HAPPINESS AT WORK:

ARE JOB SATISFACTION, JOB SELF-EFFICACY AND TRAIT EMOTIONAL INTELLIGENCE RELATED?

BY

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DECLARATION

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I hereby declare that "Happiness at work: are job satisfaction, job self-efficacy and trait emotional intelligence related?" is my own work and that all sources that I have used or quoted have been indicated and acknowledged by means of complete references.

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Signature   Date

(C.A. de Kok)

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LIST OF ABBREVIATIONS

1PL	One-parameter logistic model
2PL	Two-parameter logistic model
3PL	Three-parameter logistic model
ANOVA	Analysis of variance
CTT	Classical test theory
ECI	Emotional Competence Inventory
ECSI	Emotional and Social Competence Inventory
EI/EQ	Emotional intelligence
EQ-i	Emotional Intelligence Inventory
ESE	Emotional self-efficacy
ESES	Emotional Self-efficacy Scale
GRM	Graded response model
ICC	Item characteristic curve
IQ	Intelligence quotient
IRT	Item response theory
LEAS	Levels of Emotional Awareness Scale
LTM	Latent trait model
MANOVA	Multiple analysis of variance
MEIA	Multidimensional Emotional Intelligence Assessment
MEIS	Multifactor Emotional Intelligence Scale
MSCEIT	Mayer Salovey Caruso Emotional Intelligence Test
NA	Negative affectivity
PA	Positive affectivity
PET	Positron Emission Tomography
SA	South Africa

SAQ   Self-Assessment Questionnaire

SEIS   Schutte Emotional Intelligence Scale

TEIQ   Trait Emotional Intelligence Questionnaire

TMMS   Trait Meta-Mood Scale

UK   United Kingdom

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

This thesis explores and describes the relationship between emotional intelligence, job satisfaction and job self-efficacy. The sample was collected between 2007 and 2010 and consists of 1336 South Africans within the workplace. Trait emotional intelligence was assessed using the Trait Emotional Intelligence Questionnaire (TEIQue), while job satisfaction and job self-efficacy were assessed from the biographical questions asked during the TEIQue assessment process. The first hypothesis investigated whether there is a statistically significant relationship between job satisfaction and trait emotional intelligence. A relationship was found that is statistically, but not practically, significant. The second hypothesis centred on the relationship between job self-efficacy and emotional intelligence, with statistically significant results ($p<0.001$), and a weaker relationship than the one found between job satisfaction and scores on the TEIQue. The third hypothesis, investigating a possible interaction effect between job satisfaction and job self-efficacy, was rejected. In addition to the study's three hypotheses, exploratory IRT analysis was conducted on a section of the TEIQue items in order to further explore the functioning of the test within the South African context.

Findings suggest that there is a relationship between the constructs within the study, but that this relationship is more complex than first assumed, being affected by issues such as social desirability and central tendency bias.

Key terms

Emotional intelligence, trait emotional intelligence, job satisfaction, job self-efficacy, Trait Emotional Intelligence Questionnaire, item response theory, general (graded) response model, analysis of variance, workplace, self-efficacy

CHAPTER 1: INTRODUCTION

1.1 Background to the Study

 In the past, research has focused on the power of cognitive ability in predicting job success (Pal, Pal, & Tourani, 2004). In addition, theorists have spent a great deal of time contemplating the nature of traits, personality and resultant behaviour in the workplace (Furnham, 1994). However, in the last two decades, a new topic has come to the forefront of social science research – *emotional intelligence*. It is one of the most widely researched areas of the 21st century (Cherniss, 2010), with various models hoping to explain exactly what it consists of.

Much of the recent investigation into the construct of emotional intelligence has focused on its effects in the workplace – in particular how the study of emotions can add to our understanding of organisational behaviour (Fisher & Ashkanasy, 2000). The general consensus, according to Carmeli (2003), is that individuals who are higher in emotional intelligence are more likely to achieve success in the workplace. As a result of these findings, organisations are showing a keen interest in exploring the construct of emotional intelligence, with the view to finding ways to boost employee satisfaction, loyalty, commitment and performance (Goleman, 1995).

Emotions can be connected to positive outcomes according to the affect as information hypothesis (Downey, 2008). Individuals are motivated by, influenced by and obtain important information about their environment from their emotions. This information is further used to make decisions, create goals and form attitudes about the people and objects that they interact with. It can be posited that an individual with high emotional intelligence is able to use his or her emotions in better and more functional ways, compared to those with lower emotional intelligence. This may result in better decisions, increased motivation to achieve goals, and

generally positive attitudes, thus leading to greater amounts of self-efficacy and satisfaction. A posited relationship or link between emotional intelligence, job self-efficacy and job satisfaction is, in essence, the crux of the study at hand.

1.1.1 What is emotional intelligence?

While different models posit different definitions, emotional intelligence, abbreviated as EI, can be generally defined as the capacity to use emotions in order to enhance reasoning processes (Brackett, Mayer, & Warner, 2004). It is the ability to recognise one's own and others' emotions, to accurately express these and to use emotion to enhance personal and social relationships.

Furthermore, two constructs of emotional intelligence can be distinguished according to how they are measured, namely *ability EI* and *trait EI*. Petrides, Furnham and Mavroveli (2007) describe trait EI as concerning emotion-related stable dispositions that are measured via self-report questionnaires, while ability EI is conceptualised as a mental ability and is measured using maximum-performance tests.

Factor analyses of these two types of emotional intelligence show that they measure or tap into two unique constructs that, according to several studies, show little correlation with one another (Engelberg & Sjöberg, 2004; Warwick & Nettelbeck, 2004). Petrides and Furnham (2000) link ability EI (also known as *information-processing EI*) to traditional cognitive-based intelligence, but consider trait EI (otherwise known as *trait emotional self-efficacy*) to be a subsection of personality.

Specifically, one can conceptualise trait EI as "a constellation of emotion-related self-perceptions located at the lower levels of personality hierarchies" (Petrides et al., 2007). There have been studies that indicate that trait EI lies well outside the traditional intelligence

realm, with low or even negative correlations between tests of the former and the latter (Petrides, Frederickson, & Furnham, 2004).

Within this study, the focus is specifically on trait EI, as the measurement tool is based upon this theory (see section 1.5.4). In addition, trait EI was selected due to the various criticisms associated with the conceptualisation of the ability EI approach (see section 2.4.1.2).

1.1.2 Job satisfaction

Job satisfaction can be described as an attitude that is made up of an evaluative component and a cognitive component. It can be thought of as one's affective response to one's job; however, it is usually measured by way of cognitive evaluation (Fisher, 2000). This does not take into account the crucial role of moods, emotion and general disposition.

While early research studies focused on the role of situational variables in the determination of job satisfaction (Herzberg, Mausner, & Snyderman, 1959), later theorists, such as Staw, Bell and Clausen (1986) discovered a relationship between job satisfaction and dispositional affect, including both positive and negative affectivity. Recent studies have further demonstrated this link (Judge, Heller, & Klinger, 2008).

Logically, one can deduce that if affectivity and job satisfaction are related, then emotions and therefore emotional intelligence may also be linked to experiences of satisfaction in the workplace. Numerous studies have indeed found such a relationship (Millet, 2007; Lopes, Grewal, Kadis, Gall, & Salovey, 2006; Saari & Judge, 2004).

Despite the many theories, both situational- and disposition-based that aim to explain job satisfaction, much is still to be learned about the concept, especially about how it relates to job performance (Judge, Thoresen, Bono, & Patton, 2001). It must be noted that many factors

play a role in determining job satisfaction. Indeed, salary, working conditions, hours and more all affect how people view their place of work.

The aim of this study is to discover if self-reported feelings of job satisfaction are linked to levels of trait emotional intelligence. It is hypothesised that individuals with high levels of trait emotional intelligence are able to view situations in a positive light, are skilled at building relationships and possess adaptive social skills, all of which may play a role in increasing feelings of job satisfaction. In this sense, "affective dispositions [may] provide the perceptual foundation from which ... needs are interpreted as being met or not" (Connolly & Viswesvaran, 2000, p. 266).

1.1.3 Job self-efficacy

Self-efficacy can be defined as individuals' perceptions of their level of ability, especially with regard to achieving their goals (Duggleby, Cooper, & Penz, 2009). In this study, job self-efficacy is operationalised as how well people believe they perform in their jobs.

Self-efficacy is very closely linked to people's self-esteem, which in turn has been shown to be related to performance at work (Mangiamele, 2011). Past research has also discovered that there is a link between self-efficacy and emotional intelligence (Fabio, Palazzeschi, Kong, & Soresi, 2008).

This study seeks to discover whether an individual's job self-efficacy is linked to their trait emotional intelligence, and whether job self-efficacy has an interaction effect with job satisfaction with regard to trait emotional intelligence.

1.2 Problem Statement

Although EI is a widely researched concept at present, more information is needed to understand its connection to various workplace variables. This study seeks to understand the

complex relationship between trait emotional intelligence, job satisfaction and job self-efficacy. Specifically, the issue to be explored is whether a statistically and practically significant relationship exists between these factors, and secondly, the pattern of this relationship.

1.3 Research Hypotheses and Objectives

To explore the problem stated in section 1.2 above, the following hypotheses are derived:

Hypothesis 1: Trait emotional intelligence is significantly related to self-ratings of job satisfaction.

Hypothesis 2: Trait emotional intelligence is significantly related to self-ratings of job self-efficacy.

Hypothesis 3: There is a significant interaction effect between job self-efficacy and job satisfaction with regard to trait emotional intelligence.

The following objectives link to these hypotheses:

Objective 1: To investigate the link between scores on a trait emotional intelligence questionnaire and self-ratings of job satisfaction, in order to determine whether a statistically significant relationship exists.

Objective 2: To investigate the pattern of the relationship between job satisfaction and scores on a trait emotional intelligence questionnaire.

Objective 3: To investigate the link between scores on a trait emotional intelligence questionnaire and self-ratings of job self-efficacy, in order to determine whether a statistically significant relationship exists.

Objective 4: To investigate the pattern of the relationship between job self-efficacy and scores on a trait emotional intelligence questionnaire.

Objective 5: To investigate whether there is a statistically significant interaction effect between job satisfaction and job self-efficacy with regard to trait emotional intelligence.

1.4 Rationale

In the past, organisational behaviour studies have greatly neglected the construct of emotion (Offermann, Bailey, Vasilopoulos, Seal, & Sass, 2009). However, trait emotional intelligence is increasingly being applied to individuals' experiences and performance in the workplace (Fisher & Ashkanasy, 2000).

Companies all over the world are competing to hire and keep the most talented employees – "the ability of organisations to attract and retain their most promising staff constitutes an important competitive advantage" (Petrides & Furnham, 2006, p. 552). In order to retain staff, it is crucial to keep levels of employee satisfaction high. If we can determine whether emotional intelligence plays a role in job satisfaction and/or job self-efficacy, then this information can used in the workplace. For example, companies can offer emotional intelligence workshops to their employees, as training programmes have been shown to improve emotional intelligence (Fabio et al., 2008).

Although the relationship between job satisfaction and job performance is rather complicated with only moderate correlations found in a meta-analysis (Judge et al., 2001), higher ratings of job satisfaction have been linked to a number of positive outcomes such as organisational citizenship behaviour, decreased absenteeism, and other desirable behaviours (Argyle, 1989). Self-efficacy has also been linked to positive work-based outcomes, including better job attitudes and decreased turnover (McNatt & Judge, 2008). Moreover, emotional intelligence

has been linked to improved performance at work (Lopes et al., 2006). Therefore, if we can determine the relationship between emotional intelligence, job satisfaction and job self-efficacy, we may be able to use this information to improve some aspects of productivity and performance.

Lastly, there is a dearth of this research in the South African context. Although there is a multitude of research on emotional intelligence, job satisfaction and job self-efficacy respectively, no study investigating the relationship between these three constructs could be found. This assumption was made following a systematic search of the online databases of the South African Journal of Psychology, the South African Journal of Industrial Psychology, the African Journal Archive, the UP Institutional Repository and the UNISA Institutional Repository. No studies matching the search criteria were found.

1.5 Research Methodology

This section outlines, in brief, the research design and methodology followed in this study. A more detailed discussion of these aspects is provided in chapter four.

1.5.1 Research design and goals

For this study, a purely quantitative approach is followed. This dissertation has two interlinked goals. The first is descriptive – describing the relationship between job satisfaction, job self-efficacy and trait emotional intelligence. The second goal is exploratory – as the study is providing research into a relatively unknown area. As mentioned in section 1.4, no research has been found on these three constructs in the South African context. A thorough literature review has also found few international studies examining the relationship between these three constructs. The results found in the current study may provide insights for future research endeavours.

1.5.2 Target population

The target population for this study is South Africans within the workplace. The target population was selected as the two independent variables are both specifically related to employment.

1.5.3 Sampling technique

The sample within this study was derived from a pre-existing database. In this sense, it can be considered secondary data (see section 4.5). This database was originally obtained using non-random convenience sampling.

1.5.4 Measuring instrument

This study uses the Trait Emotional Intelligence Questionnaire, or TEIQue, to assess participants' emotional intelligence. The TEIQue has been chosen because some researchers argue that it is the only measurement that measures all aspects of trait EI comprehensively (Austin, Parker, Petrides, & Saklofske, 2008)

This self-report inventory consists of 153 items that are measured on a seven-point Likert scale ranging from one (*strongly disagree*) to seven (*strongly agree*). It assesses four inter-related factors, namely *well-being*, *self-control, sociability* and *emotionality*. Each of these factors consists of between three to four facets. There are also two global facets that do not group into any specific factor, namely *self-motivation* and *adaptability*. These are further discussed below. All information has been taken from the TEIQue technical manual (Petrides, 2009).

1.5.4.1 Well-being

This factor consists of three facets (or sub-constructs) that are highly correlated with one another, namely *happiness, optimism* and *self-esteem.* Happiness relates to one's mood in the present – high scores indicate a person who is cheerful and feels good about himself, while a low score may indicate a person who feels negative about their present state. Optimism relates to one's expectations for the future, whether these be positive (looking on the bright side) or negative (pessimistic and risk-averse). Self-esteem measures an individual's self-evaluation or view of himself. A high score will indicate confidence and a sense of being satisfied with life, while low scorers tend to lack self-respect and have a negative view of themselves.

All together, these three facets combine to form the factor of well-being. High scores on this factor suggest a generalised positive outlook on life, both for the present and the future, general happiness and higher self-esteem.

1.5.4.2 Self-control

Self-control consists of three facets. The first is *emotion regulation* - the ability to control one's emotions. A person who scores high on this facet can moderate their negative moods and induce positive moods, while low scorers tend to experience depression, anxiety and irritability. Secondly, self-control encompasses *stress management* – a very important facet when using the TEIQue for workplace assessments. High scorers can handle pressure and cope well when placed in pressurised situations. A low scorer, on the other hand, finds it difficult to deal with stress-induced tension and lacks the coping strategies employed by high scorers. Lastly, the TEIQue also measures *impulsivity* - a high score on this facet indicates someone who is *not* impulsive while a low score indicates someone who is impulsive. A high

scorer is often cautious and thinks things through, while a low score is associated with behaviour such as impetuousness and spontaneous outbursts.

Altogether, these three facets are subsumed under the factor of self-control. Generally, high scorers in this factor have a good sense of control over their emotions and stress levels, and think things through carefully. On the other hand, low scorers tend to behave impulsively and let their emotions run loose at times.

1.5.4.3 Emotionality

This factor primarily concerns close family and friends, and examines how in touch a person is with his and others' feelings. A person who scores highly on the factor can recognise his own emotions and express these well, while a low scorer would find it difficult to build relationships or perceive emotions correctly.

The first facet within this factor is *empathy* – it measures the extent to which a person can see things from another's point of view. People with high scores on empathy are able to take the other person's perspective, and thus are skilled at communicating. A low scorer may battle to see the other side of the coin, and may stick to their own view of the world for the most part.

The second facet is known as *emotion perception.* This facet measures how well a person can perceive their own emotions (as well as those of others). A low score indicates the inability to accurately identify emotions, while a high score indicates someone who knows exactly how he or she feels and who can read other people's emotions.

Thirdly, *emotional expression* is measured under the factor of emotionality. This facet captures how well a person can express emotions, with the implication that a person with a high emotional expression score would accurately and explicitly communicate their emotions to others. A low score, on the other hand, indicates a lack of emotional based communication.

Lastly, *relationships* is the facet that concerns an individual's ability to forge and maintain close and fulfilling interactions, associations, and contact with others. This includes family, friends and romantic partners. A low scorer would not find it easy to establish close emotional bonds with others, and may let down those who do get close to him or her. A high scorer finds it a simple task to bond with others and establishes emotionally rewarding reciprocal relationships. Once these are established, he or she is generally able to maintain them.

1.5.4.4 Sociability

The third factor is sociability – emphasising social relationships and influence. These relationships are broader and more impersonal than those included in the emotionality factor, such as relationships in the work context. Sociability is made up of three facets, namely *emotion management, assertiveness,* and *social awareness.*

Emotion management is more concerned with other people than oneself, and measures "one's perceived ability to manage other people's emotional states" (Petrides 2009, p. 58). A high score reflects someone who can influence other people by swaying their emotions – they can make people feel better about themselves and thereby are popular and influential. A low scorer is not able to influence other's emotions well – they may find it overwhelming when a person shares his or her feelings with them.

