations of TL subscales and total score by Occupational Background

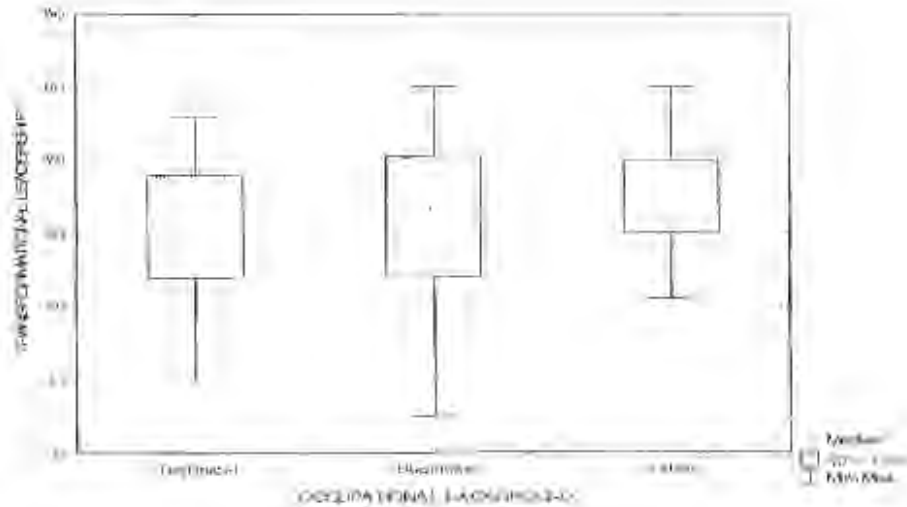

Figure 26: Box plot of Transformational Leadership grouped by Occupational Background

TRANSFORMATIONAL LEADERSHIP	Analysis of Variance (OCCUPATIONAL BACKGROUND) Marked effects are significant at p < .05000							
	SS Effect	df Effect	MS Effect	SS Error	df Error	MS Error	F	p
IIA	1.0478	2	0.5239	325.932	46	7.0855	0.073938	0.928839
IIB	20.9541	2	10.4770	327.250	46	7.1141	1.472709	0.239913
IM	11.1237	2	5.5619	235.938	46	5.1291	1.084379	0.346597
IS	27.3066	2	13.6533	267.795	46	5.8216	2.345266	0.107180
IC	16.9549	2	8.4774	286.392	46	6.2259	1.361639	0.266373
TOTAL	309.3281	2	154.6630	5327.205	46	115.8088	1.335503	0.273031

Table 46: Analysis of Variance of Transformational Leadership scores by Occupational Background

TRANSFORMATIONAL LEADERSHIP	Spearman Rank Order Correlations, **BACKGROUND=BUSINESS** MD pairwise deleted Marked correlations are significant at p < 05000											
	IIA		IIB		IM		IS		IC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
IIA	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IIB	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IM	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]
IC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	

Table 47: Spearman Rank Order Correlations of TL for participants with a Business Occupational Background

TRANSFORMATIONAL LEADERSHIP	Spearman Rank Order Correlations. **BACKGROUND=TECHNICAL** MD pairwise deleted Marked correlations are significant at p < .05000											
	IIA		IIB		IM		IS		IC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
IIA	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IIB	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IM	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]
IC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	

Table 48: Spearman Rank Order Correlations of TL for participants with a Technical Occupational Background

TRANSFORMATIONAL LEADERSHIP	Spearman Rank Order Correlations. **BACKGROUND=OTHER** MD pairwise deleted Marked correlations are significant at p < .05000											
	IIA		IIB		IM		IS		IC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
IIA	1.000000		0.593025	0.054487	[illegible]	[illegible]	0.439257	0.176466	[illegible]	[illegible]	[illegible]	[illegible]
IIB	0.593025	0.054487	1.000000		[illegible]	[illegible]	0.358917	0.278372	0.348529	0.293520	[illegible]	[illegible]
IM	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		0.589115	0.056510	[illegible]	[illegible]	[illegible]	[illegible]
IS	0.439257	0.176466	0.358917	0.278372	0.589115	0.056510	1.000000		[illegible]	[illegible]	0.588791	0.056679
IC	[illegible]	[illegible]	0.348529	0.293520	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.588791	0.056679	[illegible]	[illegible]	1.000000	

Table 49: Spearman Rank Order Correlations of TL for participants with a Other Occupational Backgrounds

E – 9. Gender and Emotional Intelligence

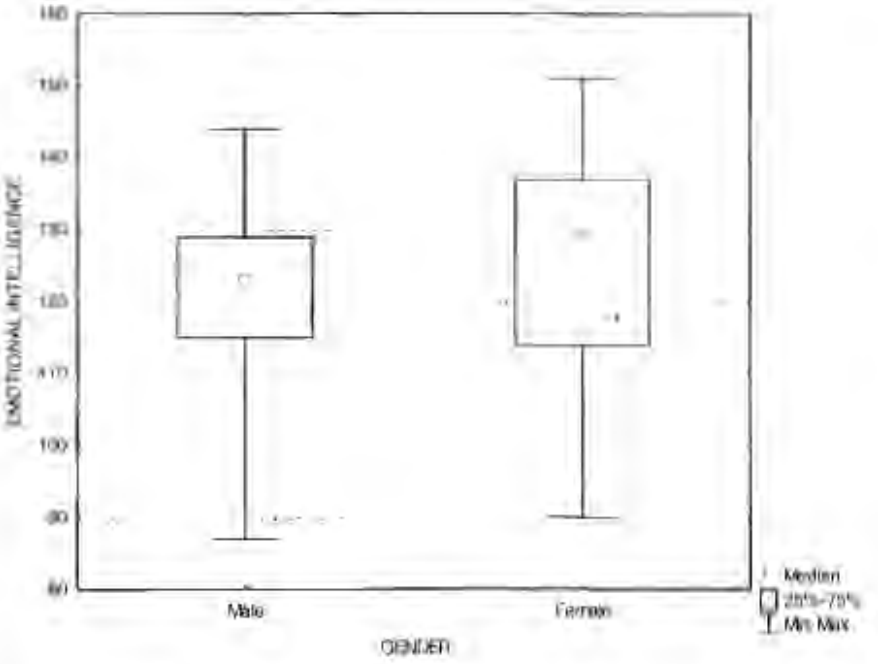

Figure 27: Box plot of Emotional Intelligence scores grouped by Gender

EMOTIONAL INTELLIGENCE	Analysis of Variance (GENDER) Marked effects are significant at p < .05000							
	SS Effect	df Effect	MS Effect	SS Error	df Error	MS Error	F	p
ESA	2.1131	1	2.1131	282.42	47	6.0089	0.351663	0.556016
EE	14.9207	1	14.9207	606.06	47	12.9374	1.153295	0.288343
EAO	[illegible]	1	[illegible]	[illegible]	47	3.8501	[illegible]	[illegible]
ER	0.7324	1	0.7324	479.10	47	10.1937	0.071844	0.789843
ESM	0.5455	1	0.5455	363.45	47	7.7331	0.070535	0.791721
EMO	4.6781	1	4.6781	306.95	47	6.5309	0.716298	0.401649
ESC	1.6328	1	1.6328	269.35	47	5.7308	0.284916	0.596013
TOTAL	116.6993	1	116.6993	10570.36	47	224.9013	0.518891	0.474883

Table 50: Analysis of Variance of Emotional Intelligence scores by Gender

GENDER	MULTIPLE COMPARISONS EMOTIONAL AWARENESS OF OTHERS (EAO) KRUSKAL-WALLIS TEST H (1, N= 49) =6.273732 p = .0123			
	z' values		p' values (2 tailed)	
	MALE R:20.444	FEMALE R:30.591	MALE R:20.444	FEMALE R:30.591
MALE		[illegible]		[illegible]
FEMALE	[illegible]		[illegible]	

Table 51: Multiple Comparisons of Emotional Awareness of Others (EAO) by Gender

Spearman Rank Order Correlations GENDER=MALE
MD pairwise deleted
Marked correlations are significant at p < .05000

EMOTIONAL INTELLIGENCE	ESA		EE		EAO		ER		ESM		EMO		ESC		TOTAL	
	Spearman R	p level	Spearman R	p level	Spearman R	p-level	Spearman R	p-level	Spearman R	p level	Spearman R	p-level	Spearman R	p level	Spearman R	p level
ESA	1.000000		0.373297	0.066123	0.281730	0.154543	0.165283	0.410006	0.278085	0.159864			0.270461	0.172427		
EE	0.373297	0.066123	1.000000				0.203146	0.309498								
EAO	0.281730	0.154543			1.000000								0.328290	0.094559		
ER	0.165283	0.410006	0.203146	0.309498			1.000000		0.359085	0.065847			0.282156	0.153894		
ESM	0.278085	0.159864					0.359085	0.065847	1.000000		0.231834	0.244594				
EMO									0.231834	0.244594	1.000000		0.299749	0.126759		
ESC	0.270461	0.172427			0.328290	0.094559	0.282156	0.153894			0.299749	0.126759	1.000000			
TOTAL															1.000000	

Table 52: Spearman Rank Order Correlations of Emotional Intelligence for Male participants

Spearman Rank Order Correlations GENDER=FEMALE
MD pairwise deleted
Marked correlations are significant at p < .05000

EMOTIONAL INTELLIGENCE	ESA		EE		EAO		ER		ESM		EMO		ESC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
ESA	1.000000															
EE			1.000000													
EAO					1.000000											
ER							1.000000									
ESM									1.000000							
EMO											1.000000					
ESC													1.000000			
TOTAL															1.000000	

Table 53: Spearman Rank Order Correlations of Emotional Intelligence for Female participants

I. – 10. Age and Emotional Intelligence

AGE	N	EMOTIONAL INTELLIGENCE															
		ESA		EE		EAO		ER		ESM		EMO		ESC		TOTAL	
		MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV
< 24	2	11.00000	1.414214	15.00000	0.000000	12.00000	0.000000	15.50000	0.707107	15.00000	0.000000	12.00000	0.000000	12.00000	0.000000	82.5000	0.70711
25 - 34	16	16.06250	2.542145	19.25000	3.336665	16.62500	1.627882	20.25000	2.686846	19.93750	2.480143	15.75000	2.620433	16.06250	2.174985	123.9375	15.47242
35 - 44	17	16.94118	2.221221	19.11765	3.388996	16.47059	2.065116	21.29412	2.519045	20.00000	2.318405	15.94118	2.278801	15.94118	1.983387	125.7059	12.16485
45 - 54	12	16.50000	1.381699	19.00000	4.532709	16.16667	2.037527	20.83333	2.886751	19.33333	3.498918	15.66667	2.639121	16.83333	2.757909	124.3333	14.09631
> 54	2	15.00000	4.242641	19.50000	3.535534	16.00000	2.828427	21.00000	4.242641	19.00000	1.414214	15.00000	2.828427	16.50000	3.535534	121.0000	22.62742
TOTAL	49	16.22449	2.434691	18.97959	3.602602	16.24490	2.046650	20.59184	3.161740	19.57143	2.753785	15.61224	2.548008	16.02041	2.376007	123.2449	14.92136

Table 54: Means and Standard Deviations of Emotional Intelligence subscales and total score by 5 Age Groups

EMOTIONAL INTELLIGENCE	Analysis of Variance (AGE) Marked effects are significant at p < .05000							
	SS Effect	df Effect	MS Effect	SS Error	df Error	MS Error	F	p
ESA	[illegible]	4	[illegible]	[illegible]	44	[illegible]	[illegible]	[illegible]
EE	33.716	4	8.4287	589.265	44	13.3924	0.629367	0.644126
EAO	[illegible]	4	[illegible]	[illegible]	44	[illegible]	[illegible]	[illegible]
ER	63.141	4	15.7852	416.696	44	9.4704	1.666796	0.174771
ESM	48.396	4	12.0990	315.604	44	7.1728	1.686778	0.170119
EMO	29.025	4	7.2562	282.608	44	6.4229	1.129738	0.354870
ESC	40.934	4	10.2336	230.045	44	5.2283	1.957339	0.117790
TOTAL	2025.428	4	506.3569	8861.634	44	196.8553	2.572229	0.050788

Table 55: Analysis of Variance of Emotional Intelligence scores by 5 Age Groups

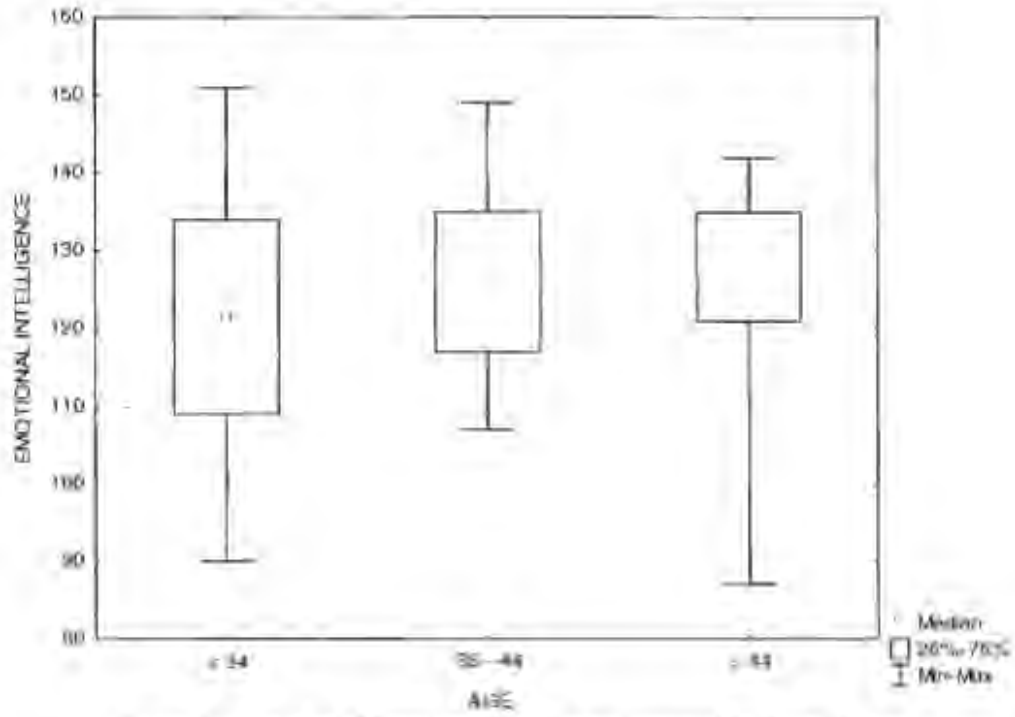

Figure 28: Box plot of Emotional Intelligence grouped by 3 Age Ranges

EMOTIONAL INTELLIGENCE	Analysis of Variance (AGE) Marked effects are significant at p < .05000							
	SS Effect	df Effect	MS Effect	SS Error	df Error	MS Error	F	p
ESA	18.2323	2	9.1161	266.30	46	5.7891	1.574710	0.218025
EE	1.1752	2	0.5876	621.80	46	13.5175	0.043470	0.957501
EAO	1.3339	2	0.6669	199.73	46	4.3419	0.153604	0.858050
ER	22.9819	2	11.4910	456.85	46	9.9316	1.157007	0.323406
ESM	4.8651	2	2.4325	359.13	46	7.8073	0.311573	0.733827
EMO	3.2629	2	1.6315	308.37	46	6.7037	0.243366	0.784987
ESC	8.5464	2	4.2732	262.43	46	5.7051	0.749014	0.478511
TOTAL	249.3731	2	124.6865	10437.69	46	226.9063	0.549507	0.580976

Table 56: Analysis of Variance of Emotional Intelligence scores by 3 Age Groups

EMOTIONAL INTELLIGENCE	Spearman Rank Order Correlations AGE=<34 MD pairwise deleted Marked correlations are significant at p < .05000															
	ESA		EE		EAO		ER		ESM		EMO		ESC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
ESA	1.000000															
EE			1.000000													
EAO					1.000000											
ER							1.000000									
ESM									1.000000							
EMO											1.000000					
ESC													1.000000			
TOTAL															1.000000	

Table 57: Spearman Rank Order Correlations of EI for participants below 34 years of Age

EMOTIONAL INTELLIGENCE	Spearman Rank Order Correlations AGE=35 - 44 MD pairwise deleted Marked correlations are significant at p < .05000															
	ESA		EE		EAO		ER		ESM		EMO		ESC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
ESA	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	0.382937	0.271158	0.148802	0.568689	[illegible]	[illegible]	0.272041	0.290830	[illegible]	[illegible]
EE	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	0.463220	0.061123	[illegible]	[illegible]	[illegible]	[illegible]	0.354203	0.163049	[illegible]	[illegible]
EAO	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		0.447088	0.071959	0.277536	0.289804	[illegible]	[illegible]	0.323697	0.204996	[illegible]	[illegible]
ER	0.382937	0.271158	0.463220	0.061123	0.447088	0.071959	1.000000		0.315098	0.217983	0.297366	0.246399	0.194725	0.453899	[illegible]	[illegible]
ESM	0.148802	0.568689	[illegible]	[illegible]	0.277536	0.289804	0.315098	0.217983	1.000000		0.343002	0.177712	[illegible]	[illegible]	[illegible]	[illegible]
EMO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.297366	0.246399	0.343002	0.177712	1.000000		[illegible]	[illegible]	[illegible]	[illegible]
ESC	0.272041	0.290830	0.354203	0.163049	0.323697	0.204996	0.194725	0.453899	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	

Table 58: Spearman Rank Order Correlations of EI for participants between 35 and 44 years of Age

EMOTIONAL INTELLIGENCE	Spearman Rank Order Correlations AGE=> 44 MD pairwise deleted Marked correlations are significant at p < .05000															
	ESA		EE		EAO		ER		ESM		EMO		ESC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
ESA	1.000000		0.374945	0.186523	0.276282	0.338991	0.185881	0.524618	0.224018	0.441351	0.258627	0.371964	0.033183	0.910337	0.460017	0.097910
EE	0.374945	0.186523	1.000000		0.469288	0.090471	0.152905	0.601765	[illegible]	[illegible]	0.363368	0.201588	[illegible]	[illegible]	[illegible]	[illegible]
EAO	0.276282	0.338991	0.469288	0.090471	1.000000		[illegible]	[illegible]	0.413754	0.141385	[illegible]	[illegible]	0.402936	0.153149	[illegible]	[illegible]
ER	0.185881	0.524618	0.152905	0.601765	[illegible]	[illegible]	1.000000		0.236487	0.415645	[illegible]	[illegible]	0.308908	0.282540	[illegible]	[illegible]
ESM	0.224018	0.441351	[illegible]	[illegible]	0.413754	0.141385	0.236487	0.415645	1.000000		0.129400	0.659290	[illegible]	[illegible]	[illegible]	[illegible]
EMO	0.258627	0.371964	0.363368	0.201588	[illegible]	[illegible]	[illegible]	[illegible]	0.129400	0.659290	1.000000		0.213639	0.463334	[illegible]	[illegible]
ESC	0.033183	0.910337	[illegible]	[illegible]	0.402936	0.153149	0.308908	0.282540	[illegible]	[illegible]	0.213639	0.463334	1.000000		[illegible]	[illegible]
TOTAL	0.460017	0.097910	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	

Table 59: Spearman Rank Order Correlations of EI for participants above 44 years of Age