Assertiveness measures how forthright and outspoken a person is about his or her feelings. Therefore, a high scorer might be considered a direct and up-front person who can stand up for himself and ask for the things he needs. A low scorer is usually unwilling to disclose his or her true feelings in difficult situations and will back down more often than not.

Lastly, social awareness measures how socially sensitive a person is. A low score indicates someone who finds social situations daunting and who is unable to express himself clearly. On the other hand, people who score highly are excellent at networking and influencing others, because they know how to handle their emotions and read the situation accurately.

1.5.4.5 Adaptability and self-motivation

Adaptability and *self-motivation* are global facets that do not fall under the umbrella of a larger factor. However, they are two important indicators which aid us in the measurement and determination of an individual's emotional intelligence profile.

Adaptability examines a scorer's flexibility – in other words, how easily a person can adapt to change and new environments. A high score shows someone who is highly flexible and who may even enjoy the uncertainty that new conditions bring. A low scorer is known as change-resistant. He or she has set patterns and is not likely to change these with ease.

The second global facet is self-motivation. This scale measures how easily a person motivates him or herself with regards to tasks and work. People with low scores do not possess an inner drive to do things well, and are thus better motivated with incentives and rewards. A person with a higher score has a self-driven need to achieve and produce good quality work, and thus is motivated from within.

1.5.5 Research variables

The design of this study deals with two types of variables, namely independent and dependent. In this dissertation, job satisfaction and job self-efficacy can be considered independent variables, while scores on the Trait Emotional Intelligence Questionnaire (TEIQue) can be considered as dependent variables. In line with the hypotheses and objectives, it is predicted that levels of job satisfaction or job self-efficacy are significantly

related to scores on the TEIQue. It is also predicted that job satisfaction and job self-efficacy may interact to determine outcomes on the TEIQue.

The allocation of independent and dependent variables was determined by the nature of the secondary data, the goals of the research, the hypotheses (see section 1.3), the measuring instrument and the data analysis methods to be used, namely analysis of variance (see section 1.5.7).

As job satisfaction and job self-efficacy are measured on a five-point Likert scale that is not summed, these variables are ordinal in nature. However, for the purposes of the analyses of variance, these constructs are considered independent variables, and are thus treated as nominal in nature (categorical) - for more information on the transformation of these variables, see section 5.3. The scores on the TEIQue are derived from a seven-point Likert scale. Since they are summed scales, they are treated as interval level data, and are thus the dependent variables in the analyses of variance. For more information, see section 5.4.3.

1.5.6 Data collection

The data to be used in this study were previously collected by a company called Thomas International between 2007 and 2010. Therefore, it can be classified as secondary data, because it involves data or information already collected by someone else for another purpose, from which the data are then extracted for the study at hand (McCaston, 2005).

In the original dataset, participants were asked a variety of biographical questions including age, gender, cultural background, religious affiliation, marital status, number of children and more. Two of these biographical questions are taken as measures of job satisfaction and job self-efficacy.

The question: *How happy in your job are you?* – is taken as a measure of job satisfaction for the purpose of this study. Answers to this question are based on a five-point Likert scale, ranging from one (very unhappy in my job) through to five (very happy in my job) with three serving as a neutral answer (neither happy nor unhappy in my job). For the purposes of analysis, the job satisfaction item was treated as a nominal variable consisting of five groups.

As a measure of job self-efficacy, respondents were asked: *How good are you in your line of work?* Responses to this range from one (I am not good at all in my line of work*)* to five (I am very good in my line of work*).* The neutral option is three (I am average in my line of work*).* For the purposes of analysis, the job self-efficacy item was recoded into a nominal variable consisting of three groups, due to unequal sample sizes (see section 5.3.2 for more information).

Participants were also asked to complete the Trait Emotional Intelligence Questionnaire (TEIQue). Responses to this were captured in terms of item responses, facet scores, factor scores and an overall EI score.

The database was cleaned so as to take out irregularities and missing data. Due to the large sample size (1000+), the researcher deemed it appropriate to delete missing entries from the data. The data were then transferred into SPSS version 19 for analysis to be conducted.

1.5.7 Data analysis

The aim of this study is to examine whether there is a significant difference with regard to emotional intelligence scores between those with different ratings of job satisfaction and/or job self-efficacy. The main form of analysis that is used is an analysis of variance, both one-way and multivariate. Further to these tests, various post hoc measures are used to interpret the direction and relative strengths of the relationship between these variables.

Other analysis techniques that are included in this study include descriptive statistics and basic graphical representations of results. In addition, item response theory (IRT) is used to further explore items within one facet of the TEIQue. This is done in order to determine how these items are functioning in the sample. A single facet was selected in order to limit the IRT analysis, as it is not the main focus of this dissertation. IRT analysis examines aspects such as the item's difficulty and its capacity to differentiate between respondents in terms of underlying ability.

For a full overview of the analysis methods used in the current study, see section 4.8.

1.6 Outline of Dissertation Chapters

The first chapter undertook to summarise the background, rationale and hypotheses of the study. The rest of the dissertation is guided by the following layout:

Chapter 2: The aim of this chapter is to give a full overview of the construct of emotional intelligence (EI). First, various definitions of the term are provided. Thereafter, a history of the concept is discussed, as well as some of the more popular EI theories/models.

Chapter 3: In this chapter an overview of the two independent variables is provided, namely job satisfaction and job self-efficacy. Once again, these terms are defined and various models discussed. In addition, past literature that links these variables to EI is elucidated.

Chapter 4: In this chapter the research method is described. A full breakdown of the research design and methodology is provided. Also included is a discussion on the population, sampling method, data collection and ethical considerations.

Chapter 5: This chapter fully presents analyses and discusses the findings of the study at hand. This will be done with the aid of various graphs and tables. The aim of this analysis is

to provide information that will ultimately find support for the hypotheses within this study (see section 1.3).

Chapter 6: This is the final chapter of the dissertation. It aims to integrate the discussions of chapter five, illuminate the limitations of the study and provide recommendations for future research endeavours.

CHAPTER 2: LITERATURE REVIEW OF EMOTIONAL INTELLIGENCE

2.1 Introduction

This chapter provides an overview of the current and past literature on emotional intelligence (EI). First, a comprehensive definition of emotional intelligence is given. Thereafter, different emotional intelligence models and theories are discussed, as well as popular assessment tools that aim to measure the construct in different contexts. Lastly, some of the most pertinent criticisms regarding the construct of emotional intelligence are debated.

2.1.1 Aims and objectives of the literature review

The aim of this literature review is to provide an overview of research on the topic of emotional intelligence. Given the popularity of this construct, it is impossible to review all aspects of the literature, so the specific focus will be on the most popular emotional intelligence models – those that feature regularly in previous research studies, as well as those upon which a large amount of research has been done.

Once the relevant literature and theories of emotional intelligence have been discussed, this information will be combined with literature on job satisfaction and job self-efficacy in chapter three in order to achieve an understanding of what research exists on the relationships between these constructs.

2.2 Definitions

In this section, definitions are provided for the main concepts used in the study. This is done in order to avoid possible misinterpretation by other researchers. Three terms are defined – *emotion*, *intelligence* and finally *emotional intelligence*.

2.2.1 Emotion

The term *emotion* is not a simple one to define. For years, philosophers, psychologists and scientists have quibbled over its exact meaning. Even some of the great philosophers such as Plato, Aristotle and Descartes presented their own ideas and theories of emotion (Kagan, 2007).

According to the Oxford English Dictionary, emotion can be defined as "a strong feeling deriving from one's circumstances, mood, or relationships with others" or "instinctive or intuitive feeling as distinguished from reasoning or knowledge"(Oxford English Dictionary, 2011)

Daniel Goleman, in his bestselling book *Emotional intelligence: Why it can matter more than IQ,* defines emotion as a feeling, made up of distinctive thoughts, psychological and biological states. Following from this, *feeling* can give rise to a range of possible actions and urges (Goleman, 1995, p. 289). In this definition, he introduces the idea of behaviour and action as linked to the concept of emotions, something that is lacking in the Oxford Dictionary definition. Goleman (1995) further discusses some of the emotions that researchers see as being primary or instinctive:

- Anger
- Sadness
- Fear
- Enjoyment
- Love
- Surprise
- Disgust
- Shame

This list of basic emotions confirms the view that there are certain primary emotions out of which other emotions originate. This model was first advocated by the philosopher Descartes as early as the 17th century. In *Treatise on the Passions of the Soul* (Descartes, 1967), Descartes presented six basic emotions which he called "primitive": (1) joy, (2) sadness, (3) desire, (4) love, (5) hatred and (6) wonder. He further stated that all other emotions are composed of these six.

Ekman and Friesen (1989) presented evidence on six basic emotions (happiness, sadness, anger, fear, disgust and surprise) which exist in all cultures around the world and take the form of universal facial expressions. Theories relating to basic emotions are echoed by contemporary researchers (de Sousa, 2010)

2.2.2 Intelligence

It has been argued that emotional intelligence is a form of mental ability, similar to cognitive ability. This notion was put forward by Mayer and Salovey (1993) in their ability model (see section 2.4.1). For this reason, the term *intelligence* is defined below for the purposes of this chapter and the dissertation in general.

There has been much disagreement on how to define, operationalise and measure intelligence, which has given rise to many theories in contemporary psychology. Pyle (1979) provides a summary of the definitions of intelligence put forward by some of the most eminent theorists on the subject:

- Binet defines intelligence as the ability to comprehend situations, judge and reason effectively (Binet & Simon, 1916, 1973, p. 42-43).

- Spearman theorises that there is a generalised intelligence factor that he called "*g*" (Spearman, 1904, p. 201).

- Wechsler, who developed the Wechsler intelligence test, states that "intelligence is the aggregate or global capacity of the individual to act purposefully, to think rationally, and to deal effectively with his environment"(Wechsler, 1940, p. 444).

- Sternberg (1985) put forth a Triarchic Theory of Intelligence in which he proposes three different forms of intelligence, namely analytical (problem solving), creative (dealing with new situations) and practical (adapting to a changing environment).

More recently, Gottfredson (1997) published a statement, entitled *Mainstream Science in Intelligence*, in the journal *Intelligence.* The aim of the statement was to concisely describe the construct of *intelligence*, and it was signed by 52 of the world's most eminent intelligence theorists before its publication, indicating widespread agreement on the issues presented therein. The statement presented the following definition of intelligence:

> *"Intelligence is a very general mental capability that, among other things, involves the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly and learn from experience."*(1997, p. 13)

The statement further presented conclusions that have been reached by consensus in the field of intelligence research, including that:

1. Intelligence is a general mental capacity – denoted by the symbol *g;*

2. Intelligence can be measured by cognitive ability tests;

3. Different types of intelligence tests ultimately measure the same construct;

4. The brain processes underlying intelligence are not well understood.

2.2.3 Emotional intelligence

In sections 2.2.1 and 2.2.2, emotion and intelligence were defined respectively, as these two terms are used within this chapter. In this section, a comprehensive definition of the construct of emotional intelligence, one of the main variables in this study, is provided. This definition is crucial in order to provide an overview of the construct, prior to further discussion.

Cherniss (2000) states that it is important for psychologists and people in the field of psychology to fully understand the meaning of emotional intelligence. It can be defined as "the capacity to carry out reasoning in regard to emotions, and the capacity of emotions to enhance reasoning" (Brackett et al., 2004, p. 1388).

As mentioned in section 1.1.1, there are two main theories of EI, namely ability EI and trait EI – each with its own definition. According to ability EI theorists (Mayer & Salovey, 1997) emotional intelligence can be defined by way of four factors:

1. The ability to accurately perceive, assess and express emotions

2. The ability to access and use emotions to facilitate cognitive activities

3. The ability to understand emotions

4. The ability to regulate emotions in order to promote both emotional and intellectual growth

Trait EI theorists, on the other hand, define emotional intelligence as emotion-related behavioural dispositions and abilities that are related to personality (Petrides & Furnham, 2001). The study at hand is based on the trait definition of EI.

Emotional intelligence can be interchangeably abbreviated as EI or EQ. However, to avoid confusion, within the study at hand it is shortened to EI, except in cases where other researchers have based models upon the use of the term EQ (for example, see section 2.4.2.1).

2.3 History of Emotional Intelligence

The development of emotional intelligence can be traced as far back as the 1920s, although it has only been considered a popular field of study for the last two decades.

The early 1900s marked the emergence of a wider definition of intelligence, with theorists beginning to focus on non-cognitive aspects. Thorndike (1920) was one of the first researchers to speak about non-traditional forms of intelligence. He divided intelligence into three separate facets, namely *abstract intelligence*, *social intelligence* and *mechanical intelligence*. He defined social intelligence as the ability to "understand and manage men and women, boys and girls" and to "act wisely in human relations" (Cassady & Eissa, 2008, p. 93).

Another early theorist to write on the non-cognitive aspects of intelligence was Wechsler who, in an article entitled *Nonintellective Factors in General Intelligence* stated that "one is forced to conclude that intelligent behaviour must involve something more than sheer intellectual ability" (Wechsler, 1940, p. 444). He further stated that these factors may be considered as temperamental traits which directly contribute to intelligence (Wechsler, 1940).

After the work of these two researchers, this field was once more overlooked until the 1980s and 1990s when researchers again popularised the idea of different forms of intelligence. One such researcher was Gardner (1983) who laid down a theory of multiple forms of intelligence, including interpersonal and intrapersonal forms. He defined *intrapersonal*

intelligence as "the capacity to understand oneself, to have an effective working model of oneself – including one's own desires, fears and capacities" (1999, p. 42) while *interpersonal intelligence* was defined as "a person's capacity to understand the intentions, motivations and desires of other people and, consequently, to work effectively with others" (1999, p. 43).

There is some debate over who was the first to use the term emotional intelligence. While other theorists may have used the term before, it is widely accepted that Salovey and Mayer (1990) were the first to lay down a formal definition and model of EI. They also conducted some of the first empirical research studies in order to test their model.

In 1995 Daniel Goleman (1995), a science writer for the New York Times, published a book entitled *Emotional Intelligence*, based on the work of Salovey and Mayer. This book was an overwhelming success and is credited with bringing the concept of emotional intelligence to the forefront of the social sciences and corporate world (Tapia, 2001). Following *Emotional Intelligence,* Goleman authored a book that specifically focuses on emotional intelligence in the workplace (Goleman, 1998).

Since the publication of Salovey and Mayer's research studies, as well as the work of Goleman, research into emotional intelligence has once more become a popular topic, as evidenced by the multitude of studies published in the peer-reviewed literature (Tapia, 2001). However, as Zeidner, Roberts and Matthews (2004) point out, the ratio of established studies to popular information available on the internet illustrates an imbalance in favour of the popular literature. Therefore, a lot of laypeople's conceptions of the construct may be based upon hype and allegory, rather than fact. Numerous studies in the last 20 years have sought to redress this imbalance by examining EI's relation to contexts such as school, work and various occupations (Zikmund, Babin, Carr & Griffin, 2009; Gryn, 2010; Mavroveli, Petrides, Rieffe, & Bakker, 2007).

2.3.1 Neuroscience and emotional intelligence

In addition to the social science studies above, various neuroscientists have also contributed to the field of emotional intelligence.

Much research has found that emotions are centred in the limbic system of our brains (Papez, 1995; Goleman, 1995; Joseph, 1992). This system is so named from the Latin word "limbus" meaning border; the limbic system borders the brain stem and forms a circle around it (Edelman & Tononi, 2001). There are no generally accepted criteria that state which areas of the brain belong in the limbic system (Le Doux, 1998). However, it is generally accepted that it consists of the amygdala, hippocampus and limbic cortex − areas of the brain that play a role in the formulation of memories, reward and pleasure-seeking behaviour, and more. Extended definitions of the limbic system also include regions such as the orbitofrontal cortex, involved in decision making processes (Feldman Barret, Niedenthal, & Winkielman, 2005).

Neuroscience researchers emphasise the importance of *emotional awareness*, considering it to be the primary component of emotional intelligence (Lane, 2000). Increased awareness of one's emotions should logically lead to a greater potential to use this information to react in an emotionally intelligent manner.

Lane and Schwartz (1987) define emotional awareness as a person's inherent ability to recognise and articulate emotions/feelings in himself and others. They developed a model that posits emotional awareness as a mental ability that undergoes a process of development, similar to Piaget's model of cognitive development. This model divides emotional awareness into five levels, namely (1) physical sensation, (2) action tendencies, (3) single emotions, (4) blends of emotion and (5) blends of blends of emotional experience. Within this model, a

given experience "can be thought of as a construction consisting of each of the levels of experience up to and including the highest level attained" (Lane, 2000, p. 174). From this model, an assessment tool was designed in order to measure emotional awareness. This measure is known as the Levels of Emotional Awareness Scale (LEAS) (Lane, Quinlan, Schwartz, Walker, & Zeitlin, 1990).

Neural evidence of emotional awareness has been found in a study conducted by Lane, Reiman, Axelrod, Yun, Holmes and Schwartz (1998). In the study, twelve female participants with no physical, neurological or psychiatric issues completed the LEAS, in order to measure their level of emotional awareness, as well as a range of other psychometric instruments. Thereafter, various emotions, including happiness, disgust and sadness, were induced either through film or recall settings; there were twelve conditions in total with three neutral conditions wherein no emotions were induced. In order to capture neural images, a positron emission tomography (PET) scan was used.

Results showed that there were areas of the brain wherein blood flow changes could be attributed to greater emotional awareness during periods of emotional arousal. For film-induced emotion, statistically significant changes occurred in the right mid cingulate cortex. For recall-induced emotions, statistically significant changes occurred in the right anterior cingulate cortex.

Overall, findings indicated that the location of emotion-based changes, with regard to emotional awareness, lay in the anterior cingulate cortex (Lane et al., 1998). Besides its affective function, this region of the brain has also been associated with attention, pain response, response selection and autonomic control.

Other researchers, such as Damasio (1994), have researched the link between decision making and emotions from a neuroscience perspective. Damasio's theoretical framework, entitled the somatic marker hypothesis, provides a neuroscientific explanation for the role of emotions in rational thought. Damasio posits that emotions provide a shortcut to decision making, and that without these emotional signals, this process is impaired (Bechara, Tranel, & Damasio, 2000).

Bechara et al. (2000) outline various studies that illustrate the contribution of the ventromedial prefrontal lobe in impaired decision making. Individuals with damage to this area of their brain retain their intellectual capacities, but they exhibit dysfunctional behaviour such as the inability to learn from mistakes and disadvantageous choices. However they perform within the normal range in laboratory-controlled tests of problem solving. These defects in judgment and decision making can be linked back to the somatic marker hypothesis mentioned above.

> *"The somatic marker hypothesis posits that the neural basis of the decision-making impairment, characteristic of patients with ventromedial prefrontal lobe damage, is defective activation of somatic states (emotional signals) that attach value to given options and scenarios, which function as covert, or overt, biases for guiding decisions."*(Bechara et al., 2000, p. 194).

Other areas of the brain that have been implicated in neuroscience research include the amygdala (Le Doux, 2000). This region, according to Le Doux, plays an important role in the experience of negative emotions such as fear, and has also been implicated in the studies by Damasio above, making it a part of the same neural system involved in the decision making process (Bechara et al., 2000).

Despite the amount of research that has already been done on the neurobiology of emotions, Panksepp (2004) reminds us that there is still much to learn. At present, it is not precisely known how emotions are generated in the brain. Thus far, it is hypothesised that the various emotional systems in the brain activate different forms of affective states, either specific or non-specific. Panksepp (2004) presents findings indicating that various emotion-related areas of the brain have the ability to act as command structures by activating specific emotion based behavioural patterns. These command areas of the brain can then provoke widespread activities among other areas of the brain, resulting in an integrated physiological and psychological response. Bechara et al. (2000) echo the opinion of Panksepp, remarking that a further understanding of the neurobiology behind emotional states is required.

2.4 EI Models

When researchers first began to develop tools in order to measure EI, they assumed that they were measuring a single uniform construct. However, these assessment tools were usually constructed in one of two ways – either as a self-report measure or as an ability measure. This assumption subsequently led to conflicting findings and low measurements (Tapia, 2001). Since then, theorists have divided emotional intelligence into different forms or models.

According to Cherniss (2010), there are currently four contemporary EI models that have gained popularity. The main differences in these models rest in the way they are measured (Passmore, 2010). These four models can be further assembled into three main groups, namely the ability EI model, the trait EI model and mixed EI models.

2.4.1 Ability based EI

Stemming from Salovey and Mayer's (1990) early work on emotional intelligence, this model conceptualises emotional intelligence as a distinct form of intelligence or mental ability (Cherniss, 2010).

Salovey and Mayer first defined EI as "the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (1990, p. 189). They further conceptualised EI as a skill based on the processing of emotionally laden information. It is for this reason that the ability EI model is also known as *information processing EI* (Petrides & Furnham, 2000).

Upon further research and refinement, Mayer, Salovey and Caruso (2000) later adapted their emotional intelligence definition to include four key aspects:

1. **Perception and expression:** The identification and expression of your own emotions by analysing your physical state, thoughts and feelings. This factor also includes accurately appraising others' emotions and emotions found in language. According to Salovey and Mayer (1990), there are two ways in which to express emotion, namely verbally and non-verbally.

2. **Emotions and thought:** The second aspect involves the use of emotions to assist in emotional and intellectual growth. This includes weighing emotions against one another, using emotions to direct attention, using emotions to prioritise thinking and using emotions as a memory or judgement aid.

3. **Understanding and analysis:** Recognising and labelling emotions, and using reasoning to identify the relationships between them.

4. **Regulation:** The highest level of emotional intelligence, this involves being able to regulate both your own emotions and the emotions of others.

EI can be conceptualised in the same manner as verbal or numerical intelligence, except that it focuses on emotions (Caruso, Mayer, & Salovey, 2002). Mayer et al. (2000) state that the ability EI model predicts that emotional intelligence is a cognitive ability just like other forms of intelligence, as they believe it meets the three main empirical criteria that make up intelligence. According to Mayer et al. (2000), these criteria are (1) intelligence must be made up of a set of abilities, (2) assessments measuring the specific form of intelligence should correlate with other measures of mental ability and (3) absolute ability should increase as people age.

Mayer, Caruso and Salovey (1999) demonstrated that the ability model of EI met all three criteria of intelligence. In a specific study, the Multifactor Emotional Intelligence Scale (MEIS) – a tool that measures ability EI (see section 2.4.1.1) – was administered to 503 adults and 229 adolescents. Results demonstrated that ability EI can be operationalised as a set of abilities. In addition, the MEIS correlated moderately ($r=0.36$ $p<0.001$) with a measure of verbal intelligence, demonstrating that ability EI is correlated with other measures of mental ability. Lastly, the adolescents' scores were compared to adults' scores on the MEIS. Results indicated that EI performance did indeed increase with age.

2.4.1.1 Measurement of the ability based model

Ability EI measurement tools are based on maximum performance, similar to an IQ test (Petrides et al., 2007). This is because EI is conceptualised as a cognitive ability which can be measured in the same way as other forms of intelligence.

The first ability EI tool was developed by Mayer et al. (1999) and was known as the MEIS – Multifactor Emotional Intelligence Scale. This assessment measured the four factors, mentioned in section 2.4.1, which they believe make up emotional intelligence, namely (1) perceiving emotions, (2) using emotions, (3) understanding emotions and (4) managing emotions. However, an exploratory factor analysis found that the MEIS was only assessing three of the four factors of emotional intelligence (Mayer et al., 1999).

The MEIS was later redesigned and introduced as the MSCEIT or the Mayer Salovey Caruso Emotional Intelligence Test (Warwick & Nettelbeck, 2004). The MSCEIT is a 40-minute test that also assesses people on 12 measures grouped according to the four branches of EI (Mayer et al., 2000). Items from each branch usually consist of some form of stimulus (e.g. a picture of a face) with questions on the emotions shown or not shown within the picture (MacCann, Matthews, Zeidner, & Roberts, 2003).

The test is scored according to social consensus. In other words, people score higher on emotional intelligence if their score overlaps with the collected scores of others, taken from a worldwide sample of hundreds of individuals. The MSCEIT can also be scored by an expert or panel of experts (Salovey & Grewal, 2005).

2.4.1.2 Criticisms against ability EI

A number of criticisms have been levelled against the ability model and the MSCEIT assessment.

Petrides et al. (2007) state that, because they see emotional intelligence as a subjective construct, the operationalisation of ability EI is rendered invalid. One cannot assess a subjective construct in an objective way. They further state that the format of ability-based assessments is not valid, as the items cannot be scored in an objective manner.

Zeidner, Roberts and Matthews (2004) put forward that the basis of the four factors of emotional intelligence, as laid out in the ability model, are psychologically ambiguous. As an example, they discuss the Mona Lisa painting. While the ability EI model tries to measure face perception in the MSCEIT test in an objective way, a person's subjective understanding of a painting is determined by a range of processes which supersedes emotional intelligence, including that person's cultural perceptions, past experiences and more.

MacCann et al. (2003) argue the following criticisms of the ability EI model and its assessment tools:

- When scoring the MEIS or MSCEIT test using consensus methods, issues with negatively skewed distributions and kurtosis appear. In addition, it becomes challenging to differentiate between those at the top end of the scale who, in essence, form part of the majority.

- Problems also arise when expert scoring is used. Questions as to how an expert is selected and why come to the forefront. Experts who possess extensive knowledge of the theories behind emotion do not necessarily have the skills required to identify emotional intelligence.

- There is an issue when it comes to the internal consistency of the MSCEIT. Answering a question with "no emotion" − in other words, indicating that no emotion is present − leads to an overly inflated reliability coefficient. For example, if a participant is asked to identify emotions from facial expressions and consistently scores as "neutral" or "no emotion shown", their scores would be relatively high, even though they did not answer each of these items correctly. In this sense, it is entirely possible to "fake" the test, as answering the entire test with "no emotion" would lead to a high score.

2.4.2 Mixed models

Mixed models are those that take aspects of ability EI and add in personality traits, dispositions and a range of other constructs. For the purposes of this literature review, two popular mixed models will be discussed – Bar-On's Emotional-Social Intelligence and the work of Boyatzis and Goleman.

2.4.2.1 The Bar-On model of emotional-social intelligence

Bar-On first set out to develop a model that answers the question, "Why are some individuals more able to succeed in life than others?" (Mayer et al., 2000). He took the narrow definition or conceptualisation of emotional intelligence put forth by the ability model and expanded on it by adding in certain concepts that are related to personality, resulting in his mixed EI model.

According to Bar-On, "emotional-social intelligence is a cross-section of interrelated emotional and social competencies, skills and facilitators that determine how effectively we understand and express ourselves, understand others and relate with them, and cope with daily demands" (Bar-On, 2006, p. 14). From this definition, EI can be divided into five separate components which can be seen to contribute to success. The five components are (1) intrapersonal skills, (2) interpersonal skills, (3) adaptability, (4) general mood and (5) stress management, each of which can be sub-divided into a number of skills and competencies.

Bar-On (2006) further states that individuals who are high in emotional intelligence (i.e. have a high EQ score) possess a number of key skills of both an interpersonal and intrapersonal nature. These skills include the ability to handle pressure, to solve problems of an interpersonal nature, to relate to others and so on. This claim is confirmed by various studies on the predictive validity of the EQ-i, (see section 2.4.2.2) which show that the instrument

successfully predicts a number of performance areas and positive characteristics, including physical health and performance at school (Bar-On, 2006).

Bar-On sees EI as a dynamic construct that develops over a lifetime and can be improved through various methods. He also hypothesises that those with higher EI are better equipped to deal with problems in the environment, while those with lower EI battle to meet the demands of their surroundings. Furthermore, he states that both emotional and cognitive intelligence contribute equally to people's success in their daily lives (Bar-On, 2006).

2.4.2.2 Measurement of the Bar-On model

The Emotional Intelligence Inventory (EQ-i) was developed by Bar-On in order to assess the five components that make up his model of emotional intelligence. The general methodology Bar-On used to develop his assessment tool followed four stages (Bar-On, 2000), namely:

1. Identifying and classifying key factors that are involved in effective emotional and social functioning

2. Creating straightforward definitions of these key factors

3. Designing an assessment tool to accurately measure these factors

4. Norming and conducting research on the instrument in order to validate it across a number of cultures

The EQ-i can be described as a measurement of one's potential to succeed, based on one's EQ score. It is a self-report measure that consists of 133 items with a five-point Likert scale answer format. The report yields a total EQ (emotional quotient) score, as well as scores on the five factors that make up his definition of emotional intelligence, namely (1) Intrapersonal (comprising self-regard, emotional self-awareness, assertiveness, independence and self-

actualisation), (2) Interpersonal (consisting of social responsibility, empathy and interpersonal relationships), (3) Adaptability (comprising reality testing, flexibility and problem solving), (4) Stress Management (consisting of stress tolerance and impulse control) and finally (5) General Mood (comprising happiness and optimism) (Bar-On, 2000).

2.4.2.3 Boyatzis and Goleman

As mentioned in section 2.3, Goleman first came to the forefront with his popular book, *Emotional Intelligence*, in 1995. Since then, he has authored, co-authored and co-edited a number of books, including *Working with Emotional intelligence* (1998), *The Emotionally Intelligent Workplace* (Cherniss & Goleman, 2001) and more.

The Boyatzis and Goleman mixed model is inspired by the works of Salovey and Mayer (1990) and is closely related to the Bar-On model. It combines ability EI traits with the social and emotional competencies that are required for success in the workplace. The original model (Goleman, 1998) consisted of five clusters which grouped together a list of 25 different competencies. These competencies were "identified in internal research at hundreds of corporations and organisations as distinguishing outstanding performers" (Goleman, 2001, p. 27). The five clusters were:

1. **Self-awareness** which groups together accurate self-assessment, emotional awareness and self-confidence.

2. **Self-regulation** which includes self-control, trustworthiness, conscientiousness, innovation and adaptability.

3. **Self-motivation** which consists of achievement, commitment, optimism and initiative.

4. **Social awareness** which includes service orientation, understanding other people, developing others, leveraging diversity and political awareness.

5. **Social skills** which clusters together communication, influence, conflict management, leadership, building bonds, change catalyst, collaboration and cooperation, and team capabilities.

However, results of an analysis conducted by Boyatzis, Goleman and Rhee (2000) led to a reformulated model with the following definition of EI:

> *"Emotional intelligence is observed when a person demonstrates the competencies that constitute self-awareness, self-management, social awareness and social skills at appropriate times and ways in sufficient frequency to be effective in the situation."*(Boyatzis et al., 2000, p. 3).

Goleman (2001) also made a distinction between emotional competencies, defined as learned skills or capabilities that increase work performance, and EI, which is the basis upon which these skills are learnt. The reformulated model now includes only four factors, containing 20 competencies, namely:

1. **Self-awareness** which consists of emotional self-awareness, accurate self-assessment and self-confidence.

2. **Self-management** which contains emotional self-control, trustworthiness, conscientiousness, adaptability, achievement drive and initiative.

3. **Social awareness** which consists of empathy, service orientation and organisational awareness.

4. **Relationship management** which comprises of developing others, influence, communication, conflict management, visionary leadership, catalysing change, building bonds, and teamwork and collaboration.

More recently, Goleman (2006) made a distinction between social and emotional intelligence. He proposed that cluster four and five of his original model (social awareness and social skills) now be considered as a form of social intelligence, instead of emotional intelligence (Cherniss, 2010).

2.4.2.4 Measurement of Goleman's model

The most popular assessment tool that arose from Goleman's model is termed the Emotional Competence Inventory, or ECI. More recently, Goleman has also developed the ECSI or Emotional and Social Competence Inventory. Both of these assessment tools were developed in conjunction with a worldwide human resources company known as the Hay Group.

In order to create the ECI, Goleman and Boyatzis started with a pre-existing competency assessment (Self-Assessment Questionnaire or SAQ; Boyatzis, 1994). They rewrote some of the previous items and added new questions on areas the SAQ did not cover. In the end, the ECI consisted of 60% new material and 40% from the SAQ (Boyatzis et al., 2000).

The ECI consists of 110 items that measure 18 competencies within four overarching clusters. These clusters are the same as the ones mentioned above, namely (1) Self-awareness, (2) Social awareness, (3) Self-management and (4) Social skills. It is a 360º assessment, including self-ratings, peer-ratings and ratings from your supervisor (Conte, 2005).

In response to criticisms on the clusters and competency scales of the ECI, the Hay Group, together with Goleman and Boyatzis, revised and renamed the assessment. It has now been

transformed into the ESCI (Emotional and Social Competence Inventory). After statistically analysing the ECI using factor analyses and adapting the competency scales, the result is an assessment which contains 12 refined and concise competencies (Boyatzis, n.d.). These are:

1. **Emotional Self-Awareness**: being aware of your own emotions and the effects they have on others.

2. **Emotional Self-Control**: being able to control your emotions, especially those that are negative.

3. **Adaptability***:* being flexible and open to change.

4. **Achievement Orientation:** constantly striving to meet standards of excellence.

5. **Positive Outlook**: being optimistic and pursing goals in spite of possible obstacles.

6. **Empathy**: being concerned with the emotions and experiences of others.

7. **Organisational Awareness**: being able to sense the emotional dynamics within a group.

8. **Coach and Mentor:** being equipped to develop the needs and abilities of others.

9. **Inspirational Leadership**: being an inspiration and guide to others.

10. **Influence:** being able to persuade others to your point of view.

11. **Conflict Management***:* being a negotiator and resolving conflict.

12. **Teamwork:** being able to work with others towards an overall goal.

2.4.2.5 Criticisms against mixed models

- Matthews, Roberts and Zeidner (2004) contend that the self-report format, common among mixed model assessments, is not predictive of actual EI performance. As Gohm (2004) reminds us, "humans are notoriously poor at evaluating their own ability" (p. 223). Matthews et al. (2004) further recommend that, given that EI may be implicit rather than explicit, measures should preferably be based on a behavioural assessment.