F - 11 Tenure in the Information Systems Field and Emotional Intelligence

YEARS IN INFORMATION SYSTEMS FIELD	N	EMOTIONAL INTELLIGENCE															
		ESA		EE		EAO		ER		ESM		EMO		ESC		TOTAL	
		MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV
0 - 2 YRS	6	13.83333	4.020779	17.83333	3.868678	14.66667	2.503331	17.83333	5.492419	18.66667	3.881580	14.83333	4.119061	14.66667	3.265986	112.3333	25.50817
2 - 5 YRS	5	17.60000	2.073644	21.60000	2.701551	17.20000	1.788854	20.40000	3.049590	21.20000	0.836660	15.60000	3.847723	17.00000	1.581139	131.6000	11.43678
5 - 10 YRS	10	16.30000	1.828784	19.70000	3.880952	16.30000	1.888562	20.70000	3.591968	19.80000	2.096867	15.60000	2.538591	16.50000	2.505549	124.2000	19.69120
> 10 YRS	28	16.46429	2.027261	18.30000	3.501323	16.39286	1.969098	21.25000	2.878540	19.25714	2.497245	15.82143	2.389071	15.96429	2.219149	123.7500	12.73847
TOTAL	49	16.22449	2.434697	18.97959	3.602602	16.24490	2.048650	20.59184	3.081740	19.57143	2.753788	15.61224	2.548008	16.02041	2.378007	123.2449	14.92136

Table 60: Means and Standard Deviations of EI subscales and total score per Years in the IS field

EMOTIONAL INTELLIGENCE	Analysis of Variance (YEARS IN IS FIELD) Marked effects are significant at p < .05000							
	SS Effect	df Effect	MS Effect	SS Error	df Error	MS Error	F	p
ESA	[illegible]	3	[illegible]	[illegible]	45	[illegible]	[illegible]	[illegible]
EE	53.846	3	17.9488	569.133	45	12.6474	1.419165	0.249580
EAO	20.149	3	6.7164	180.912	45	4.0203	1.670646	0.186739
ER	58.053	3	19.3511	421.783	45	9.3730	2.064570	0.118308
ESM	20.538	3	6.8460	343.462	45	7.6325	0.896960	0.450152
EMO	13.492	3	4.4974	298.140	45	6.6253	0.678816	0.569597
ESC	18.182	3	6.0607	252.798	45	5.6177	1.078846	0.367659
TOTAL	1079.678	3	359.8926	9607.383	45	213.4974	1.685700	0.183515

Table 61: Analysis of Variance of Emotional Intelligence scores by Years in the IS field

EMOTIONAL INTELLIGENCE	KRUSKAL-WALLIS ANOVA BY RANKS (N=49) YEARS IN INFORMATION SYSTEMS FIELD					
	SUM OF RANKS				H (2, N=49)	p
	0 - 2 YRS (N=6)	2 - 5 YRS (N=5)	5 - 10 YRS (N=10)	> 10 YRS (N=28)		
ESA	92.5000	169.0000	240.0000	723.5000	4.8250	0.1851
EE	123.0000	181.5000	280.5000	640.0000	4.8484	0.1832
EAO	95.5000	152.0000	251.5000	726.0000	3.3440	0.3416
ER	103.5000	118.5000	246.5000	756.5000	2.4083	0.4921
ESM	117.0000	173.0000	257.5000	677.5000	3.3217	0.3446
EMO	120.0000	153.5000	200.5000	751.0000	3.2682	0.3521
ESC	104.5000	153.5000	272.5000	694.5000	2.7977	0.4239
TOTAL	106.0000	168.0000	246.0000	705.0000	3.4088	0.3328

Table 62: Kruskal-Wallis Anova Test for Emotional Intelligence Grouped by Years in the IS field

EMOTIONAL INTELLIGENCE	Spearman Rank Order Correlations **YRS IS=0 - 2 YEARS** MD pairwise deleted Marked correlations are significant at p < .05000															
	ESA		EE		EAO		ER		ESM		EMO		ESC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
ESA	1.000000		[illegible]	[illegible]	0.808824	0.051329	[illegible]	[illegible]	0.720588	0.106199	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EE	[illegible]	[illegible]	1.000000		0.764706	0.076532	[illegible]	[illegible]	0.647059	0.164869	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EAO	0.808824	0.051329	0.764706	0.076532	1.000000		0.753702	0.083523	[illegible]	[illegible]	0.716498	0.109167	[illegible]	[illegible]	0.753702	0.083523
ER	[illegible]	[illegible]	[illegible]	[illegible]	0.753702	0.083523	1.000000		0.637748	0.173071	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ESM	0.720588	0.106199	0.647059	0.164869	[illegible]	[illegible]	0.637748	0.173071	1.000000		0.626936	0.182805	0.782780	0.065652	0.637748	0.173071
EMO	[illegible]	[illegible]	[illegible]	[illegible]	0.716498	0.109167	[illegible]	[illegible]	0.626936	0.182805	1.000000		[illegible]	[illegible]	[illegible]	[illegible]
ESC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.782780	0.065652	[illegible]	[illegible]	1.000000		[illegible]	[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	0.753702	0.083523	[illegible]	[illegible]	0.637748	0.173071	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	

Table 63: Spearman Rank Order Correlations of EI for participants with 0 – 2 years in the IS field

Spearman Rank Order Correlations **YRS IS= 2 - 5 YEARS**
MD pairwise deleted
Marked correlations are significant at p < .05000

EMOTIONAL INTELLIGENCE	ESA		EE		EAO		ER		ESM		EMO		ESC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
ESA	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	0.737865	0.154619	0.565656	0.330936	0.760726	0.135345	[illegible]	[illegible]	[illegible]	[illegible]
EE	[illegible]	[illegible]	1.000000		0.802955	0.101638	0.615587	0.268998	0.432590	0.466905	0.740436	0.152413	0.872082	0.053854	0.872082	0.053854
EAO	[illegible]	[illegible]	0.802955	0.101638	1.000000		0.670820	0.215170	0.412479	0.490113	0.645497	0.239443	[illegible]	[illegible]	[illegible]	[illegible]
ER	0.737865	0.154619	0.615587	0.268998	0.670820	0.215170	1.000000		[illegible]	[illegible]	0.866025	0.057669	[illegible]	[illegible]	[illegible]	[illegible]
ESM	0.565656	0.330936	0.432590	0.466905	0.412479	0.490113	[illegible]	[illegible]	1.000000		0.760726	0.135345	0.737865	0.154619	0.737865	0.154619
EMO	0.760726	0.135345	0.740436	0.152413	0.645497	0.239443	0.866025	0.057669	0.760726	0.135345	1.000000		0.866025	0.057669	0.866025	0.057669
ESC	[illegible]	[illegible]	0.872082	0.053854	[illegible]	[illegible]	[illegible]	[illegible]	0.737865	0.154619	0.866025	0.057669	1.000000		1.000000	
TOTAL	[illegible]	[illegible]	0.872082	0.053854	[illegible]	[illegible]	[illegible]	[illegible]	0.737865	0.154619	0.866025	0.057669	1.000000		1.000000	

Table 64: Spearman Rank Order Correlations of EI for participants with 2 – 5 years in the IS field

Spearman Rank Order Correlations **YRS IS= 5 - 10 YEARS**
MD pairwise deleted
Marked correlations are significant at p < .05000

EMOTIONAL INTELLIGENCE	ESA		EE		EAO		ER		ESM		EMO		ESC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
ESA	1.000000		0.240429	0.503424	0.419495	0.227503	0.293756	0.410046	0.074640	0.837847	0.341694	0.333869	0.352347	0.481819	0.374658	0.286112
EE	0.240429	0.503424	1.000000		0.217110	0.546810	0.337689	0.339934	[illegible]	[illegible]	0.447396	0.194811	0.485913	0.164481	[illegible]	[illegible]
EAO	0.419495	0.227503	0.217110	0.546810	1.000000		[illegible]	[illegible]	0.088237	0.806341	0.569370	0.085796	0.163040	0.662680	0.616398	0.057713
ER	0.293756	0.410046	0.337689	0.339934	[illegible]	[illegible]	1.000000		0.197535	0.584363	[illegible]	[illegible]	-0.160891	0.666818	[illegible]	[illegible]
ESM	0.074640	0.837847	[illegible]	[illegible]	0.088237	0.806341	0.197535	0.584363	1.000000		0.377725	0.281867	0.486156	0.154244	[illegible]	[illegible]
EMO	0.341694	0.333869	0.447396	0.194811	0.569370	0.085796	[illegible]	[illegible]	0.377725	0.281867	1.000000		0.276409	0.439483	[illegible]	[illegible]
ESC	0.352347	0.481819	0.485913	0.164481	0.163040	0.662680	-0.160891	0.666818	0.486156	0.154244	0.276409	0.439483	1.000000		0.469334	0.171159
TOTAL	0.374658	0.286112	[illegible]	[illegible]	0.616398	0.057713	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.469334	0.171159	1.000000	

Table 65: Spearman Rank Order Correlations of EI for participants with 5 – 10 years in the IS field

Spearman Rank Order Correlations **YRS IS=MORE THAN 10 YEARS**
MD pairwise deleted
Marked correlations are significant at p = .05000

EMOTIONAL INTELLIGENCE	ESA		EE		EAO		ER		ESM		EMO		ESC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
ESA	1.000000		0.328571	0.087798			0.249056	0.201233	0.150812	0.443656			0.055968	0.777275		
EE	0.328571	0.087798	1.000000										0.337377	0.079134		
EAO					1.000000											
ER	0.249056	0.201733					1.000000						0.360058	0.059627		
ESM	0.150812	0.443656							1.000000							
EMO											1.000000					
ESC	0.055968	0.777275	0.337377	0.079134			0.360058	0.059627		0.000013			1.000000			
TOTAL										0.000013					1.000000	

Table 66: Spearman Rank Order Correlations of EI for participants with > 10 years in the IS field

E - 12. Tenure as an Information Systems Project Manager and Emotional Intelligence