- MacCann et al. (2003) point out that, within the general framework of a mixed model, there is some disagreement on what exactly constitutes emotional intelligence. They state that having diverse theories with the resulting assessment tools may lead to an issue with the divergent validity of the tests. Furthermore, the authors argue that maintaining so many different definitions of the construct of EI may lead to confusion among laypeople as to what the term actually incorporates. For instance, those who are not familiar with the various EI models may have greatly different views of what emotional intelligence means, and these definitions may overlap, leading to confusion.

- There has been some evidence reported that suggests that people may "fake good" on self-report measures such as the EQ-I (Paulhus & Vazire, 2009). In this case, respondents may be inclined to respond in a socially desirable manner, or in the way they imagine themselves to be. These responses may have little to do with the respondent's true behaviour.

2.4.3 Trait emotional intelligence

Petrides (2001) was one of the first researchers to call for a complete differentiation between emotional intelligence models. Although Mayer et al. (2000) proposed a distinction between ability and mixed models, this did not adequately identify the main reason why they should be split into two groups, namely the psychometric implications of assessing maximum vs. typical performance. Maximum performance assessments are primarily used in the ability EI model and are more suitable as a measure of cognitive ability, while self-report measures work best for typical performance under mixed and trait EI models. However, Mayer et al. (2000) specify that it is possible to measure the ability EI model with a self-report measure, something which Petrides (2001) views as theoretically and empirically invalid.

The trait emotional intelligence model (otherwise known as trait emotional self-efficacy) is partly based on the successful traits and dispositions included in earlier EI models (Cherniss, 2010). In this sense, Petrides and Furnham (2001) attempted to "systematise and evaluate an approach that largely exists already" (p. 427) through an exhaustive content analysis of EI models and existing literature. Their ultimate goal was to include those aspects that were common to many models, while excluding those that appeared in only a single model (Petrides et al., 2007)

The resulting model of trait EI is conceptualised as a part of the personality framework and includes "all personality traits that are specifically related to affect" (Petrides, Pita, & Kokkinaki, 2007, p. 285). Specifically, analysis has revealed that the model is a distinct and compound personality trait at lower levels of personality trait taxonomies (Petrides et al., 2007). This makes it conceptually quite different from the ability EI model, an idea which is supported by a lack of significant correlations between the two models (Engelberg & Sjöberg, 2004).

2.4.3.1 The Trait Emotional intelligence Questionnaire (TEIQue)

The Trait Emotional Intelligence Questionnaire, or TEIQue, has been developed over many years of academic research. Although many measures exist within the trait EI model, the TEIQue is the only assessment tool that comprehensively covers the sampling domain of trait EI (Austin et al., 2008). It is a self-report measure that contains 153 items based on a seven-point Likert scale.

Results are structured into a global trait EI score and four factors, namely well-being, self-control, emotionality and sociability (Petrides, 2009). Each of these factors can be further divided into three to four facets or sub-factors. In addition, there are two global facets, adaptability and self-motivation, which are separate from the four factors (Tapia, 2001). These factors will be further discussed below. All information is taken from the TEIQue technical manual (Petrides, 2009).

1. **Well-being**: consists of traits related to disposition/mood.

    a. *Self-esteem*: this scale measures the respondent's opinion of him or herself.

    b. *Happiness*: this facet measures pleasant emotional states in the present moment.

    c. *Optimism*: this scale is similar to happiness, but measures perceptions of well-being in the future.

2. **Self-control**: concerns the regulation and control of impulses.

    a. *Stress management*: assesses how the respondent deals with stress.

    b. *Impulsiveness (low):* this scale mainly focuses on dysfunctional impulsive behaviour. In this sense, high scorers have low impulsivity and vice versa.

c. *Emotion regulation*: this scale measures short-, medium- and long-term control of emotions.

3. **Emotionality**: measures both the perception and expression of emotions

   a. *Empathy*: assesses how well the respondent can see another's point of view.

   b. *Emotion perception*: looks at how well the respondent can recognise his own emotions and the emotions of others.

   c. *Emotion expression*: is concerned with how well the respondent communicates his or her feelings to others.

   d. *Relationships*: focuses on the quality of close relationships, including family, friends and partners.

4. **Sociability**: assesses how emotions are used in interpersonal situations.

   a. *Emotion management*: although it seems like this overlaps with emotion regulation, it differs in that it is concerned with how well the respondent can manage the feelings and emotional states of other people.

   b. *Assertiveness*: focuses on the outspokenness of respondents and determines whether they are able to confront others when required.

   c. *Social awareness*: is a measure of the social skills of respondents, similar to relationships but applicable to the broader social milieu.

5. **Adaptability**: one of the global facets on the TEIQue which does not group into one of the four factors. This scale concerns the flexibility of respondents, both in general and the workplace.

6. **Self-motivation**: the second of the global facets, this scale measures the extent to which respondents are driven by their own inner drive to get the job done.

Various studies have shown the TEIQue to have good validity and reliability (Petrides, 2009). One study in the French population found that TEIQue scores were (a) reliable and normally distributed, and (b) displayed preliminary convergent and discriminant validity. In addition, the four factor structure was replicated in a factor analysis (Mikolajczak, Luminet, Leroy, & Roy, 2007).

Other studies have found the TEIQue to be a superior measure to other trait EI assessments. In a meta-analysis of emotional intelligence and health (n=19 815), Martins, Ramalho and Morin (2010) found that the TEIQue had the highest association with mental health (r=.50), compared to Baron's EQ-i (r=44), the Schutte Emotional Intelligence Scale (SEIS; r=.29) and the Trait Meta-Mood Scale (TMMS; r=.24). Results from various studies measuring mental disorders were used as a measure of mental health.

In another study which compared trait EI measures, results showed that scores on the TEIQue, compared to the Schutte Emotional Intelligence Scale (SEIS) and the Multidimensional Emotional Intelligence Assessment (MEIA), were a superior predictor of eleven psychological criteria. These criteria were both negative and positive, including life satisfaction, alcohol abuse and more (Gardner & Qualter, 2010).

2.4.3.2 Criticisms against the trait EI model

Many of the criticisms against the mixed models also hold true for the trait EI model, given that it incorporates many of the ideas and concepts of the mixed models. Specifically, the points on "faking good" made by Paulhus and Vazire (2009) are particularly valid. To reiterate their point, these authors state that people are susceptible to answering self-report

assessments in a socially desirable manner. In essence, this may serve to bias the results of the test, giving a score that is more a reflection of who the person wants to be than of who the person actually is.

Another criticism that is levelled against trait EI concerns its relation to personality. Various researchers state that EI, which is conceptualised as a personality trait, offers little to no incremental validity over popular psychometric personality measures (Mayer et al., 2000; MacCann et al., 2003). However, this criticism has been refuted by various studies that demonstrate TEIQue's incremental validity over measures of the big five and giant three personality constructs (Gardner & Qualter, 2010; Mikolajczak et al., 2007; Petrides et al., 2007).

2.5 Criticisms on the Theoretical Foundations of Emotional Intelligence

This section examines the criticisms put forward by some researchers on the concept of EI. These issues apply to the overall construct of EI, instead of to an individual model. Three main criticisms are discussed, namely (1) the lack of a uniform definition, (2) whether EI can be considered as an intelligence and (3) the operationalisation of EI.

2.5.1. Lack of a uniform definition and model

One of the fundamental criticisms against emotional intelligence centres on its lack of a uniform definition or theory. As Cherniss (2010) states, consensus needs to be reached about the exact nature of EI first. Once this is done, all subsequent issues can be addressed.

When the concept of EI first came to the forefront, through the work of Salovey and Mayer (1990) and Goleman (1995), there was a lack of a uniform definition. Although Salovey and Mayer (1990) first conceptualised EI as related to intelligence, they also related it to a variety

of personality outcomes. Goleman's popular book (1995) added to this a melange of emotion-related competencies.

In response to these theoretical and measurement inconsistencies, there have been a variety of reactions from researchers. Authors such as Landy (2005) and Locke (2005) propose that EI, as a whole, is an invalid concept. In a rebuttal to the writings of Locke and Landy, Ashkanasy and Daus (2005) suggest that "far from being moribund, emotional intelligence is an exciting and developing area of research in organisational behaviour, and a key component of the current burgeoning interest in emotions in organisational settings" (p.442). Instead, Ashkanasy et al. (2005) propose an avoidance of popular literature on the subject, focusing instead on stringent peer-reviewed research.

Two other approaches are also suggested by researchers. Some, such as Petrides et al. (2007) argue that we should just maintain the status quo, while others endeavour to prove that one model or theory is better than another, such as Ashkanasy et al. (2005) who attempted to prove that the ability EI model is superior. Issues with these two approaches are clear. On the one hand, simply maintaining the status quo with regard to the current confusion may lead to the entire concept of emotional intelligence disintegrating. However, one can also argue that each model has its good points and imperfections. Focusing only on one model may limit the field of research of EI.

Cherniss (2010) maintains that only when the names of the different models are made distinct will the issue fully be laid to rest. He proposes that a single definition of EI is determined. Thereafter, models can be evaluated against this definition, and if they are found to differ significantly, then they should be renamed to reflect their true nature. For example, if the mixed models were renamed to *emotional competencies* instead of emotional intelligence,

then any conflicting research findings between these two concepts would be considerably reduced.

2.5.2 EI is not intelligence

According to Locke (2005), emotional intelligence should not be conceptualised as a unique form of intelligence at all, rendering the name of the construct itself invalid. Instead, according to Locke, what we hypothesise as EI is in fact cognitive intelligence being applied to emotions. Furthermore, Locke finds multiple problems with the definition of EI. He states that "the definition of EI indicates that it is really some combination of assorted habits, skills and/or choices rather than an issue of intelligence" (Locke, 2005, p. 426).

Locke's explanation of why the concept in question is termed emotional intelligence centres on social and political motives. He writes that egalitarians propose multiple forms of intelligence, so that each person in society will possess some form of intelligence. However, these arbitrary conceptualisations, he states, will not change the reality that EI is simply a learned skill or part of our usual thinking processes.

2.5.3 EI operationalisation

Matthews et al. (2004) have a number of criticisms about the operationalisation of EI:

- Firstly, these authors see the cause and effect of EI as blurred. As an example, they suggest that happiness as a predictor of EI (as in the trait EI model) is theoretically incorrect – if one is highly emotionally intelligent, happiness should rather be conceptualised as an "outcome".

- Secondly, Matthews et al. point out that many EI theories assume that if you are proficient in one area (e.g. controlling anger), then this will make you proficient in all areas of EI. In opposition to this, they put forward theories that demonstrate that

emotions are controlled by distinct neuropsychological systems. This implies that someone who deals well with anger will not necessarily be able to cope with stress or fear.

2.6 Conclusion

The construct of emotional intelligence is not a simple one to explain or define. This is due to a wealth of conflicting research, theories and models on the subject. However, this chapter strived to provide an outline of the main factors that are crucial for a holistic understanding of the concept.

It is clear that EI has taken off in recent years and become a popular area of research among the human resources and psychology disciplines (Cherniss, 2010). This is due to the early work of Salovey and Mayer (1990), who first introduced a model and definition of emotional intelligence into the peer-reviewed literature. Following from that, Goleman's (1995) bestselling book did much to propel the concept into the mainstream. Suddenly, emotional intelligence was the buzzword in a range of fields, most especially in organisations, and a renewed attempt was made to define and measure the construct (Bar-On, 2000).

Four main models were discussed in this section of the literature review. Two of these are mixed models: (1) Goleman and Boyatzis's theory of emotional and social competencies, and (2) Bar-On's emotional-social intelligence. The third is the ability EI model which conceptualises emotional intelligence as a form of cognitive intelligence. The last, and most recent, model is known as trait emotional intelligence or trait emotional self-efficacy, and hypothesises that EI is related to the personality framework.

After these models were discussed, the main criticisms of emotional intelligence were explored. The most pertinent of these criticisms is that the theoretical definitions and models of EI are far too scattered, rendering the concept biased and problematic.

In the next section, the role of emotional intelligence in the workplace will be further explored. Specifically, EI's relation to job satisfaction and job self-efficacy will be discussed and evaluated.

CHAPTER THREE: JOB SATISFACTION AND JOB SELF-EFFICACY

3.1 Aims and Objectives of the Literature Review

The aim of this chapter is to survey the current state of research on emotional intelligence and related concepts in the workplace. One such concept is job satisfaction, which has been widely explored in psychological research (Connolly & Viswesvaran, 2000), with many theories trying to explain exactly how it is determined. This wealth of conflicting views serves to emphasise the point that satisfaction is based on a number of factors with no general agreement on which are the most crucial. Job self-efficacy, another construct that is included in this study, will also be examined in relation to both job satisfaction and emotional intelligence. Different theories are discussed and linked to the current research study. Gaps in the research are emphasised, highlighting the need for a study such as this in the South African context.

3.2 Emotional Intelligence in the Workplace

Companies, corporations and other organisations of the 21st century are more dynamic and fast-paced than organisations of the past. Profit margins are higher, technological innovation occurs at a faster rate and companies need to move quicker than their competitors in order to remain financially viable (Cherniss & Goleman, 2001). The world of work is slowly being transformed, and with this transformation comes an increasing pressure on employees to perform better than ever before. In addition, companies are finding it increasingly difficult to attract and retain talented employees (Cherniss & Goleman, 2001). Retaining skilled and invaluable staff is crucial if companies want to gain a competitive edge over their rivals (Petrides & Furnham, 2006).

The role of emotional intelligence in the workplace is a popular topic at present, with considerable research being done to determine its relationship to organisational variables (Zeidner, Matthews, & Roberts, 2004), in areas such as leadership (Dulewicz & Higgs, 2003), managerial effectiveness (Shipper, Kincaid, Rotondo, & Hoffman, 2003), job satisfaction (Connolly & Viswesvaran, 2000) and more.

Despite the fact that the research is still in its infancy, many of the most highly respected EI researchers now agree that emotional intelligence has a definite effect in the workplace (Cote, 1999; Druskat, Sala, & Mount, 2006; Dulewicz & Higgs, 2003; Goleman, 1995; Goleman, 1998). In his book entitled *Working with Emotional intelligence*, Goleman (1998) goes so far as to argue that EI may be an even better predictor of work success than IQ:

> *"The findings are astonishing: IQ takes second position to emotional intelligence in determining outstanding job performance. Analyses done by dozens of different experts in close to five hundred corporate, government agencies and non-profit organisations worldwide have arrived independently at remarkably similar conclusions, and their findings are particularly compelling because they avoid the biases or limits inherent in the work of a single individual or group. Their conclusions all point to the paramount place of* emotional intelligence *in excellence on the job – in virtually any job."* (p. 5).

3.3 Definitions

In the following section, comprehensive definitions are provided for the variables discussed in this chapter. Specifically, definitions of emotional intelligence, job satisfaction and job self-efficacy are discussed.

3.3.1 Definition of emotional intelligence

Emotional intelligence was comprehensively discussed in the previous chapter. For the sake of clarity, a concise definition is repeated here.

Emotional intelligence (EI) can be broadly defined as a set of skills or an ability that influences an individual's daily life in areas such as social and workplace functioning (Daniel Goleman, 1995). This ability is made up of (1) accurately perceiving, assessing and expressing emotions, (2) understanding emotions, (3) accessing and expressing feelings and (4) regulation of emotions to promote healthy functioning (Mayer & Salovey, 1997).

3.3.2 Definition of job satisfaction

There is an enormous wealth of research on job satisfaction, with many different definitions available. Much debate seems to stem from the issue of whether job satisfaction should be considered as an emotion, an attitude, a cognitive process or a combination of these three factors.

One of the earliest definitions and theories of job satisfaction was put forward by Locke in 1976. He stated that job satisfaction is a pleasurable emotional state, resulting from a person's appraisal of their job (Locke, 1976). It has been argued that this is one of the most popular and generally accepted definitions of job satisfaction (Saari & Judge, 2004).

Other theorists' definitions of job satisfaction include the views of Cranny, Smith and Stone (1992). These researchers assert that their definition (which is quite similar to that of Locke) is based on the consensus of many different researchers. They define job satisfaction as "an affective reaction to one's job, resulting from the incumbent's comparison of actual outcomes with those that are desired" (p. 1).

However, although Cranny et al. (1992) claim that their emotional definition is based on a consensus, there are other researchers who view job satisfaction as an attitude towards one's job (Brief, 1998) or who interchangeably label job satisfaction as both an emotion and an attitude (Locke, 1976). Later definitions describe job satisfaction as having both a cognitive

and affective component, with much of the research focusing on the measurement of the cognitive aspect, while undervaluing the influence of affectivity (Fisher, 2000).

Weiss (2002) argues that by treating these definitions and concepts comprising job satisfaction as interchangeable, researchers are missing out on interesting research regarding the separate causes and processes behind each conceptualisation of the construct. He posits that the most correct definition of job satisfaction is that it is an attitude, which is "an evaluation or evaluative judgment made with regard to an attitudinal object" (Weis, 2002, p. 175), with evaluation not being synonymous with affect.

3.3.3 Definition of job self-efficacy

Self-efficacy is a concept that was first put forward by Albert Bandura within the framework of social learning theory (Bandura, 1978). It can be defined as a person's beliefs about his or her capability to achieve a given level of performance. These beliefs have an effect on how people think, feel, motivate themselves and ultimately behave (Bandura, 1994). Simply put, it can be conceptualised as a form of self-confidence that a person has in his or her abilities. As Bandura (1982) states, self-efficacy beliefs "function as one set of proximal determinants of how people behave, their thought patterns and the emotional reactions they experience in taxing situations" (p. 123).

Self-efficacy is not a passive trait − instead it is a dynamic concept that is constantly in flux as people influence their performance and are, in turn, influenced by their performance (Lent & Hackett, 1987). A person's self-efficacy expectations are acquired through four processes, according to Bandura (1986). These are:

1. Past performance.
2. Vicarious experience.

3. Verbal persuasion.

4. The person's physiological/emotional state.

Organisational researchers are focusing more and more on the concept of self-efficacy, and how it can be applied to improve work performance (Gardner & Pierce, 1998; Duggleby et al., 2009; Judge, 2009). Job self-efficacy is known by a number of related names, including work self-efficacy, employee self-efficacy, career self-efficacy and occupational self-efficacy. Although individual researchers may define the concept slightly differently, most often it can be described as self-efficacy as applied to the work-place. Lent and Hackett, (1987, p. 349) define career self-efficacy as "a generic label encompassing judgements of personal self-efficacy in relation to the wide range of behaviour involved in career choice and adjustment". Pethe, Chaudhari and Dhar (1999) define occupational self-efficacy as a person's belief in their ability to perform in an occupation. They further maintain that occupational self-efficacy consists of six dimensions, namely (1) confidence, (2) command, (3) adaptability, (4) personal effectiveness, (5) positive attitude and (6) individuality.

In this study, job self-efficacy is defined as a person's belief in how well he or she can perform in his or her job.

3.4 Job Satisfaction

For many years, researchers have been trying to discover the exact nature, causes and consequences of job satisfaction. Past studies have linked the construct to positive outcomes such as job performance (Judge et al., 2001), organisational citizenship behaviour (Bateman, 1983) and organisational commitment (Petrides & Furnham, 2006).

Research into this field shows no signs of abating (Wicker, 2011) – in fact it is being driven by three main concerns, namely economic, humanitarian and theoretical (Balzer et al., 1997).

Economic concerns try to link job satisfaction to tangible workplace outcomes, such as job performance, productivity and so on. Humanitarian concerns attempt to determine the true nature and causes of job satisfaction in order to ensure the well-being and happiness of employees. Lastly, theoretical concerns attempt to discover how job satisfaction can be used within a model to predict employees' behaviour at work (Millet, 2007).

3.4.1 Theories of job satisfaction

Systematic research into the nature of job satisfaction originated as early as the 1930's (Manisera, Dusseldorp, & van der Kooij, 2005). Initial theories focused on aspects of the work environment as *the* determinants of job satisfaction (Brief, Butcher, & Roberson, 1995). However, with some of the variance in job satisfaction remaining largely unexplained, researchers have increasingly turned toward theories which focus on dispositions, personality and emotional outlook (Connolly & Viswesvaran, 2000). According to Strumpfer, Danana, Gouws and Viviers (1998), modern theories generally put forward an interactional explanation of job satisfaction. However, different researchers apply differing amounts of importance to two key aspects, namely the role of dispositions and the role of the situation.

Dispositionists maintain that job satisfaction and the resulting behaviour are determined by individuals' emotions, affectivity and similar attributes. On the other hand, situationists argue that job satisfaction is determined by the organisational setting, characteristics of the job and other external conditions (Strumpfer et al., 1998).

In this study, the emphasis is on dispositional studies and the relation of job satisfaction to emotional intelligence. Three theories which relate to job satisfaction will be discussed below. The first and arguably the most famous of job satisfaction theories is the motivation-hygiene theory, based on the situational framework. The other two theories are related to

emotions and emotional intelligence – the dispositional approach and the affect as information hypothesis.

3.4.1.1 Motivation hygiene theory

One of the earliest and most widely known theories of job satisfaction was formulated by Frederick Herzberg; it is known as the two factor theory or motivation hygiene theory (Herzberg et al., 1959). Herzberg theorised that job satisfaction and job dissatisfaction are two separate and independent entities. In other words, if a person is not satisfied with his job (lacks job satisfaction), it does not necessarily mean that he is dissatisfied. By logical extension, a person who is not dissatisfied with his job (lacks job dissatisfaction) does not automatically become satisfied. Furthermore*,* job satisfaction and job dissatisfaction are "caused by different and independent sets of factors" (Manisera et al., 2005, p. 4), namely motivation and hygiene factors.

Herzberg reasoned that when people are satisfied with their jobs, they have a tendency to attribute this to the nature of their work itself, whereas if they are dissatisfied, they have a tendency to blame it on working conditions (Manisera et al., 2005). Motivators are factors which serve to motivate employees to work harder, and are intrinsic to the work itself, including aspects such as recognition, personal growth, achievement and responsibility. Hygiene factors are extrinsic to the nature of the job itself and deal more with the general work environment, such as company policies, pay structure, amenities and so on (Hackman & Oldham, 1976). Motivators encourage job satisfaction, while hygiene factors prevent dissatisfaction.

Both of these sets of characteristics need to be addressed in order to increase performance and attitude towards the job (Herzberg et al., 1959). In fact, hygiene factors have to be constantly maintained by management as they are never fully satisfied (Manisera et al.,

2005). Maintaining hygiene factors to a certain standard allows for a neutral state that opens the way for employees to focus on motivators and truly experience job satisfaction (Furnham, Forde, & Ferrari, 1999).

Herzberg's theory has brought about a common practice in management today, namely job enrichment. This is the attempt to design tasks in such a way as to build opportunity for personal achievement, recognition, challenge and individual growth (Herzberg, 1966). Modern attempts at job enrichment have focused on allowing workers more responsibility and providing them with more timely feedback (Furnham et al., 1999).

3.4.1.2 Criticisms of motivation hygiene theory

While this theory is one of the most influential, having truly laid the groundwork for a better understanding of job satisfaction, it has also fallen prey to criticism. According to Furnham et al. (1999), these criticisms focus on five areas:

1. **Selective bias:** The questionnaires used to assess two factor theory may be unduly influenced by peoples' tendency to selectively recall failures as related to external factors and successes as related to the job itself.

2. **Method dependency:** Different methods of verifying two factor theory lead to very different results, implying that the success of the theory is dependent on how information is gathered, rather than the content of such information.

3. **Satisfaction:** Substantial evidence has been collected that questions the dual-factor assumption of Herzberg's theory. In particular, the claim that hygiene factors only prevent dissatisfaction while motivators only provide satisfaction has been questioned.

4. **Variations in the data:** Questions have arisen with regards to the functioning of the theory among other cultures and language groups.

5. **Organisations:** The climate of the organisation has been found to impact on the influence and effects of two factor theory.

While Herzberg's theory focuses on content or the work environment by identifying what factors may lead to job satisfaction (Manisera et al., 2005), many other theories have emerged which link job satisfaction to personality traits and disposition, and in turn, emotions.

3.4.1.3 Dispositional approach

Staw et al. (1986) have been credited with bringing the relationship between job satisfaction and dispositional affect to the forefront of the social sciences. In a longitudinal study, these researchers found that, contrary to the theories and research focus at the time, dispositional measures significantly predicted job satisfaction over nearly fifty years. Their landmark study led to the creation of the dispositional approach, a theory which moves away from the idea that a company can control job satisfaction through situational factors to the idea that job satisfaction is moderated by people's attitudes, emotions and general outlook on life.

The dispositional approach states that affectivity impacts on the way people think and respond in the workplace, thus influencing their behaviour, outlook and perceptions of job satisfaction. Affectivity can be thought of as a general tendency toward positive or negative interpretations of stimuli (Staw et al., 1986). Negative affectivity (NA) can be defined as a "mood dispositional dimension that reflects pervasive individual differences in negative emotionality and self-concept" (Brief et al., 1995, p. 55). Positive affectivity (PA), on the other hand, is defined as the extent to which a person experiences positive emotionality and

possesses a positive self-concept, including aspects such as enthusiasm, alertness and high-energy. Significant correlations have been found that point towards a relationship between PA, NA and job satisfaction (Watson & Slack, 1993; Judge et al., 2008), further providing support for the dispositional approach.

Research into the dispositional approach has done a great deal to elucidate the nature of job satisfaction. The study by Staw et al. (1986) introduced dispositional factors during a period of time where the main research focus was on situational and work-related factors. It has since become clear to many that both PA and NA play a role in the variance of job satisfaction (Connolly & Viswesvaran, 2000). For instance, in a study examining the situational determinants of job satisfaction, Agho, Mueller, and Price (1993) found that the inclusion of PA significantly increased the explanatory power of their model.

According to Judge and Larsen (2001), more research is necessary to flesh out certain areas of the dispositional approach. Studies thus far have been quite fragmented with regards to the traits they include in an attempt to predict job satisfaction. Therefore, there is a need to determine the specific traits which contribute to the dispositional effects on job satisfaction – these should be discovered and defined. Secondly, the theoretical processes which underlie the relationship between emotional intelligence, personality, affectivity and job satisfaction should be elucidated.

3.4.1.4 Criticisms of the dispositional approach

Two authors have levelled criticisms against the dispositional approach, namely Gerhart (1990) and Davis-Blake and Pfeffer (1989), both of whom argue that dispositional-related research is flawed in multiple ways.

Gerhart (1990) argues against two common practical applications of the dispositional approach and the results thereof. Many dispositionists posit that work-related interventions are likely to fail when dealing with people who are generally dissatisfied (i.e. have a high level of NA), and that as a result the organisation does not have as much control over job satisfaction as previously believed (Staw et al., 1986). Gerhart (1990) questions the validity or evidence behind this claim, stating that "there is currently no evidence of an interaction with situational factors [and] there is no evidence that dispositions constrain the impact on job satisfaction of situational changes" (p. 6).

Furthermore, Gerhart (1990) disagrees with Staw and Ross's (1985) suggestion that companies should try and hire people on the basis of their dispositions in order to achieve job satisfaction. He states that there is little evidence to prove that dispositions are causally linked to job satisfaction and, in turn, work outcomes. As an example, he puts forward Staw et al.'s (1985) study wherein they correlated dispositional outlook and job satisfaction over time, resulting in a moderate correlation-coefficient ($r=.32$, $p<0.001$). Gerhart points out that this design did not rule out the possible impact of situational factors, therefore substantially overestimating the relative importance of dispositions in shaping satisfaction.

Davis-Blake and Pfeffer (1989) also argue that research into the dispositional approach is flawed, both conceptually and methodologically, although they do not dispute the existence of a dispositional influence. Their criticism centres on the common approach of dispositional research: longitudinal studies that examine whether an individual's attitude towards his or her job is stable over time and situation. While this design may be useful in inferring the existence of a dispositional effect, Davis-Blake and Pfeffer (1989) point out two flaws:

> *"First, it is impossible to establish the existence of a stable disposition merely by examining inter-temporal correlations in job attitudes. Second, most of this research has not relied on a well-specified model of job attitudes; therefore it has omitted*

important individual, job and social network variables that are stable over time and that significantly affect job attitudes" (p. 391).

3.4.1.5 Affect as information hypothesis

A similar theory of job satisfaction, one which focuses more specifically on emotions, is the affect as information hypothesis (Clore, 1992; Downey, 2008). According to this hypothesis, emotions influence individuals by providing them with subjective information about their goals, attitudes and the people they interact with (Downey, 2008). In other words, people make judgements and form opinions based on their emotional disposition. As Clore (1992) states, this value-laden information determines how people subsequently feel about an event, agent or object. This theory links job satisfaction more clearly to the concept of emotional intelligence.

3.4.2 Job satisfaction and emotional intelligence

It is clear from the models and theories above that job satisfaction has been linked to affect, and in turn emotions. Much research support has been found to support the link between these variables (Judge et al., 2008; Staw et al., 1986; Watson & Slack, 1993). This section seeks to present further research that highlights the relationship between job satisfaction, affectivity and emotional intelligence.

3.4.2.1 Affectivity

In a meta-analysis of the relationship between affectivity and job satisfaction, Connolly and Viswesvaran (2000) examined the relationship between (1) job satisfaction and positive affectivity, (2) job satisfaction and negative affectivity and (3) job satisfaction and affective disposition, using three separate measures. Results showed a correlation of r=.49 for positive affectivity, r=-.33 for negative affectivity and r=.36 for affective disposition, with 10-25% of

the variance in job satisfaction being predicted by individual differences in affectivity. They concluded that there is a significant affective basis to the determination of job satisfaction. However, they also remarked that job satisfaction is determined by many other factors that remain unexplained.

With regard to the South African context, Strumpfer et al. (1998) investigated the relationship between negative affectivity, positive affectivity, bipolar affectivity, sense of coherence and job satisfaction − both intrinsic, extrinsic and global. Results showed a weak to moderate correlation of these factors to job satisfaction, ranging from .22 (p<0.05) to .49 (p<0.000).

3.4.2.2 Emotional intelligence

As well as finding support for the role of affectivity, many researchers have found a link between job satisfaction and emotional intelligence (Carmeli, 2003; Mustafa, 2011; Petrides, 2009).

In a study on the emotional intelligence of leaders and followers (individuals subordinate to the leaders) in China, Wong and Law (2002) developed a short, validated measure of EI, which assesses the four aspects laid out in Mayer and Salovey's (1997) popular definition, namely (1) appraisal and expression of one's own emotions, (2) the appraisal and recognition of emotions in others, (3) regulation of one's own emotions and (4) the use of emotion to facilitate performance. They also included the aspect of *emotional labour* in their study as a moderator of the EI-job satisfaction relationship. Emotional labour is defined by them as "emotion-related job requirements imposed by organizations" (p. 244). Results showed that the emotional intelligence scores of followers/subordinates significantly correlated with both job performance and job satisfaction. In addition, the EI scores of leaders were also found to be related to job satisfaction.

In a follow-up study, Downey (2008) used the EI tool developed by Wong and Law (2002) to determine whether emotional intelligence was related to job satisfaction among administrators in America. Results showed that higher job satisfaction scores were related to elevated emotional intelligence scores (with p values between .05 and .01). Specifically, seven emotionally related variables were examined in relation to job satisfaction: (1) measures of emotional labour, (2) awareness of one's own emotions, (3) awareness of the emotions of others, (4) ability to regulate emotions, (5) tendency to use emotions, (6) state affect (mood) and (7) trait affect (emotional disposition). A regression analysis showed that 15% of the variance in job satisfaction was predicted by these variables, with state affect showing the greatest influence.

3.5 Job Self-efficacy

In recent years, there has been a wealth of research done into self-efficacy and workplace outcomes. The construct has been linked to a number of positive outcomes, including job satisfaction and reduced turnover (McNatt & Judge, 2008), coping with work-related events (Stumpf, Brief, & Hartman, 1987) and coping with stress (Schaubroeck & Merritt, 1997).

However, relatively few studies have examined the underlying cognitive and emotional processes that help to determine self-efficacy beliefs (Gundlach, Martinko, & Douglas, 2003). One thing is certain: the process that determines self-efficacy beliefs involves emotions in one way or another. As Bandura (1997) states, awareness and control of one's emotions is crucial in the development of efficacy perceptions. Therefore, individuals with high levels of emotion regulation and self-awareness (high emotional intelligence) are more likely to develop and display strong self-efficacy beliefs. Consequently, we can posit a logical relationship that links together emotional intelligence and self-efficacy (Gundlach et al., 2003).

There are few, if any, studies examining self-efficacy and work-related variables in the South African context – a conclusion drawn by the researcher after systematically searching various South African research databases. Included in this search was the SA e-publications online source run by Sabinet, the South African Journal of Psychology, the South African Journal of Industrial Psychology, the University of Pretoria Institutional Repository and the UNISA Institutional Repository.

3.5.1 Theories of job self-efficacy

In this section, theories that pertain to job self-efficacy, or self-efficacy in general, are discussed. The first is the popular theory of social cognitive learning, one that has been the topic of multiple studies and books by Bandura (1976; 1986; 1997). Thereafter, two more theories are discussed – the attribution-emotional-intelligence model of self-efficacy put forward by Gundlach (2003), and the core self-evaluations model (Judge & Bono, 2001).

3.5.1.1 Social cognitive theory

Social cognitive theory was first put forward by Miller and Dollard (1941) and was expanded on by Albert Bandura in his book entitled *Social Learning Theory* (1976). It stems from the behaviouristic perspective, but differs in that it emphasises the role of cognition in learning, whereas traditional behaviourism tends to disregard internal states and the mind (Baum, 1994). Bandura's theory emphasises aspects such as observational learning and social experience in the shaping of personality, thoughts and ultimately behaviour. Observational learning refers to learning through the act of modelling novel behaviour performed by others (Bandura, 1986). For example, a little girl may model the behaviour of her mother by dressing up in her clothes and trying to put on makeup.

It was within the realms of social cognitive theory that Bandura developed the concept and definition of self-efficacy. He defined it as "the belief in one's capabilities to organise and execute the courses of action required to manage prospective situations" (Bandura, 1995, p. 2). Specifically, Bandura (1997) sees three major factors as determining human experience. These factors interact in a "triadic reciprocal causation" (p. 6) to shape self-efficacy beliefs and are, in turn, shaped by these beliefs. These factors are:

1. Internalised factors: including cognitions, emotions and biological aspects.

2. The external environment.

3. Behaviour.

Consequently, individuals act in a way that is influenced by their beliefs and thoughts. These beliefs and thoughts are influenced by past behaviour, learning from the behaviour of others, modelling this behaviour, monitoring feedback and so on in a reciprocal process. Individuals' actions are, therefore, determined by the way they interpret their subjective realities (Bandura, 1986). These interpretations are, in turn, influenced by a person's ability to recognise and regulate his or her emotions.