EMOTIONAL INTELLIGENCE	Analysis of Variance (YEARS AS IS PM) Marked effects are significant at p < .05000							
	SS Effect	df Effect	MS Effect	SS Error	df Error	MS Error	F	p
ESA	12.6417	3	4.2139	271.89	45	6.0420	0.697439	0.558503
EE	9.8674	3	3.2858	613.12	45	13.6249	0.241160	0.867163
EAO	16.7247	3	5.5749	184.34	45	4.0964	1.360939	0.266826
ER	60.4151	3	20.1384	419.42	45	9.3205	2.160658	0.105846
ESM	3.2302	3	1.0767	360.77	45	8.0171	0.134303	0.939098
EMO	19.5396	3	6.5132	292.09	45	6.4910	1.003427	0.400061
ESC	19.0224	3	6.3408	251.96	45	5.5990	1.132481	0.346095
TOTAL	468.7327	3	156.2442	10218.33	45	227.0740	0.688076	0.564060

Table 67: Analysis of Variance of EI scores by Number of Years as an IS Project Manager

EMOTIONAL INTELLIGENCE	Spearman Rank Order Correlations YRS IS PM=0 - 2 YEARS MD pairwise deleted Marked correlations are significant at p < .05000															
	ESA		EE		EAO		ER		ESM		EMO		ESC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
ESA	1.000000															
EE			1.000000				0.466560	0.093413								
EAO					1.000000											
ER			0.466560	0.093413			1.000000		0.514478	0.059796			0.377697	0.183052		
ESM							0.514478	0.059796	1.000000							
EMO											1.000000		0.513638	0.060286		
ESC							0.377697	0.183052			0.513638	0.060286	1.000000			
TOTAL															1.000000	

Table 68: Spearman Rank Order Correlations of EI for participants with 0 – 2 years as an IS Project Manager

Spearman Rank Order Correlations: **YRS IS PM-MORE THAN 10 YEARS**
MD pairwise deleted
Marked correlations are significant at p < .05000

EMOTIONAL INTELLIGENCE	ESA		EE		EAO		ER		ESM		EMO		ESC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
ESA	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.061729	0.874658	[illegible]	[illegible]	0.081552	0.834782	[illegible]	[illegible]
EE	[illegible]	[illegible]	1.000000		0.571891	0.107787	0.576292	0.104336	-0.237070	0.539095	[illegible]	[illegible]	-0.200884	0.604276	0.645575	0.060366
EAO	[illegible]	[illegible]	0.571891	0.107787	1.000000		[illegible]	[illegible]	0.290569	0.464609	[illegible]	[illegible]	0.211472	0.584935	[illegible]	[illegible]
ER	[illegible]	[illegible]	0.576292	0.104336	[illegible]	[illegible]	1.000000		0.376342	0.318143	[illegible]	[illegible]	0.189662	0.625019	[illegible]	[illegible]
ESM	0.061729	0.874658	-0.237070	0.539095	0.290569	0.464609	0.376342	0.318143	1.000000		-0.133977	0.731115	0.451066	0.222998	0.290978	0.447473
EMO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0.133977	0.731115	1.000000		0.017391	0.964580	[illegible]	[illegible]
ESC	0.081552	0.834782	-0.200884	0.604276	0.211472	0.584935	0.189662	0.625019	0.451066	0.222998	0.017391	0.964580	1.000000		0.373422	0.322217
TOTAL	[illegible]	[illegible]	0.645575	0.060366	[illegible]	[illegible]	[illegible]	[illegible]	0.290978	0.447473	[illegible]	[illegible]	0.373422	0.322217	1.000000	

Table 69: Spearman Rank Order Correlations of EI for participants with > 10 years as an IS Project Manager

F – EI. Occupational background and Emotional intelligence

OCCUPATIONAL BACKGROUND	N	EMOTIONAL INTELLIGENCE															
		ESA		EE		EAO		TR		ESM		EMO		ERC		TOTAL	
		MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV
TECHNICAL	22	16.00000	2.309401	18.31818	4.630374	16.81818	2.038509	20.27273	2.668955	18.59091	2.612408	15.13636	2.873981	15.54545	2.482842	119.8318	14.33413
BUSINESS	16	16.18750	2.903303	19.62500	3.882210	16.25000	2.323790	20.43750	4.366062	21.12500	2.804463	16.18750	2.993743	16.56250	2.475715	126.3750	17.65172
OTHER	11	16.72727	2.053921	19.36364	3.233349	17.09091	1.445998	21.45455	3.114982	19.27273	2.412091	15.72727	2.195036	16.18182	1.990888	125.8182	10.94825
TOTAL	49	16.22449	2.434691	18.97959	3.600607	16.24490	2.046650	20.65184	3.161740	19.57143	2.756786	15.81224	2.648039	16.02041	2.376007	125.3449	14.32186

Table 70: Means and Standard Deviations of EI subscales and total score per Occupational Background

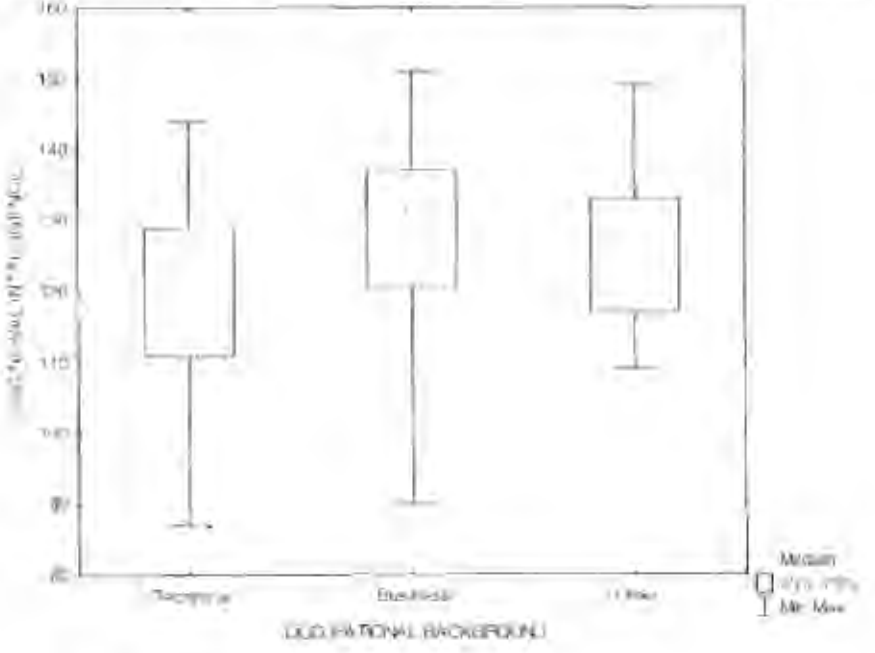

Figure 29: Box plot of Emotional Intelligence scores grouped by Occupational Background

EMOTIONAL INTELLIGENCE	Analysis of Variance (OCCUPATIONAL BACKGROUND) Marked effects are significant at p < .05000							
	SS Effect	df Effect	MS Effect	SS Error	df Error	MS Error	F	p
ESA	3.9113	2	1.9556	280.62	46	6.1004	0.320576	0.727339
EE	17.9114	2	8.9557	605.07	46	13.1537	0.680853	0.511212
EAO	11.8794	2	5.9397	189.19	46	4.1126	1.444253	0.246419
ER	10.8063	2	5.4032	469.03	46	10.1963	0.529814	0.592148
ESM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EMO	10.4224	2	5.2112	301.21	46	6.5480	0.795842	0.457315
ESC	9.9512	2	4.9756	261.03	46	5.6745	0.876829	0.422939
TOTAL	506.9021	2	254.4511	10176.16	46	221.2643	1.149987	0.325575

Table 71: Analysis of Variance of Emotional Intelligence scores by Occupational Background

OCCUPATIONAL BACKGROUND	MULTIPLE COMPARISONS EMOTIONAL SELF MANAGEMENT (ESM) KRUSKAL-WALLIS TEST: H (2, N= 49) =9.321717 p = .0095					
	z' values			p' values (2 tailed)		
	TECHNICAL R: 19.795	BUSINESS R:33.719	OTHER R:22.727	TECHNICAL R:19.795	BUSINESS R:33.719	OTHER R:22.727
TECHNICAL		[illegible]	0.656642		[illegible]	1.000000
BUSINESS	[illegible]		1.963985	[illegible]		0.148596
OTHER	0.656642	1.963985		1.000000	0.148596	

Table 72: Multiple Comparisons of Emotional Self Management (ESM) by Occupational Background

Spearman Rank Order Correlations **BACKGROUND=BUSINESS**
MD pairwise deleted
Marked correlations are significant at p < .05000

EMOTIONAL INTELLIGENCE	ESA		EE		EAO		ER		ESM		EMO		ESC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
ESA	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.447968	0.081839	[illegible]	[illegible]
EE	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	0.412505	0.112323	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EAO	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.424389	0.101342	[illegible]	[illegible]
ER	[illegible]	[illegible]	0.412505	0.112323	[illegible]	[illegible]	1.000000		0.278581	0.296116	[illegible]	[illegible]	0.154139	0.568701	[illegible]	[illegible]
ESM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.278581	0.296116	1.000000		0.496850	0.050782	[illegible]	[illegible]	[illegible]	[illegible]
EMO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.496850	0.050782	1.000000		0.359576	0.171340	[illegible]	[illegible]
ESC	0.447968	0.081839	[illegible]	[illegible]	0.424389	0.101342	0.154139	0.568701	[illegible]	[illegible]	0.359576	0.171340	1.000000		[illegible]	[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	

Table 73: Spearman Rank Order Correlations of EI for participants with a Business Occupational Background

Spearman Rank Order Correlations **BACKGROUND=TECHNICAL**
MD pairwise deleted
Marked correlations are significant at p < .05000

EMOTIONAL INTELLIGENCE	ESA		EE		EAO		ER		ESM		EMO		ESC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
ESA	1.000000		0.353013	0.107070	[illegible]	[illegible]	0.418670	0.052344	[illegible]	[illegible]	[illegible]	[illegible]	0.396204	0.067938	[illegible]	[illegible]
EE	0.353013	0.107070	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EAO	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ER	0.418670	0.052344	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		0.390658	0.072240	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ESM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.390658	0.072240	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EMO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]
ESC	0.396204	0.067938	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	

Table 74: Spearman Rank Order Correlations of EI for participants with a Technical Occupational Background

Spearman Rank Order Correlations **BACKGROUND=OTHER**
MD pairwise deleted
Marked correlations are significant at p < .05000

EMOTIONAL INTELLIGENCE	ESA		EE		EAD		ER		ESM		EMO		ESC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
ESA	1.000000		0.357317	0.280676	0.492947	0.123406	0.295529	0.377605	-0.229881	0.496503	[illegible]	[illegible]	0.139825	0.681776	0.497330	0.126404
EE	0.357317	0.280676	1.000000		0.231757	0.492897	0.293479	0.381079	0.381262	0.247306	[illegible]	[illegible]	0.343606	0.300954	[illegible]	[illegible]
EAD	0.492947	0.123406	0.231757	0.492897	1.000000		0.575919	0.063712	0.045894	0.893411	0.361970	0.274804	0.410633	0.209659	0.597927	0.052022
ER	0.295529	0.377605	0.293479	0.381079	0.575919	0.063712	1.000000		0.407675	0.213286	0.442111	0.173345	0.465229	0.149317	[illegible]	[illegible]
ESM	-0.229881	0.496503	0.381262	0.247306	0.045894	0.893411	0.407675	0.213286	1.000000		0.094796	0.791593	0.549077	0.080890	0.566574	0.066331
EMO	[illegible]	[illegible]	[illegible]	[illegible]	0.361970	0.274804	0.442111	0.173345	0.094796	0.791593	1.000000		0.431323	0.195321	[illegible]	[illegible]
ESC	0.139825	0.681776	0.343606	0.300954	0.410633	0.209659	0.465229	0.149317	0.549077	0.080890	0.431323	0.195321	1.000000		[illegible]	[illegible]
TOTAL	0.497330	0.126404	[illegible]	[illegible]	0.597927	0.052022	[illegible]	[illegible]	0.566574	0.066331	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	

Table 75: Spearman Rank Order Correlations of EI for participants with a Other Occupational Backgrounds

E – 14. Preferred project Type and Emotional Intelligence

PREFERRED PROJECT TYPE	N	EMOTIONAL INTELLIGENCE															
		ESA		EE		EAO		ER		ESM		EMO		ESC		TOTAL	
		MEAN	STD DEV	MEAN	STD DEV	MEAN	STD DEV	MEAN	STD DEV	MEAN	STD DEV	MEAN	STD DEV	MEAN	STD DEV	MEAN	STD DEV
TECHNICAL	22	16.04545	2.399946	18.95455	3.525111	15.95455	2.011932	20.50000	2.324814	18.98456	2.785831	15.40909	2.560645	15.31818	2.212225	121.1364	14.71489
CHANGE	27	16.37037	2.409433	19.00000	3.731364	16.48148	2.065350	20.66667	3.751923	20.03407	2.673092	15.77778	2.621411	16.59259	[illegible]	124.0630	15.94473
TOTAL	49	16.22449	2.434691	18.97959	3.609802	16.24490	2.046650	20.59184	3.161740	19.57143	2.753786	15.61224	2.548058	16.02041	2.378637	123.2449	14.92136

Table 76: Means and Standard Deviations of EI subscales and total score per Project Preference

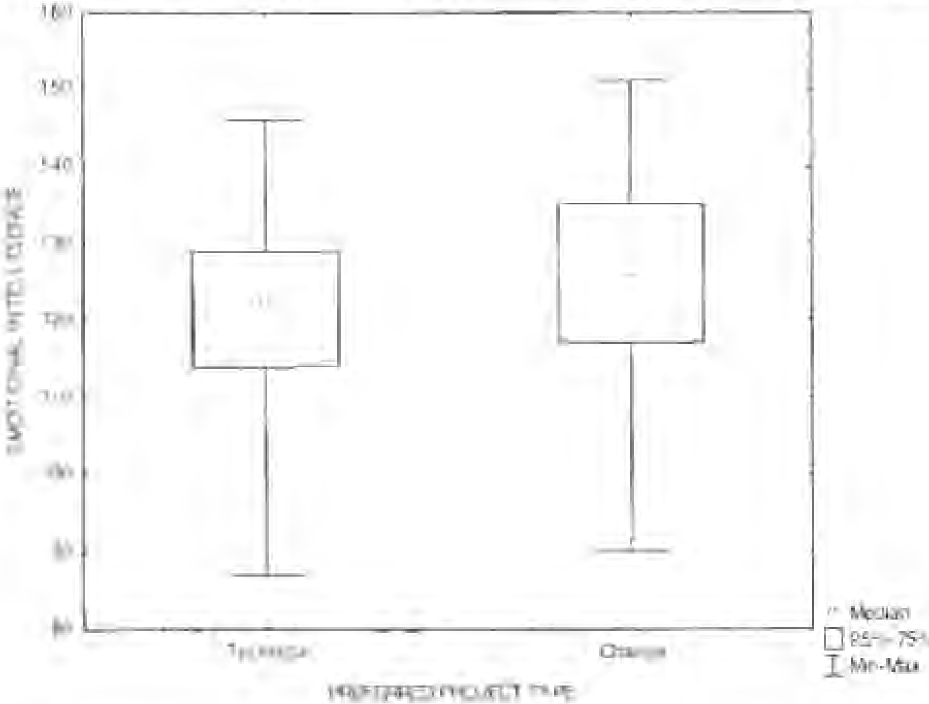

Figure 30: Box plot of Emotional Intelligence grouped by Preferred Project type

EMOTIONAL INTELLIGENCE	Analysis of Variance (PREFERRED PROJECT TYPE) Marked effects are significant at p < .05000							
	SS Effect	df Effect	MS Effect	SS Error	df Error	MS Error	F	p
ESA	1.2798	1	1.2798	283.25	47	6.0266	0.212353	0.647055
EE	0.0250	1	0.0250	622.95	47	13.2544	0.001890	0.965511
EAO	3.3659	1	3.3659	197.70	47	4.2063	0.800217	0.375587
ER	0.3367	1	0.3367	479.50	47	10.2021	0.033006	0.856618
ESM	15.1936	1	15.1936	348.81	47	7.4214	2.047266	0.159095
EMO	1.6478	1	1.6478	309.98	47	6.5954	0.249841	0.619519
ESC	19.6883	1	19.6883	251.29	47	5.3466	3.682390	0.061074
TOTAL	177.5074	1	177.5074	10509.55	47	223.6075	0.793634	0.377482

Table 77: Analysis of Variance of Emotional Intelligence scores by Project Preference

EMOTIONAL INTELLIGENCE	Spearman Rank Order Correlations: PREFERRED PROJECT=CHANGE MD pairwise deleted Marked correlations are significant at p < .05000															
	ESA		EE		EAO		ER		ESM		EMO		ESC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
ESA	1.000000		[illegible]		[illegible]		[illegible]		0.258862	0.192322	[illegible]		0.252933	0.203051	[illegible]	
EE	[illegible]		1.000000		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]	
EAO	[illegible]		[illegible]		1.000000		[illegible]		0.233879	0.240340	[illegible]		0.251217	0.206237	[illegible]	
ER	[illegible]		[illegible]		[illegible]		1.000000		0.334803	0.087816	[illegible]		0.260177	0.189974	[illegible]	
ESM	0.258862	0.192322	[illegible]		0.233879	0.240340	0.334803	0.087816	1.000000		[illegible]		[illegible]		[illegible]	
EMO	[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		1.000000		[illegible]		[illegible]	
ESC	0.252933	0.203051	[illegible]		0.251217	0.206237	0.260177	0.189974	[illegible]		[illegible]		1.000000		[illegible]	
TOTAL	[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		1.000000	

Table 78: Spearman Rank Order Correlations of EI for participants with a Preference for Change Projects

Spearman Rank Order Correlations. **PREFERRED PROJECT=TECHNICAL**
MD pairwise deleted
Marked correlations are significant at p < .05000

EMOTIONAL INTELLIGENCE	ESA		EE		EAO		ER		ESM		EMO		ESC		TOTAL	
	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
ESA	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.366595	0.104349	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EE	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EAO	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ER	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ESM	0.366595	0.104349	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EMO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]	[illegible]	[illegible]
ESC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000		[illegible]	[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	

Table 79: Spearman Rank Order Correlations of EI for participants with a Preference for Technical Projects

F 15. Occupational Background and Preferred Project Type

Summary Frequency Table Marked cells have counts > 10				
		Preferred Project Type		
		Technical	Change	Total
Occupational Background	IS Technical	[illegible]	7	22
	IS Business	3	[illegible]	16
	Other Profession	4	7	11
	Total	22	27	49

Table 80: Summary Frequency Table of Occupational Background and Preferred Project type

Statistics: PREFERRED PROJECT TYPE and OCCUPATIONAL BACKGROUND			
Statistic	Chi-square	df	p
Pearson Chi-square	9.56668	df=2	0.00837
M-L Chi-square	10.03263	df=2	0.00663
Spearman Rank R	0.343397	t=2.5066	0.01571