As to the development of self-efficacy, Bandura (1997) puts forward four sources of self-efficacy beliefs, namely:

1. **Mastery Experience:** The experience an individual has of successfully performing some task which leads to the belief that it could again be performed to the same standard in the future.

2. **Vicarious Experience:** Seeing a model performing some form of behaviour may increase an individual's belief that they, too, can perform such behaviour. For this

process to be successful, the model should be similar to or looked up to by the individual.

3. **Social Persuasion:** This involves convincing an individual that he or she can perform a specific task, until that person starts to believe it himself.

4. **Physiological and Emotional States:** An individual's internal states have a reciprocal relationship with self-efficacy, both influencing initial expectations and outcomes (for a detailed discussion on the influence of emotions on self-efficacy beliefs, please see Section 3.5.2).

3.5.1.2 Attribution-emotional-intelligence model of self-efficacy

Gundlach et al. (2003) put forward a model that links together causal reasoning, EI and the development of self-efficacy beliefs. This framework hopes to explain why some people react differently to the same event in the workplace setting. Gundlach et al. (2003) state that a person's attributions about an event will affect their self-efficacy beliefs either positively or negatively. This relationship is mediated by EI, specifically emotional awareness and self-regulation, which "enable individuals to interpret how their self-efficacy beliefs are shaped by their causal attributions, and thus how they may be changed" (pp. 234-235). Gundlach et al.'s (2003) model can be broken down into a step-by-step process:

1. **Event:** A trigger event occurs – one that is important enough to warrant cognitive attention. Such an event is most often negative in nature, such as a bad performance rating.

2. **Attribution:** This cognitive attention leads the individual to search for a meaning and explanation for the event. Individuals make causal attributions, along the dimensions of internality/externality (locus of causality), controllability and stability.

Internal/external refers to the belief that the source of the negative event was someone else (i.e. a supervisor – external) or oneself (internal). Controllability refers to the extent that the individual feels that he or she could control the event occurring. Lastly, stability refers to the extent to which the individual feels that the event will occur again (stable) or is a once-off happening (unstable).

3. **Emotional intelligence:** Emotional awareness and self-regulation impacts on the emotions felt after the causal reasoning process, and also on how these attributions are made in the first place.

4. **Self-efficacy:** Gundlach (2003) theorise that certain attribution patterns will serve to reduce self-efficacy, while others will have a neutral or even a positive effect. Specifically, individuals who attribute negative workplace events to external, controllable and stable causes, or internal uncontrollable stable causes, are more likely to experience lower self-efficacy beliefs and a host of negative emotions such as blame and anger. The opposite is true for those who attribute events to internal, unstable and controllable causes or external, unstable and uncontrollable causes.

3.5.1.3 Core self-evaluations model

A rather recent model, which relates to the Dispositional Approach (see section 3.4.1.3), Bandura's social cognitive theory, as well as research on self-efficacy and job satisfaction, is the core self-evaluations model, first put forward by Judge, Locke, Durham and Kluger (1998). These researchers argue that the genetic heritability of affectivity and dispositional traits cannot tell the whole story when it comes to job satisfaction. To this end, they propose the concept of "core evaluations" – "fundamental, subconscious conclusions individuals reach about themselves, other people and the world" (p. 18). In other words, the way

individuals see their world is coloured by the subconscious beliefs they hold about themselves, others and the world in general.

They propose that core self-evaluation is a higher-order construct that is composed of four specific dispositional traits − generalised self-efficacy, self-esteem, locus of control and emotional stability. Self-esteem is chosen as it is considered "the most fundamental manifestation of core self-evaluations" (Judge & Bono, 2001, p. 80), given that it determines the overall value an individual places upon his or herself. Self-efficacy is included as an indicator of positive self-evaluations. Third, locus of control is included in the model as it was considered a manifestation of core evaluations. Finally, emotional stability (low neuroticism) is selected as it is one of the broad dispositional traits in the big five personality model (Judge & Bono, 2001) that relates to well-being and overall satisfaction.

Research has supported the core self-evaluations model, with findings suggesting that esteem and self-efficacy contribute the most to the core evaluations concept (Judge et al., 1998). Other studies have found core self-evaluations to be related to job satisfaction and job performance (Judge & Bono, 2001), lower levels of stress (Judge, 2009) and a variety of other positive work outcomes.

3.5.2 Job self-efficacy and emotional intelligence

Self-efficacy research, especially the early work of Bandura (1997), emphasises factors such as self-awareness and self-regulation in the development of efficacy beliefs (Gundlach et al., 2003). Self-awareness and self-regulation have also been included in the concept of emotional intelligence (Salovey & Mayer, 1990). Mayer and Salovey's (1997) popular definition of EI explicitly refers to the need to regulate emotions "so as to promote emotional and intellectual growth" (p. 5). Logically, one can infer that uncontrolled emotions can have a

disastrous effect on the logical and rational processing of information, vital to task performance.

Gundlach et al. (2003) formulate a model (see Section 3.5.1.2) that specifically involves EI in the efficacy-attribution process, hypothesising that emotions affect and are in turn affected by an individual's patterns of causal attributions for significant events. These attributions and their resulting emotions, in turn, affect an individual's self-efficacy beliefs. As Gundlach et al. (2003, p. 234) state, "emotional intelligence can help people generate the causal attributions that are least damaging to their self-efficacy beliefs through regulating the emotions these attributions might produce".

It logically follows that employees who possess high emotional intelligence should have a greater awareness of and understanding behind the emotions they experience. Such employees would be better able to understand and interpret their emotional reactions to causal explanations of workplace events, compared to employees with lower levels of EI. Therefore, EI may give employees greater insight into their affective reactions, equipping them with the skills to manipulate their future attributions, and thus entailing an increase in their self-efficacy.

Other than influencing the attribution process, the effect of EI on adaptive cognitive styles may directly influence efficacy beliefs through heightened task performance. Recent neurological studies have highlighted the impact of emotional awareness on capabilities such as judgement and decision making (Damasio, 1994; Bechara et al., 2000) – see section 2.3.1 of chapter two in this dissertation for more detail on the outcomes and impact of these studies. One may infer that heightened emotional awareness (brought about by a high level of EI) leads to enhanced decision-making skills and improved judgement ability. These may

lead to better workplace performance, and ultimately increase an individual's belief in his or her *self-efficacy*.

The core self-evaluations model, put forward by Judge et al. (1998 – see Section 3.5.1.3) also includes some aspects of emotional intelligence, specifically emotional stability and self-esteem. Both of these are a part of the factor space included in the Trait EI theory, and are measured by the Trait Emotional Intelligence Questionnaire (TEIQue) – the tool used in the current study (see section 1.5.4).

As further evidence of the link between self-efficacy and emotional intelligence, Kirk, Schutte and Hine (2008) developed and validated a tool known as the Emotional Self-efficacy Scale (ESES). Trait EI theory has, in the past, been termed *emotional self-efficacy* (Furnham & Petrides, 2003), as it involves the measurement of dispositions and self-perceptions related to adaptive functioning. However, Kirk et al. (2008) suggest that this is an over-generalisation. They state that while trait EI may measure emotional self-efficacy (ESE), it also measures others aspects which are not encompassed by ESE.

Emotional self-efficacy can be simply defined as beliefs in one's own emotional functioning (Dacre Pool & Qualter, 2011). The ESES is based on Mayer and Salovey's (1997) four branch model of EI which includes (1) perception of emotion, (2) use of emotion, (3) understanding emotion and (4) managing emotion. Principal components analysis found a one-factor solution with a Cronbach Alpha of .96 and a test-retest reliability of .85 (Kirk et al., 2008, p. 432). Research has confirmed a statistically significant relationship between trait EI and the emotional self-efficacy scale (ESES) - r=.68, p<0.01 (Dacre Pool & Qualter, 2011, p. 5) – as well as between the ESES and certain aspects of personality. On the other hand, the ESES does not correlate with ability EI or cognitive ability, in keeping with the relationship

between trait EI and ability EI (Dacre Pool & Qualter, 2011). Another study has found a correlation between the ESES and positive mood – r=.38, p<0.01 (Kirk et al., 2008).

This past research creates a theoretical foundation for the postulation within this study: that there exists a relationship between self-efficacy and emotional intelligence in general. In the following section, specific studies that link together self-efficacy and various workplace variables are comprehensively discussed. This information is provided in order to clearly delineate the reason for the inclusion of job self-efficacy into the current study.

3.5.3 Self-efficacy in the workplace

As mentioned above (see section 3.5.1.3), previous studies have found a relationship between the core self-evaluations model – which includes self-efficacy – and job performance (Judge & Bono, 2001). Furthermore, in a meta-analysis of self-efficacy and workplace performance, Stajkovic and Luthans (1998, p. 240) calculated a weighted correlation co-efficient based on the individual findings of 114 past studies (N=21,616). These researchers found a weighted average correlation of $G(r_+)$=.38 between these two factors. Given the breadth of this study, and the large overall sample, the researchers argue that the findings can be relied upon as an accurate indication of the relationship between self-efficacy and performance. Building on Stajkovic and Luthans' findings, numerous studies have found that self-efficacy impacts on the workplace in a number of related ways.

Tsai, Tsai and Wang (2011), in a study of 251 employees in the banking industry in Taiwan, found that an employee's self-efficacy had a significant effect on organisational commitment (r=.52, p<0.01). Rathi and Rastogi (2009), on the other hand, did not find a significant relationship between what they termed *occupational self-efficacy* (see section 3.3.3) and organisational commitment. However, they did find a highly significant relationship between

EI and occupational self-efficacy (r=.60, p<0.01). In a regression analysis, they found that EI predicted as much as 35% of occupational self-efficacy.

Other studies on occupational self-efficacy have been done, such as one by Schyns (2004) in which a model is laid out that links together self-efficacy, preparedness for organisational change and leadership. Specifically, Schyns (2004) states that self-efficacy influences organisational change in three different stages:

1. It first has an influence before organisational change has commenced, based on research that has found a link between self-efficacy and influence on willingness to learn in new jobs (Morrison & Brantner, 1992), openness to development activities (Noe & Wilk, 1993) and openness to change (Wanberg & Banas, 2000).

2. The second stage of influence occurs in the midst of organisational change. According to the suggestions of Bandura (1997), Schyns argues that those with high self-efficacy will endure longer in the face of obstacles and expend more personal effort.

3. Lastly, self-efficacy also plays a role once change has taken place. Employees with higher self-efficacy will adapt to their new conditions and expend more effort in embracing the changes (McDonald & Siegall, 1996).

Throughout this process, leadership plays an important role. Schyns (2004) points out that, in order for employees to have high self-efficacy beliefs, it is necessary for them to have positive leaders who provide the opportunity for mastery experiences, modelling, and encouragement.

Other studies have found a relationship between self-efficacy beliefs, coping and effects on the human body (Schaubroeck & Merritt, 1997; Wiedenfeld, O' Leary, Bandura, Brown, Levine, & Raska, 1990). Specifically, Schaubroeck and Merrit (1997) found that self-efficacy

plays a moderating role in the relationship between job control/job demands and stress in the workplace, measured via blood pressure readings. They found that for individuals with a high level of self-efficacy, a large amount of job control is beneficial and mitigates work-related stressors. On the other hand, those with lower self-efficacy reported negative health consequences in conditions where job control, as well as job demands, was high. This may be because they do not feel confident enough to be in control of their job and the greater responsibility that comes along with this.

3.6 Job Self-efficacy and Job Satisfaction

Relatively few studies have investigated the relationship between self-efficacy and satisfaction in the workplace. Researchers are increasingly highlighting the need for further research in this area (McNatt & Judge, 2008). However, the few studies in existence do point to a relationship between job self-efficacy and job satisfaction.

McNatt and Judge (2008) reason that self-efficacy has an effect on job satisfaction in the following ways:

1. Firstly, Bandura's (1997) theory of self-efficacy states that thoughts influence feelings and ultimately actions. Therefore, a person with a high level of self-efficacy will be more likely to regulate his or her reaction to negative situations, and thus may experience more positive attitudes, especially in the face of uncertainty. On the other hand, people with low self-efficacy may feel easily overwhelmed in the face of adversity, and may magnify the severity of negative situations, leading to less positive attitudes.

2. Secondly, McNatt and Judge (2008) state that those with higher self-efficacy are more likely to be more proactive when it comes to seeking solutions to problems, in line

with the thinking of Bandura (1997). Long term, this response style should lead to more positive experiences and, generally, a more positive attitude. Logically, a person with a high level of self-efficacy should feel equipped to deal with potential problems, and thus should experience less negative emotions (such as stress) in relation to their jobs.

In an experimental study, McNatt and Judge (2008) found support for these claims. In a group of 71 financial auditors, a self-efficacy intervention was found to increase job satisfaction, improve commitment, and reduce turnover.

Another study by Judge and Bono (2001) examined the link between core self-evaluations (a construct which includes self-efficacy), job satisfaction and job performance in a meta-analysis of past research. With regard to job satisfaction, estimated true score correlations were .45 for self-efficacy, .32 for internal locus of control, .24 for emotional stability and .26 for self-esteem. Therefore, within the study, it seems that self-efficacy had the strongest correlation with job satisfaction.

3.7 Conclusion

In the previous chapter, the different emotional intelligence theories and models were outlined. The current chapter examined the role of emotional intelligence in the workplace, specifically with regard to job satisfaction and job self-efficacy. Past research on these three constructs was examined in order to obtain an overview of existing knowledge and theories. Relationships were found between emotional intelligence and job satisfaction, between emotional intelligence and job self-efficacy as well as between self-efficacy and job satisfaction.

While there is a wealth of research on emotional intelligence, job satisfaction and job self-efficacy respectively, as well as on various combinations of these factors, few studies, especially within the South African context, have examined the complex relationship between these three constructs within the same study. This gap in the research points to the necessity of the current study.

CHAPTER 4: RESEARCH METHODOLOGY

4.1 Introduction

Chapter four seeks to outline the methodology used in this research study. The actual procedure to discover the information, capture it and analyse it is described in detail, along with information about the population, the measuring instrument, data analysis procedures and ethical considerations.

4.2 Objectives of the Study

As stated in chapter one of this dissertation, there are three hypotheses examined in the current study.

Hypothesis one: Trait emotional intelligence is significantly related to self-ratings of job satisfaction.

Hypothesis two: Trait emotional intelligence is significantly related to self-ratings of job self-efficacy.

Hypothesis three: There is a significant interaction effect between job self-efficacy and job satisfaction with regard to trait emotional intelligence.

The aim of the study is to investigate whether there is a statistically and/or practically significant relationship between EI on the one hand, and job satisfaction/job self-efficacy on the other. An additional aim is to examine whether there is an interaction effect between job satisfaction and job self-efficacy with regard to EI scores.

Further from these main aims, the item response theory (IRT) graphs of one of the facets within the Trait Emotional intelligence Questionnaire (TEIQue) are examined. This is done in order to determine how the test items are functioning within the current sample. The

difficulty and discriminatory power of the items are examined. IRT analysis also examines the extent to which respondents' answers may be influenced by bias (see section 4.8.3.1 for a full explanation of the IRT model and graphs).

4.3 Research Design

Based on the aims outlined above, the research design has been formulated around the quantitative paradigm. The goal of this research is descriptive, but also retains aspects of an exploratory design. This is discussed in more detail further down in this chapter.

4.3.1 Theoretical departure point

A number of salient theories were discussed in chapters two and three of this dissertation. Many of these were outlined in order to provide context and opposing viewpoints, but two of these theories provide the theoretical framework upon which this research study is based. They are briefly reiterated here.

4.3.1.1 The theory of trait emotional intelligence

The trait model of emotional intelligence has been the subject of much research over the past decade (Kluemper, 2008; Mikolajczak, et al., 2007; Petrides, 2010). It was first put forward by Petrides (2001), who originally aimed to include in the trait EI model successful aspects that featured in previous EI or mixed models. Petrides, together with Furnham, drew up an exhaustive list of dispositions and traits, before statistically analysing these and reducing them to fifteen constructs (Petrides & Furnham, 2001). The resultant model is shown to be a distinct trait that is related to personality measures such as the big five and giant three frameworks (Petrides et al., 2007).

When selecting a model of emotional intelligence for this study, the trait model was chosen for a number of reasons:

1. It is the subject of multiple years of research by a number of different researchers and within a number of different countries.

2. Ability EI has been linked to cognitive ability while trait EI is linked to personality. Based on the other salient theory in this study (the dispositional approach – see section 3.4.1.3), an emotional intelligence approach that is clearly linked to dispositions was thought to be more suitable.

3. The ability EI approach was thought to be unsuitable, due to the many criticisms laid out in section 2.4.1.2 of this study. Specifically, the fact that the ability model attempts to measure emotional intelligence in an objective way does not seem to be a valid operationalisation of the construct that inherently seems to be subjective. In addition, the maximal performance measure of ability EI attempts to score results based on "expert" opinions – this too does not seem like an accurate way to measure emotional intelligence, in line with the criticisms of MacCann et al. (2003).

4.3.1.2 The dispositional approach

While traditional models of job satisfaction tend to focus on situational aspects, a new area of research has arisen that focuses on the influence of dispositions, affect and emotions on work-related variables. This approach is based on the ground breaking work of Staw et al. (1986) who examined the influence of disposition upon levels of job satisfaction over nearly 50 years. For more on this theory, please see section 3.4.1.3.

The dispositional approach was chosen as the basis for the proposed hypotheses posited in this dissertation. The wealth of previous research into the role of dispositions within the work

place, specifically on how dispositions can affect and influence important variables such as job satisfaction, logically relate to the assumption that emotions, and specifically emotional intelligence, have an effect upon job satisfaction. This is one of the salient aims of the current study - examining the role of EI in determining job satisfaction in the South African context. In addition, a greater understanding of whether the dispositional and emotional influence on job satisfaction extends to the construct of job self-efficacy is sought.

4.3.1.3 Basis for quantitative design

As stated above, a quantitative design has been chosen for this dissertation. This methodology was selected based on the aims of the study, the theoretical departure points and the format of past research studies on trait emotional intelligence (Petrides, 2001; Petrides, 2009). In addition, the secondary data used in the current study and the results from the measuring instrument were originally collected in a numerical format, and thus are ideally suited to statistical analysis.

4.3.2 Goal of the research

The goal for this study can be characterised as descriptive. According to Terre Blanche, Durrheim and Painter (2006), descriptive studies aim to describe aspects of reality, either through a narrative type design or through measuring relationships. As this study aimed to investigate the proposed relationships between emotional intelligence, job satisfaction and job self-efficacy, a descriptive approach was deemed most appropriate.

While a multitude of research has been done on the constructs of emotional intelligence, job satisfaction and job self-efficacy respectively, the relationship between these constructs has not been researched in the South African context. For a full explanation of this lack of research, see the rationale section of this study (section 1.4).

Exploratory designs are primarily used when investigating a new topic. While the topics at hand are not completely new to the world of research, they require further exploration, with a view to their functioning in the local context. Indeed, the same relationship between the variables found in international studies may not be found in a South African study, given the distinctive nature of our population, cultures, ethnicities and language groups. New insights or challenges may be discovered that are unique to our country, and upon which further research can be based.

4.4 Population

The target population for this study is South Africans in the workplace.

More specifically, the target population encompasses people between the ages of 18 and 70. It was decided to exclude minors, as well as individuals who may have retired. The population furthermore comprises individuals who are currently employed. This is because the research study assesses job-related variables that are not applicable to those without work.

All culture and ethnic groups are encompassed by the target population. However, those who do not have English literacy at the level of matric or higher are excluded from the study in order to ensure that participants have an adequate understanding of the language used in the measuring instrument. This assessment tool is not available in any alternative South African languages.

4.5 Sampling

The sample for this research study was obtained from an existing database; secondary data were therefore used. Secondary data can be defined as information collected by an external source for a different purpose, but from which details are extracted for the purpose of the research study at hand (Schutt, 2006).

According to Boslaugh (2007), there are three advantages and one major disadvantage to consider when using secondary data. Firstly, it is by far the fastest and most economical way to obtain data for a research study. It goes a long way towards saving the researcher resources which can then be used elsewhere in the research process. Secondly, the amount of data available may be far more than the researcher could obtain by him or herself. Often data that are extremely detailed and consist of very large sample sizes can be used. Thirdly, when the data were first collected, it may have been gathered in a way that was informed by more expertise and professionalism that any small scale research study could manage. The disadvantage concerns the fact that the data were not originally collected for the current study's specific aims or questions, and therefore some information may be missing or inadequate. For more information on the specific limitations of the sample with regard to the current study, see section 4.6.

4.5.1 Sampling method

The secondary data were collected by the research department within the South African branch of Thomas International – an international psychometrics and assessment company that markets and sells the TEIQue (the measurement instrument used in this study). The data were collected in the course of their usual business for statistical and research purposes, and consists of item, facet and factor scores on the TEIQue as well as a range of biographical information for each participant.

The secondary data were collected between 2007 and 2010, and were originally gathered using nonprobability convenience sampling. While probability sampling is the preferred method for quantitative studies such as this, in practice these sampling methods are extremely difficult to achieve. In fact, most student level research and the majority of the studies in the social sciences discipline rely on nonprobability sampling (Terre Blanche et al., 2006).

Nonprobability sampling or non-random sampling implies that the likelihood of selecting each element is not known in advance (Schutt, 2006). The data used in this study were gathered using the convenience method. This implies that cases were selected based on their availability (Schutt, 2006). While this method allows for ease and cost effectiveness, it greatly curtails the generalisability of the research findings. As Babbie (2010) states, when using this method researchers cannot predict the representativeness of their sample and therefore must exercise caution when generalising results to the greater population. However, Terre Blanche et al. (2006) point out that non-random samples can be useful in quantitative research when testing theories – a multitude of studies, each based on nonprobability samples, can collectively add weight to a theory.

The final sample consists of 1336 individuals. These respondents come from the South African corporate context – the data were collected on a national basis. These individuals completed the measuring instrument and biographical questions for development or recruitment purposes. For a full breakdown of the characteristics of the sample, including gender, age and education level, please see section 5.2.

4.5.2 Sample size

This research study uses data collected via convenience sampling. However, although the data are not randomly sampled, its size (1000+) may be large enough to reduce much of the sampling bias introduced by non-random sampling methods.

Bias can be defined as a systematic error that can influence research findings in some way, while sampling bias specifically refers to error that arises due to sample selection (Taylor-Powell, 2009). It is important to consider, because if a study contains a large amount of sample bias, then its findings may not be generalisable to the larger population. While sampling bias exists in almost any research study, especially those which use nonprobability

sampling methods, there are two main ways to reduce it (Castillo, 2009). The first is to stratify the sample. This implies dividing the sample into various groups, each containing similar units or individuals. The second, a method which has been used in this dissertation, is to obtain a larger sample size:

> *"Given two exactly the same studies, same sampling methods, same population, the study with a larger sample size will have less sampling process error compared to the study with smaller sample size. Keep in mind that as the sample size increases, it approaches the size of the entire population, therefore, it also approaches all the characteristics of the population, thus, decreasing sampling process error."* (Castillo, 2009).

4.6 Research Instrument

The instrument to be used in this study is the Trait Emotional Intelligence Questionnaire, or TEIQue. This measure is a self-report inventory that consists of 153 questions measured on a seven-point Likert scale. This scale ranges from 1 (*strongly disagree*) to 7 (*strongly agree*) with 4 serving as a neutral option. For the purposes of this study, the TEIQue was used to assess the participants' emotional intelligence. The test provides output based on four factors and two global facets. The factors are *well-being*, s*elf-control, sociability* and *emotionality,* while the two global facets are *self-motivation* and *adaptability.* Each of the four main factors further contain between three and four more specific facets (Petrides, 2009). For a full breakdown of the facets and factors of the TEIQue, see section 2.4.3.1.

This measure was chosen as it has excellent reliability and validity values based on years of past research (see section 4.6.1). In addition, some researchers argue that the TEIQue is the only known psychometric measurement which comprehensively measures all constructs of trait emotional intelligence (Austin et al., 2008).

In addition to completing the TEIQue, respondents were also asked biographical questions relating to their gender, age, culture, educational qualifications and more. Two of these

biographical questions were used as measurements of the two remaining constructs in this study, namely job satisfaction and job self-efficacy.

The question: *How happy in your job are you?* – was taken as a measure of job satisfaction for the purpose of this study. Answers to this question are based on a five-point Likert scale, ranging from one (very unhappy in my job) through to five (very happy in my job) with three serving as a neutral answer (neither happy nor unhappy in my job).

As a measure of job self-efficacy, respondents were asked: *How good are you in your line of work?* Responses to this item range from one (I am not good at all in my line of work) to five (I am very good in my line of work). The neutral option is three (I am average in my line of work).

For the purposes of data analysis, both job satisfaction and job self-efficacy are treated as categorical variables. Due to the difference in the sizes of the groups, job self-efficacy was recoded into a new variable with three groups (see section 5.3.2), while job satisfaction was left untransformed with five groups.

It must be noted that the independent variables within this study are measured using only one Likert-type question each. This limitation, unfortunately, could not be overcome. This is because the data were originally collected for a different purpose, and were unable to be adapted or added to for the purposes of the current research (see section 4.5).

According to best practice, constructs should be measured by many items to minimise measurement bias and maximise reliability. Given this fact, the independent variables should be interpreted with caution during the analysis phase of the study.

4.6.1 Reliability and validity of the TEIQue

The following section outlines the validity and reliability of the TEIQue, both internationally and within the local context.

4.6.1.1 Reliability

The TEIQue variables demonstrate adequate to high Cronbach alpha values which are stable across gender and robust even for smaller samples (Petrides, 2009). Table 4.1 provides internal consistency results based on the current United Kingdom (UK) normative sample (n=1712) and derived from the international technical manual (Petrides, 2009). Alpha values are provided for each of the 15 individual facets, as well as the four factors and global EI score, and are split according to gender.

Table 4.1

Cronbach alpha values across gender – UK norms

	Male (n=759)	Female (n=907)
Adaptability	0.73	0.84
Assertiveness	0.73	0.93
Emotion Expression	0.87	0.89
Emotion Management	0.72	0.68
Emotion Perception	0.75	0.70
Emotion Regulation	0.78	0.79
Empathy	0.70	0.67
Happiness	0.85	0.87
Impulsiveness (low)	0.74	0.75
Optimism	0.78	0.81
Relationships	0.69	0.68

Self-esteem	0.78	0.81
Self-motivation	0.70	0.71
Social Awareness	0.83	0.80
Stress Management	0.76	0.80
Well-being	0.84	0.83
Self-control	0.78	0.78
Emotionality	0.80	0.75
Sociability	0.82	0.79
Global Trait EI	0.92	0.89

Note: Adapted from "Technical Manual for the Trait Emotional Intelligence Questionnaire (TEIQue)", by K. V. Petrides (2009), London Psychometrics Laboratory

With regard to the South African norm group (n=1061), the South African technical manual (2009) found slightly different Cronbach alpha values. Table 4.2 displays the alpha values from the South African sample, split by gender. Certain facets seem to be functioning differently between the UK and South African norm groups. For instance, self-motivation has a relatively high alpha value among the UK data (between 0.70 and 0.71), while it has a relatively low value among the SA data (between 0.51 and 0.37, depending on gender). It may be hypothesised that these discrepancies are due, in part, to the vast language differences between these two countries (Thomas International, 2009). However, as seen in table 4.2, the South African alpha values are still acceptable to high, with values above 0.80 for each of the four main factors.

Researchers generally conclude that personality variables (such as Trait EI) remain stable after 30 years of age (Terracciano, Costa, & McCrae, 2006)– the test-retest reliability concurs with this theory (Petrides, 2009).

Table 4.2

Cronbach alpha values across gender - SA

	Male (n=493)	Female n=568)
Adaptability	0.55	0.65
Assertiveness	0.68	0.83
Emotion Expression	0.84	0.81
Emotion Management	0.64	0.68
Emotion Perception	0.70	0.65
Emotion Regulation	0.76	0.69
Empathy	0.62	0.60
Happiness	0.75	0.77
Impulsiveness (low)	0.66	0.60
Optimism	0.60	0.56
Relationships	0.58	0.51
Self-esteem	0.62	0.63
Self-motivation	0.51	0.35
Social Awareness	0.79	0.77
Stress Management	0.73	0.71
Well-being	0.82	0.82
Self-control	0.86	0.82
Emotionality	0.88	0.85
Sociability	0.86	0.86

*Taken from "South African TEIQue Technical Manual" by Thomas International (2009), Unpublished raw data

Test-retest data taken from the TEIQue technical manual, based on a sample of 58 individuals with a 12 month period between tests, are displayed in table 4.3. The TEIQue's overall attenuated stability co-efficient was .78, p<0.01. All facets show high temporal stability with the exception of empathy (Petrides, 2009).

Table 4.3

Test-retest reliability of the TEIQue - UK

	Temporal stability
Adaptability	0.64**
Assertiveness	0.79**
Emotion Expression	0.60**
Emotion Management	0.49**
Emotion Perception	0.66**
Emotion Regulation	.72**
Empathy	0.19
Happiness	0.80**
Impulsiveness (low)	0.55**
Optimism	0.79**
Relationships	0.60**
Self-esteem	0.82**
Self-motivation	0.65**
Social Awareness	0.61**
Stress Management	0.71**
Global Trait EI	0.78**

n=58; **=p<.01; *Note:* Adapted from "Technical Manual for the Trait Emotional Intelligence Questionnaire (TEIQue)", by K. V. Petrides (2009), London Psychometrics Laboratory

The South African technical manual also provides local evidence for the test-retest reliability of the TEIQue. In a study of 50 individuals (63% males, 37% females) between the ages of 18 and 55, respondents were asked to complete the TEIQue again after 6-12 months. Statistically significant correlations were obtained for all facets and factors, with correlations ranging between 0.59 and 0.83 (see table 4.4).

Table 4.4

Test-retest reliability of the TEIQue - SA

	r
Adaptability	0.64**
Assertiveness	0.82**
Emotion Expression	0.83**
Emotion Management	0.66**
Emotion Perception	0.80**
Emotion Regulation	0.71**
Empathy	0.66**
Happiness	0.70**
Impulsiveness (low)	0.74**
Optimism	0.68**
Relationships	0.59**
Self-esteem	0.77**
Self-motivation	0.63**
Social Awareness	0.81**
Stress Management	0.78**
Well-being	0.79**
Self-control	0.76**

Emotionality	0.80**
Sociability	0.86**
Global EI score	0.81**

**:p<0.01; *Note*: taken from "South African TEIQue Technical Manual" by Thomas International (2009), Unpublished raw data

4.6.1.2 Validity

According to the UK TEIQue technical manual, the TEIQue "shows strong evidence of criterion, concurrent, discriminant, incremental, predictive and, ultimately, construct validity" (Petrides, 2009, p. 25).

Criterion validity has been demonstrated through various clinical, social and educational studies. TEIQue scores have been found to be related to coping styles (Kim & Agrusa, 2010), life satisfaction (Petrides, Pérez-González, & Furnham, 2007), social adjustment variables (Engelberg & Sjöberg, 2004), as well as depression and dysfunctional attitudes (Petrides, 2009), Lower scores on the TEIQue have also been associated with increased truancy and anti-social behaviour at school (Petrides, Furnham, & Frederickson, 2004). In the South African context, a study by Astrup and McArthur (2011) found significant positive correlations between certain factors on the TEIQue and transformational leadership ability.

A study conducted by Mikolajczak et al. (2007) investigated the use of the TEIQue in a French speaking population and found preliminary evidence of criterion, incremental and convergent/divergent validity. They also found the scores to be normally distributed and reliable.

The TEIQue is registered with the Health Professions Council of South Africa (HPCSA). This means that it is a recognised psychometric tool and that it has to be shown as valid and

reliable for use with the South African population (Health Professions Council of South Africa, 2010).

4.6.2 The nature of Likert scales

All three variables within this study are measured by Likert scale items. This response format is highly popular in the psychometric field, and is most commonly used to measure attitudes and self-perceptions (Jamieson, 2004). There are various benefits and limitations to consider when making use of Likert scale tests. Some benefits, according to Albaum (1997) include:

1. **Ease of test construction:** Likert scale items are relatively easy to create and structure into a psychometric assessment.

2. **Ease of administration**: This format is easily understandable, and responses are quicker compared to other test formats.

3. **Ease of scoring and interpretation:** This form of assessment is simple to score, sum into scales and interpret.

4. **Shows direction and intensity:** Likert items are designed to provide an indication of direction of feelings ("agree" vs "disagree"), as well as intensity ("somewhat" vs "strongly), thus eliciting more detailed responses.

5. **Provides unique insight into an individual's subjective perceptions**: Given the simplicity of the format, it is the preferred test format when attempting to delve into an individual's subjective feelings on a particular subject.

As mentioned in chapter two of this dissertation (see sections 2.4.2.5), Likert scale items fall prey to various forms of response bias. There are two main types of bias that are commonly linked to Likert type assessments (Paulhus & Vazire, 2009):

1. **Social desirability:** This form of bias is arguably the most common, and refers to the tendency to "distort self-report measures in a favourable direction" (Furnham, 1986, p. 385). This distortion may occur because of dishonesty (portraying oneself as something one is not), lack of self-insight (agreement for agreement's sake), misunderstanding (not being comfortable with the language used in the test, or not understanding how to respond), exaggeration (embellishing your good points), impression management (wanting to be liked or selected for a job) or an honest response (the individual really does feel in the extreme).

2. **Central tendency**: This refers to the reluctance of some respondents to mark items in the extreme (Albaum, 1997). It may also indicate an individual who prefers to answer each item as consistently neutral, or indifference on the part of the respondent (Hollingworth, 1910).

While Likert scales have various limitations, alternative response formats, such as forced choice methods, have unique limitations of their own. For a discussion on the various short-fallings of an assessment that uses the forced choice answer format, see section 2.4.1.2.