Table 81: Statistics for Occupational Background and Preferred Project Type

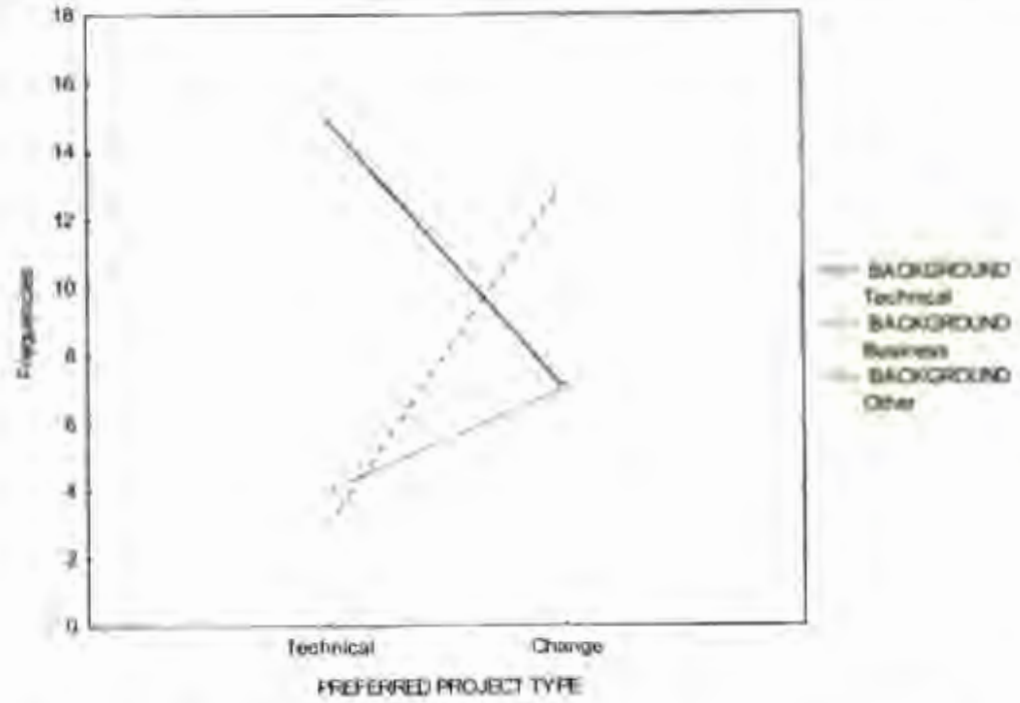

Figure 31: Interaction Plot of Occupational Background and Preferred Project Type

E - 16. Transformational Leadership and Emotional Intelligence

EMOTIONAL INTELLIGENCE & TRANSFORMATIONAL LEADERSHIP STYLE
Marked correlations are significant at p < .05000
N=49 (Casewise deletion of missing data)

		TRANSFORMATIONAL LEADERSHIP STYLE											
		IIA		IIB		IM		IS		IC		TOTAL	
		r	p	r	p	r	p	r	p	r	p	r	p
EMOTIONAL INTELLIGENCE	ESA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.5037	0.000	[illegible]	[illegible]
	EE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	EAO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	ER	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	ESM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.2794	0.052	[illegible]	[illegible]
	EMO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	ESC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 82: Correlations between Emotional Intelligence and Transformational Leadership data

EMOTIONAL INTELLIGENCE & TRANSFORMATION LEADERSHIP STYLE
Spearman Rank Order Correlations
Marked correlations are significant at p < .05000

		TRANSFORMATIONAL LEADERSHIP STYLE											
		IIA		IIB		IM		IS		IC		TOTAL	
		Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
EMOTIONAL INTELLIGENCE	ESA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	EE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	EAO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	ER	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	ESM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.225897	0.118593	[illegible]	[illegible]
	EMO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	ESC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 83: Spearman Rank Order Correlations of EI and TL for all groups

E - 17. Transformational Leadership, Emotional Intelligence and Gender

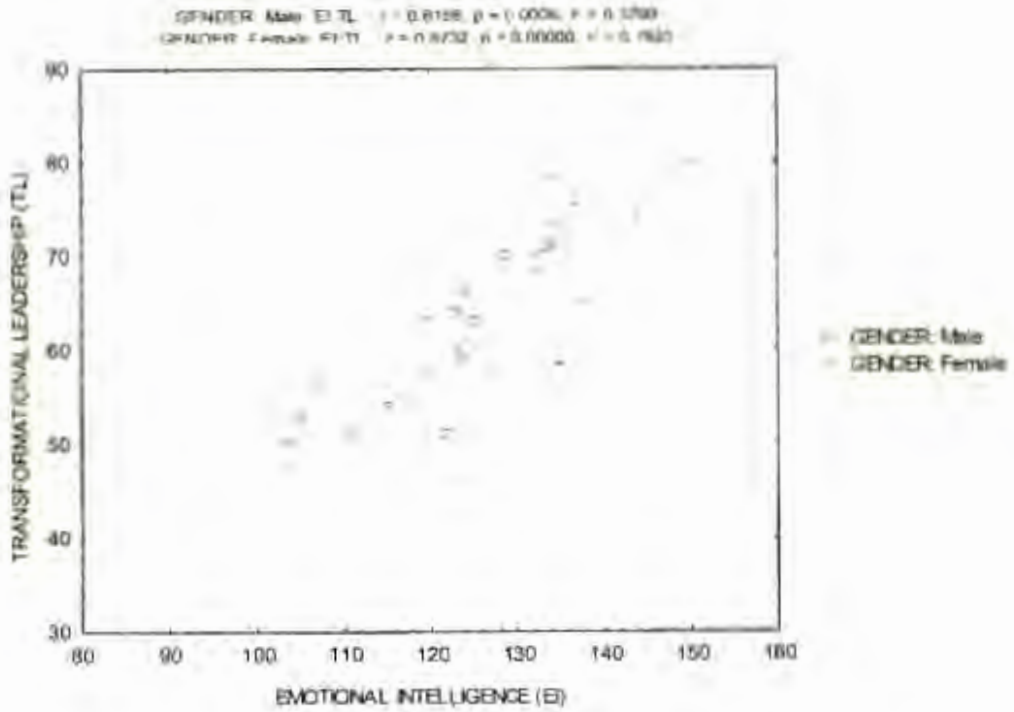

Figure 32: Scatter plot of TL and Emotional Intelligence data categorized by Gender

EMOTIONAL INTELLIGENCE & TRANSFORMATIONAL LEADERSHIP STYLE
Spearman Rank Order Correlations **GENDER: FEMALE**
Marked correlations are significant at p < .05000

		TRANSFORMATIONAL LEADERSHIP STYLE											
		IIA		IIB		IM		IS		IC		TOTAL	
		Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
EMOTIONAL INTELLIGENCE	ESA												
	EE												
	EAO												
	ER												
	ESM									0.342108	0.119134		
	EMO												
	ESC												
	TOTAL												

Table 84: Spearman Rank Order Correlations of EI and TL for Females

E - 18. Transformational Leadership, Emotional Intelligence and Age

EMOTIONAL INTELLIGENCE & TRANSFORMATION LEADERSHIP STYLE
Spearman Rank Order Correlations **AGE: < 34 YEARS**
Marked correlations are significant at p < .05000

		TRANSFORMATIONAL LEADERSHIP STYLE											
		IIA		IIB		IM		IS		IC		TOTAL	
		Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
EMOTIONAL INTELLIGENCE	ESA												
	EE												
	EAO												
	ER												
	ESM												
	EMO												
	ESC												
	TOTAL												

Table 85: Spearman Rank Order Correlations of EI and TL for participants with less than 34 years of Age

EMOTIONAL INTELLIGENCE & TRANSFORMATION LEADERSHIP STYLE
Spearman Rank Order Correlations **AGE: > 44 YEARS**
Marked correlations are significant at p < .05000

		TRANSFORMATIONAL LEADERSHIP STYLE											
		IIA		IIB		IM		IS		IC		TOTAL	
		Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
EMOTIONAL INTELLIGENCE	ESA	0.114424	0.696905	0.318165	0.267604	0.193550	0.507334			0.031623	0.913998	0.278352	0.395235
	EE	0.049276	0.867150	0.207594	0.476376	0.275124	0.341101	0.518985	0.057215	0.085661	0.770850	0.239203	0.410151
	EAO							0.274466	0.342304	0.479625	0.062506		
	ER							0.193258	0.507988				
	ESM	0.279086	0.333690	0.156406	0.595763	0.073950	0.801628	0.349100	0.221165	-0.168353	0.566074	0.121794	0.678308
	EMO	0.320458	0.263979			0.487415	0.077083	0.272942	0.345100				
	ESC	0.136878	0.640781	0.072154	0.806362	0.124149	0.672401	0.119505	0.684067	-0.229219	0.430634	0.067118	0.819666
	TOTAL	0.430200	0.124682			0.451151	0.105410	0.404248	0.151688	0.214210	0.452111	0.493923	0.072636

Table 86: Spearman Rank Order Correlations of EI and TL for participants with > 45 years of Age

E – 19. Transformational Leadership, Emotional Intelligence and Tenure in the IS Field

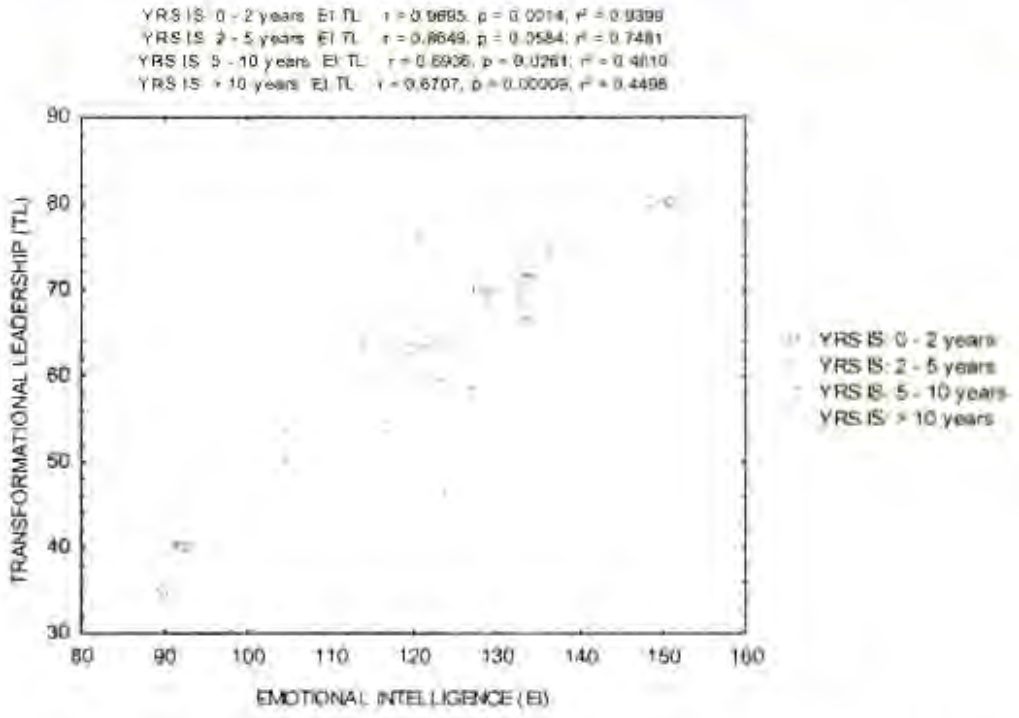

Figure 33: Scatter plot of TL and EI data categorized by number of Years in the IS field

EMOTIONAL INTELLIGENCE & TRANSFORMATION LEADERSHIP STYLE
Spearman Rank Order Correlations
YEARS IN INFORMATION SYSTEMS FIELD: 0 - 2 YRS
Marked correlations are significant at p < .05000

		TRANSFORMATIONAL LEADERSHIP STYLE											
		IIA		IIB		IM		IS		IC		TOTAL	
		Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
EMOTIONAL INTELLIGENCE	ESA												
	EE			1.000000								1.000000	
	EAO			0.764706	0.076532			0.716498	0.109167			0.764706	0.076532
	ER												
	ESM	0.782780	0.065652	0.647059	0.164869	0.782780	0.065652	0.626936	0.182805	0.708447	0.115113	0.647059	0.164869
	EMO							1.000000					
	ESC	1.000000				1.000000							
	TOTAL												

Table 87: Spearman Rank Order Correlations of EI and TL for participants with 0 – 2 Years in the IS field

EMOTIONAL INTELLIGENCE & TRANSFORMATION LEADERSHIP STYLE
Spearman Rank Order Correlations
YEARS IN INFORMATION SYSTEMS FIELD: MORE THAN 10 YRS
Marked correlations are significant at p < .05000

		TRANSFORMATIONAL LEADERSHIP STYLE											
		IIA		IIB		IM		IS		IC		TOTAL	
		Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
EMOTIONAL INTELLIGENCE	ESA					0.250141	0.199213						
	EE									0.325693	0.090779		
	EAO												
	ER												
	ESM	0.356652	0.062544	0.278027	0.151992	0.267667	0.169492			0.015971	0.936711	0.355905	0.063373
	EMO	0.306426	0.112753										
	ESC	0.194863	0.320887	0.202433	0.301565	0.262709	0.144928	0.155486	0.429489	0.108729	0.581807	0.263621	0.174927
	TOTAL												

Table 88: Spearman Rank Order Correlations of EI and TL for participants with > 10 Years in the IS field

E - 20. Transformational Leadership, Emotional Intelligence and Tenure as an IS Project Manager

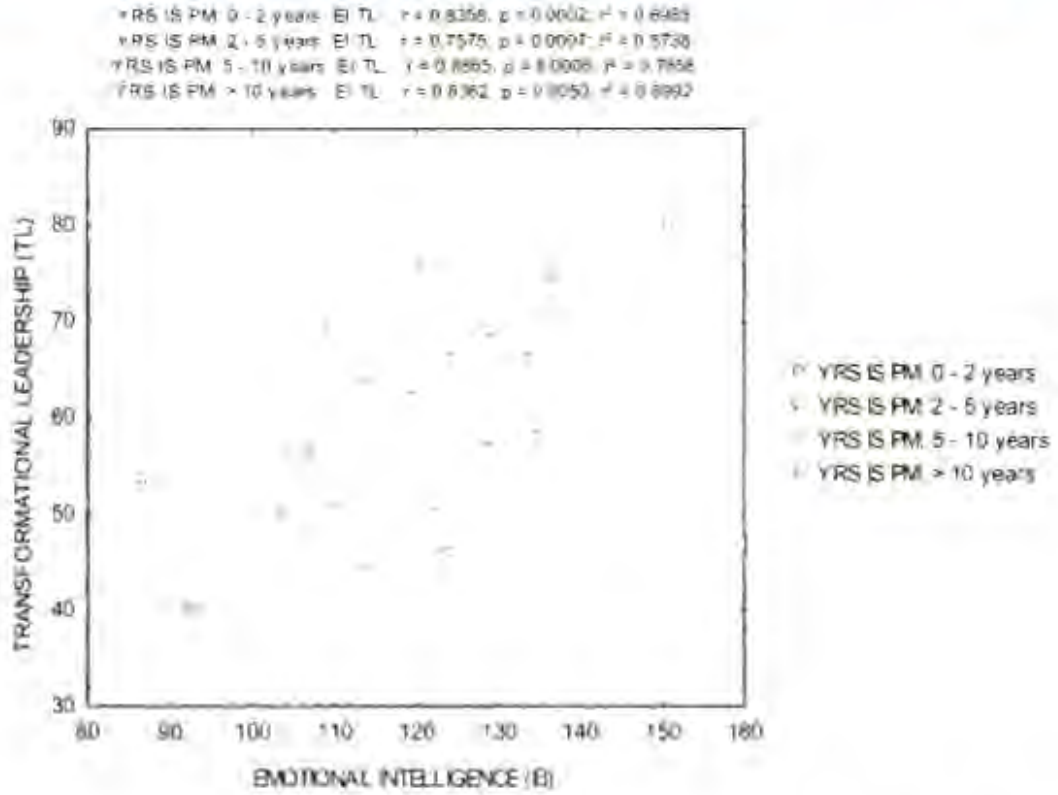

Figure 24: Scatter plot of TL and EI data categorized by number of Years as an IS Project Manager

EMOTIONAL INTELLIGENCE & TRANSFORMATION LEADERSHIP STYLE
Spearman Rank Order Correlations
YEARS AS INFORMATION SYSTEMS PROJECT MANAGER: 5 - 10 YRS
Marked correlations are significant at p < .05000

		TRANSFORMATIONAL LEADERSHIP STYLE											
		IIA		IIB		IM		IS		IC		TOTAL	
		Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
EMOTIONAL INTELLIGENCE	ESA	0.514413	0.126195	0.151947	0.675183	0.025325	0.944638	[illegible]	[illegible]	0.453881	0.156470	0.511247	0.130967
	EE	[illegible]	[illegible]	[illegible]	[illegible]	0.622711	0.054489	0.490768	0.149790	0.537868	0.108944	[illegible]	[illegible]
	EAO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.504734	0.136765	0.460336	0.180639	[illegible]	[illegible]
	ER	[illegible]	[illegible]	0.408119	0.241670	0.445502	0.196838	0.667626	0.036843	0.396843	0.256163	[illegible]	[illegible]
	ESM	0.546584	0.102076	-0.034166	0.925689	0.012384	0.972914	0.626987	0.052364	0.489026	0.151469	0.546307	0.102267
	EMO	[illegible]	[illegible]	0.591300	0.071800	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	ESC	0.550011	0.099514	0.573234	0.083213	0.601272	0.066961	0.454261	0.187216	[illegible]	[illegible]	[illegible]	[illegible]
	TOTAL	[illegible]	[illegible]	0.615366	0.058242	0.560000	0.092272	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 89: Spearman Rank Order Correlations of EI and TL for 5 – 10 Years as an IS Project Manager

EMOTIONAL INTELLIGENCE & TRANSFORMATIONAL LEADERSHIP STYLE
Spearman Rank Order Correlations
YEARS AS INFORMATION SYSTEMS PROJECT MANAGER: MORE THAN 10 YRS
Marked correlations are significant at p < .05000

		TRANSFORMATIONAL LEADERSHIP STYLE											
		IIA		IIB		IM		IS		IC		TOTAL	
		Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
EMOTIONAL INTELLIGENCE	ESA	0.648122	0.059048	0.610169	0.080995	0.656325	0.056366	[illegible]	[illegible]	0.457668	0.208830	[illegible]	[illegible]
	EE	0.294315	0.441063	0.447261	0.227397	0.681717	0.086482	[illegible]	[illegible]	0.641119	0.062773	0.550420	0.124629
	EAO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.537492	0.136586	[illegible]	[illegible]
	ER	[illegible]	[illegible]	0.516843	0.160096	0.542735	0.131076	[illegible]	[illegible]	0.357772	0.344483	0.627141	0.070645
	ESM	0.491248	0.179283	0.079358	0.839160	-0.106261	0.786553	0.044276	0.909950	-0.408396	0.277743	-0.039512	0.919612
	EMO	0.526087	0.145707	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	ESC	0.243478	0.527845	0.206026	0.594852	0.196283	0.609062	-0.086210	0.825458	-0.234783	0.543134	0.158143	0.684473
	TOTAL	[illegible]	[illegible]	0.550847	0.124276	0.600006	0.087619	[illegible]	[illegible]	0.236071	0.540858	0.616039	0.077316

Table 90: Spearman Rank Order Correlations of EI and TL for > 10 Years as an IS Project Manager

E – 21. Transformational Leadership, Emotional Intelligence and Occupational Background

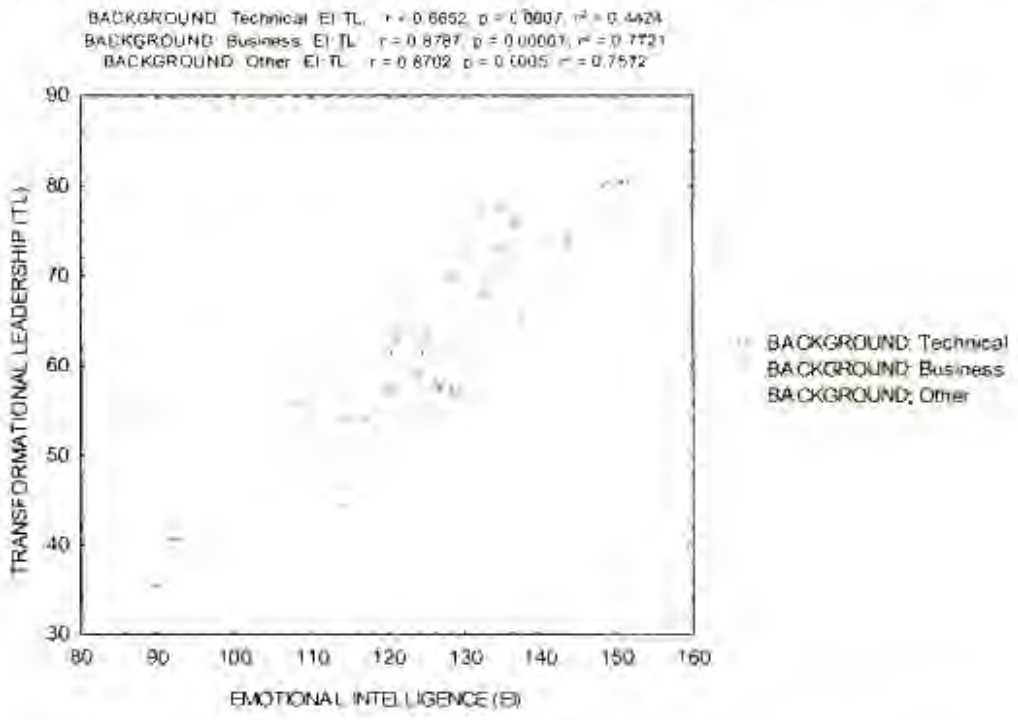

Figure 35: Scatter plot of TL and EI data categorized by Occupational Background

EMOTIONAL INTELLIGENCE & TRANSFORMATION LEADERSHIP STYLE
Spearman Rank Order Correlations
OCCUPATIONAL BACKGROUND: TECHNICAL
Marked correlations are significant at p < .05000

		TRANSFORMATIONAL LEADERSHIP STYLE											
		IIA		IIB		IM		IS		IC		TOTAL	
		Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
EMOTIONAL INTELLIGENCE	ESA									0.301040	0.173384		
	EE									0.270589	0.223236		
	EAO												
	ER												
	ESM	0.379332	0.061662	0.099102	0.660822	0.188522	0.400795	0.431905	0.044722	0.256682	0.248863	0.402816	0.063065
	EMO	0.361226	0.098590	0.336873	0.125263			0.352295	0.107806	0.410612	0.057668		
	ESC	0.421841	0.060525	0.410683	0.057687					0.325395	0.139486		
	TOTAL									0.378931	0.082011		

Table 91: Spearman Rank Order Correlations of EI and TL for a Technical Occupational Background

EMOTIONAL INTELLIGENCE & TRANSFORMATION LEADERSHIP STYLE
Spearman Rank Order Correlations
OCCUPATIONAL BACKGROUND: OTHER
Marked correlations are significant at p < .05000

		TRANSFORMATIONAL LEADERSHIP STYLE											
		IIA		IIB		IM		IS		IC		TOTAL	
		Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
EMOTIONAL INTELLIGENCE	ESA	0.433988	0.182789	0.460727	0.153823	0.213292	0.528864	0.168619	0.620168	0.418224	0.200520	0.440561	0.175036
	EE	0.490746	0.125349	0.571321	0.066361			0.525604	0.096813				
	EAO			0.515817	0.104346			0.343723	0.300679	0.500091	0.117230		
	ER	0.563736	0.070891	0.562828	0.071447					0.347542	0.294983	0.601475	0.050286
	ESM	0.427955	0.189161			0.533654	0.090892	0.306436	0.359394	0.087687	0.797668	0.534352	0.090390
	EMO			0.310334	0.352995	0.447913	0.167106	0.529275	0.094082				
	ESC			0.309936	0.353646	0.552885	0.077726	0.406204	0.215103	0.305718	0.360576	0.586369	0.057961
	TOTAL							0.594965	0.053503				

Table 92: Spearman Rank Order Correlations of EI and TL for Other Occupational Backgrounds

E – 22. Transformational Leadership, Emotional Intelligence and Project Preference

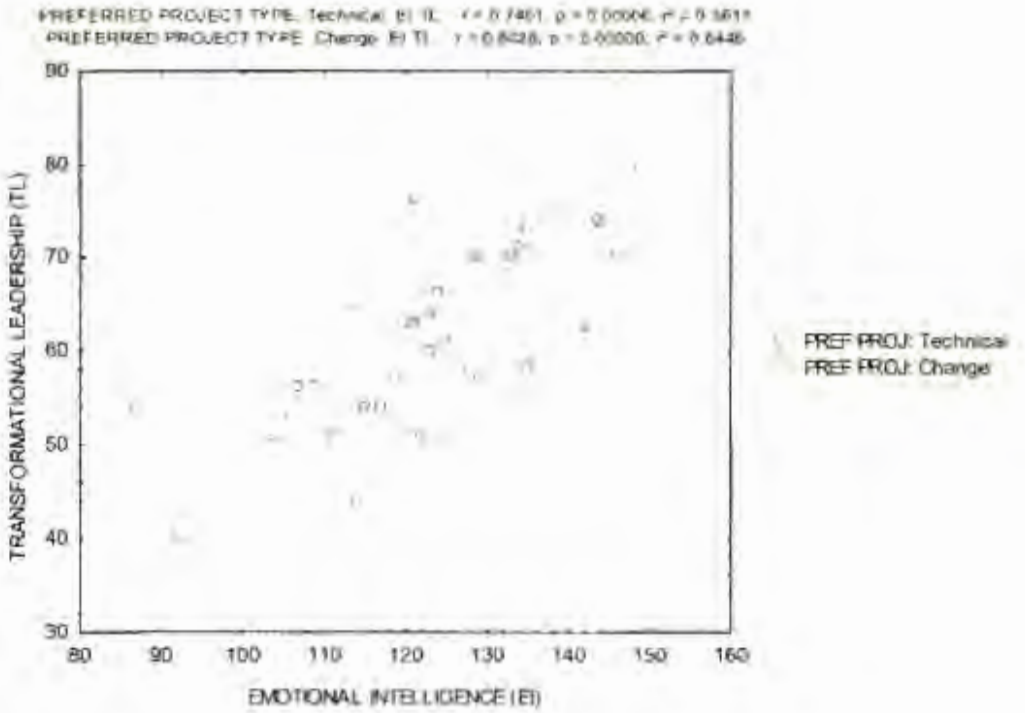

Figure 36: Scatter plot of TL and Emotional Intelligence data categorized by Project type Preference

EMOTIONAL INTELLIGENCE & TRANSFORMATION LEADERSHIP STYLE
Spearman Rank Order Correlations
PREFERRED PROJECT TYPE: CHANGE
Marked correlations are significant at p < .05000

		TRANSFORMATIONAL LEADERSHIP STYLE											
		IIA		IIB		IM		IS		IC		TOTAL	
		Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
EMOTIONAL INTELLIGENCE	ESA												
	EE	0.355366	0.068903							0.227384	0.254022		
	EAO												
	ER												
	ESM	0.250318	0.207919	0.207732	0.298457	0.246871	0.214457			0.121432	0.546269	0.269892	0.173367
	EMO												
	ESC	0.213496	0.284955	0.151157	0.451683	0.341753	0.224418	0.341793	0.080992	0.225686	0.257682	0.212876	0.286390
	TOTAL												

Table 93: Spearman Rank Order Correlations of EI and TL for Change Projects as a Preference

EMOTIONAL INTELLIGENCE & TRANSFORMATION LEADERSHIP STYLE
Spearman Rank Order Correlations
PREFERRED PROJECT TYPE:TECHNICAL
Marked correlations are significant at p < .05000

		TRANSFORMATIONAL LEADERSHIP STYLE											
		IIA		IIB		IM		IS		IC		TOTAL	
		Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level	Spearman R	p-level
EMOTIONAL INTELLIGENCE	ESA												
	EE												
	EAO												
	ER												
	ESM					0.384084	0.077603			0.343438	0.117613		
	EMO					0.413024	0.056072						
	ESC									0.383914	0.077746		
	TOTAL												

Table 94: Spearman Rank Order Correlations of EI and TL for Technical Projects as a Preference

APPENDIX F - EMOTIONAL INTELLIGENCE FEEDBACK

The data collected from the 51 participants who completed the questions for the Genos Emotional Intelligence Inventory were sent to Professor Gignac for scoring as requested by the authors of the Genos EI.

From Gilles Gignac [illegible]
To Olivia Kirabira [illegible]
Date [illegible] AM
Subject Re: Genos EI Concise
Attachments [illegible]

Hi Olivia,

[illegible]

[illegible]

Total EI = 93
[illegible] 74
[illegible]
[illegible] 39
[illegible]
[illegible] 60
[illegible] 62
[illegible] 66

[illegible]

Gilles

On Tue, May [illegible], 2010 at [illegible] AM, Olivia Kirabira
<[illegible]> wrote:

> Dear Dr Gignac,
> I hope that you are well.
> As per our last correspondence below, please find attached the results of
> [illegible]
>
> Thank you in advance for your assistance.
>
> Kind regards,
> Olivia Kirabira
>
> [illegible]
> Dear Olivia Kirabira,
>
> Thank you for contacting us with your request to conduct research with
> Genos
> EI (concise).
>
> [illegible]
> [illegible]
> [illegible]
> [illegible]
>
> Regards,
>
> Gilles
>
> --
> Dr Gilles Gignac
>
> Director of Research & Development
> Genos Pty Ltd
> [illegible]
> [illegible]
>
> p: [illegible]
>
> f: [illegible]
>
> e: [illegible]