4.7 Procedure

The secondary data used in this research study were obtained from Thomas International. The dataset obtained includes responses on the TEIQue as well as complete biographical information for each participant. The scores on the TEIQue include responses for each item, each facet, each factor and an overall trait emotional intelligence score. The biographical information includes data on gender, occupation, religious background, cultural heritage, children, educational qualifications and more.

This dataset was originally compiled by Thomas International for record-keeping purposes. All data were collected between 2007 and 2010. Permission to use the data was granted by the researcher's supervisor at the company.

Once the data were received, it was cleaned in SPSS 19 and any duplications removed. Biographical variables were coded into nominal variables. Negative items on the TEIQue were reverse coded, so that all items could be analysed the same way. Job self-efficacy was recoded into a three group nominal variable, due to extremely small sample sizes within the original five group variable. The new variable consists of three categories: "not good at job", "average at job" and "good at job". Job satisfaction was left untransformed. The final sample consisted of 1336 individuals.

4.8 Data Analysis

The aim of analysis is to address the hypotheses formulated in section 4.2. Specifically, this dissertation aims to determine whether there are statistically and/or practically significant relationships between the constructs: EI, job satisfaction and job self-efficacy. Statistical significance is determined from the results of the data analysis and the probability that a certain pattern of results is due to chance. Alternatively, practical significance involves the application of common sense to determine if the results actually show a large enough difference to be considered relevant to the study at hand.

As the study design is based upon a quantitative framework, various statistical techniques are performed in order to examine the research data. These calculations have been done using SPSS version 19 as well as Winsteps version 2 and R version 2.1.5. The following is a discussion on the analysis techniques that are used in this study.

4.8.1 Descriptive statistics

As a point of departure, the sample data have been explored and described using common descriptive statistics such as the mean and standard deviation. The aim of this analysis is to fully understand what the sample consists of in terms of scores on the TEIQue and various biographical indicators. In addition, it is important to fully explore the data before inferential statistics are performed in order to assess the normality and homogeneity of the sample.

4.8.2 Inferential statistics

In addition to the descriptive statistics mentioned above, inferential techniques have also been performed in order to draw a conclusion in favour of or against the hypotheses posited in this study. For the purposes of analysis, job satisfaction and job self-efficacy are treated as independent variables, while scores on the TEIQue are treated as dependent variables. Job satisfaction and job self-efficacy results are treated as nominal level data while TEIQue factor and facet scores are treated as interval data (see section 5.4.3 for a full explanation).

A multiple analysis of variance was used to test all three hypotheses of this dissertation. For hypothesis one and two, it was used as an introductory test to determine the statistical relationship between the variables. Thereafter, the MANOVA was followed up with individual one-way ANOVAs to further determine the magnitude and direction of the relationship(s) between job satisfaction/job self-efficacy and TEIQue scores. For hypothesis three, it was used in order to determine the interaction effects between job satisfaction and job self-efficacy with regard to scores on the TEIQue.

An ANOVA was selected as it requires only nominal or ordinal variables as factors, and thus is well suited to the level of measurement of the independent variables in the study. In addition, it adequately examines whether significant changes can be detected in EI scores,

based on levels of job satisfaction/job self-efficacy. It avoids the error associated with performing multiple t-tests on the data (Field, 2009) and provides post-hoc tests in order to determine the direction and strength of the relationships found.

Specifically, two post-hoc tests were used in this study, namely:

1. **Hochberg's GT2**: This post-hoc test was selected as it can control for the issue of different sample sizes between treatment groups. One downside of Hochberg's GT2 is that it cannot be used when population variances differ (Field, 2009).

2. **Games-Howell**: This post-hoc test is generally considered the most powerful post-hoc test when variances differ (Field, 2009) and was used to account for heterogeneity of variance where applicable.

4.8.3 Supplementary analysis

In addition to the classical test theory statistics described above, item response analysis was performed on certain items of the TEIQue. The aim of this supplementary analysis is to obtain a more exhaustive picture of the TEIQue test and understand more clearly how it functions within the current sample.

4.8.3.1 Item response theory (IRT)

While classical test theory (CTT) has been the primary method when doing psychometric development and subsequent research thereof, over the past few decades researchers have increasingly turned towards IRT for a new and unique way of looking at the data. Some social scientists argue that IRT is the future of test development, offering advantages that CTT cannot (Ho Yu, 2010). A few of the main assumptions and benefits of IRT include (Ho Yu, 2010; Van Der Linden & Hambleton, 1997):

1. In IRT, the parameter calibrations are sample-free or sample-independent. This means that the results of the IRT calculations are not influenced by the usual sample considerations which affect CTT (such as sampling bias).

2. In CTT, scores are dependent on the specific test. In IRT, items between different tests can be meaningfully compared. In this sense, the measured ability can be considered as "test-free".

3. In CTT, only the total standard error of measurement can be calculated. However, IRT offers a method for calculating individual error measurement.

4. IRT parameters can assist in determining further differences between candidates with the same total score, such as the level of difficulty they can cope with, and the amount of guessing involved. For example, two candidates may obtain a score of 90 out of 100. However, one individual may have obtained such a high score by guessing, while the other may have achieved the same result based on a higher level of underlying ability.

5. A minimum sample size of 500 is recommended in order to conduct an IRT analysis (Huang, 2011). Within the graded response model (GRM) used in this study (see section 4.8.3.2.1), Reise and Yu (1990) recommend a minimum of 500 participants for adequate calibration of parameters, while Kim and Cohen (2002) recommend a sample size of 1000. The more response categories within the measurement instrument, the larger the necessary sample size.

IRT analysis is characterised by the construction of an item characteristic curve (ICC) – see figure 4.1.
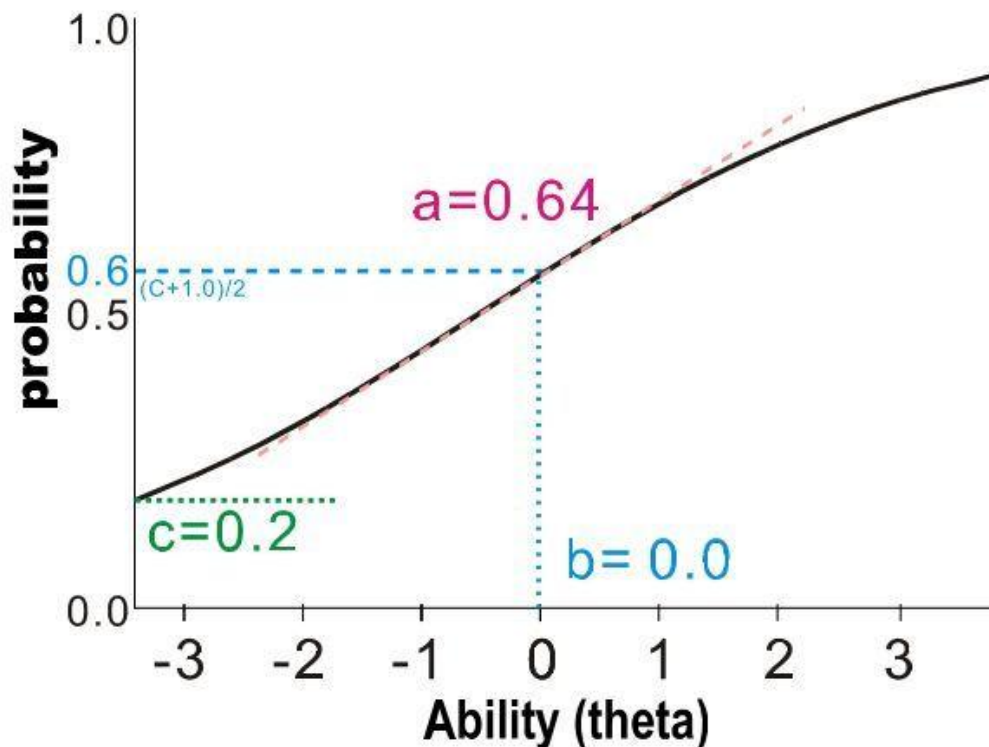
Figure 4.1 *A visual representation of the ICC curve. Adapted from "Exploring item response theory in forced choice psychometrics for construct and trait interpretation in a cross-cultural context" by T. Huang (2011), Unpublished Master's Thesis, University of South Africa, Reprinted with permission.*

Along the x-axis lies theta, while the y-axis provides an indication of the probability of answering an item correctly. Theta is a representation of the underlying ability/construct that the item is measuring (Van Der Linden & Hambleton, 1997). For an introductory text into IRT that provides more in-depth explanations into these terms, please see Ho Yu (2010).

There are three parameters used in IRT, namely difficulty (b), discrimination (a) and guessing (c). These parameters shape the ICC and determine how the item is functioning (Huang,

2011). Following from these parameters, there are three conceptual IRT models. These models provide the mathematical foundation that relates the probability of answering an item correctly to ability or theta (Baker, 2001).

1. **The one-parameter logistic model (1PL):** This model only includes item difficulty (b). The discrimination parameter is fixed at a=1.0 for all items, and guessing is not taken into account (Baker, 2001). See figure 4.2 for a graphical indication of different difficulty parameters, based on the synthesis of items with varying amounts of difficulty, from extremely easy (far left) to extremely difficult (far right). Item curves on the far left demonstrate easier items– those with low levels of ability still have a very large probability of answering the items correctly. Item curves on the far right are the most difficult. For instance, when looking at the grey item curves on the far right, it is evident that only individuals with an average amount of ability and above (eight and above on the x-axis) have any chance of answering the item correctly.

2. **The two parameter logistic model (2PL):** This model takes into account both difficulty (b) and discrimination (a), but similar to the 1PL, does not account for guessing. In this sense, the mathematical equation takes into account both how difficult the item is to answer, as well as how well it discriminates between those with different levels of ability. In basic terms, the discrimination parameter is derived from the slope of the line (Huang, 2011). Figure 4.3 provides a graphical example of the 2PL model.

   In figure 4.3, four coloured blocks of lines are shown – red, grey, green and blue. Each colour block has lines with the same discrimination, ranging in discriminatory

power from red (the weakest) to blue (the strongest). Within each colour block of lines, there are different difficulty parameters.

ICC in 1-PL assumption
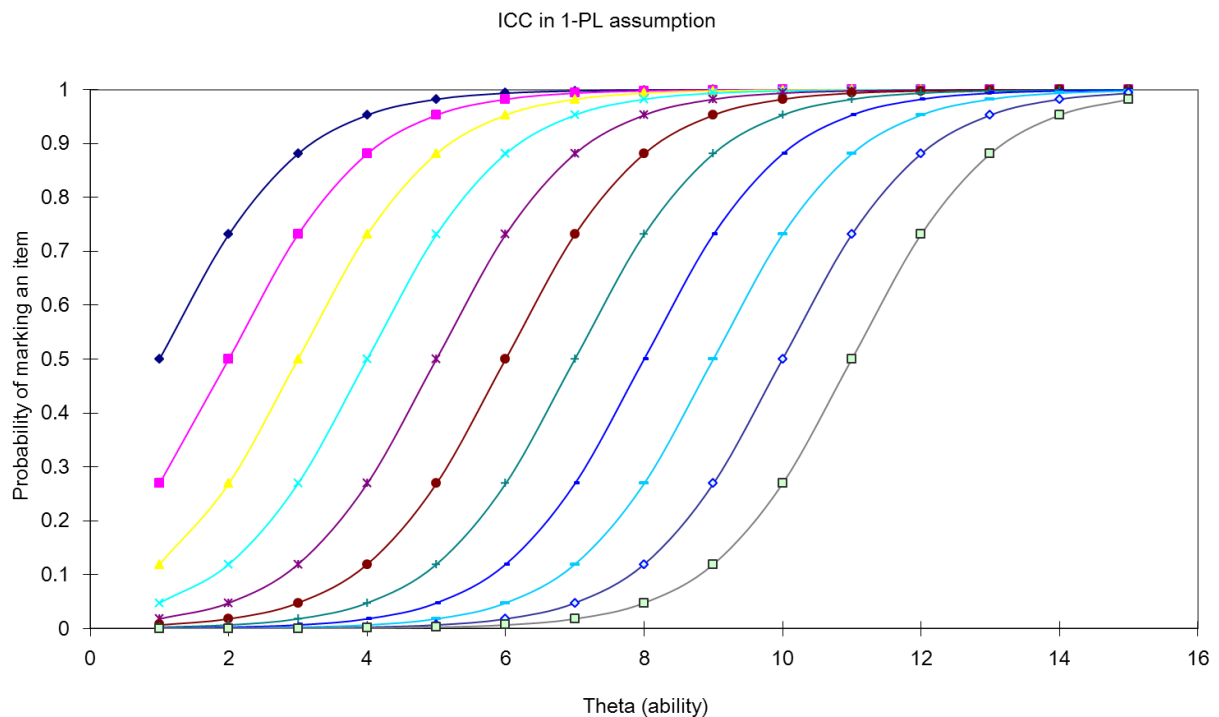
Figure 4.2 *A visual depiction of the one-parameter logistic model (1PL model), Adapted from "Exploring item response theory in forced choice psychometrics for construct and trait interpretation in a cross-cultural context" by T. Huang (2011), Unpublished Master's Thesis, University of South Africa, Reprinted with permission.*

Specifically, the red lines indicate items which do not differentiate well between individuals with different amounts of underlying ability. Those with lower amounts of ability have almost the same probability of answering the item correctly, compared to those with higher levels of underlying ability.

On the other hand, the blue lines indicate the greatest amount of discrimination within figure 4.3 – those with a low level of underlying ability have a lower probability of answering an item correctly, compared to those with higher levels of underlying ability. The blue item curve on the far right is more difficult, compared to the blue

curve on the far left, as individuals have a lower chance of answering that item correctly across all levels of ability.

ICC in 2-PL assumption
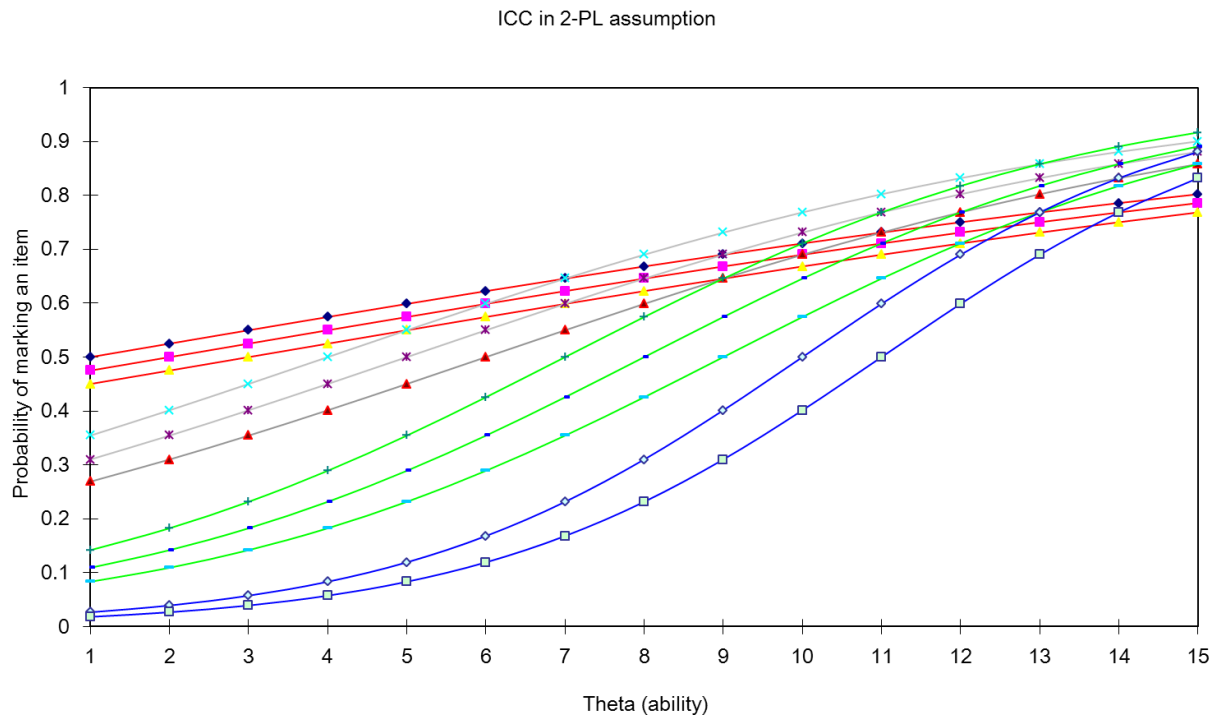
Figure 4.3 *A visual depiction of the two-parameter logistic model (2PL model), Adapted from "Exploring item response theory in forced choice psychometrics for construct and trait interpretation in a cross-cultural context" by T. Huang (2011), Unpublished Master's Thesis, University of South Africa, Reprinted with permission.*

3. **The three parameter logistic model (3PL):** This model was first developed by Birnbaum (1968) and takes into account the very real fact that many respondents may get an item correct simply by guessing it. Thus, the new parameter of guessing (c) was introduced.

This parameter does not vary by value of ability level – in other words, all levels of theta have the same probability of guessing an item as correct (Baker, 2001). In figure 4.4, a hypothetical graph of the 3PL model is provided. These sets of coloured blocks

have the same discrimination parameter, but different difficulty and guessing
parameters

ICC in 3-PL assumption
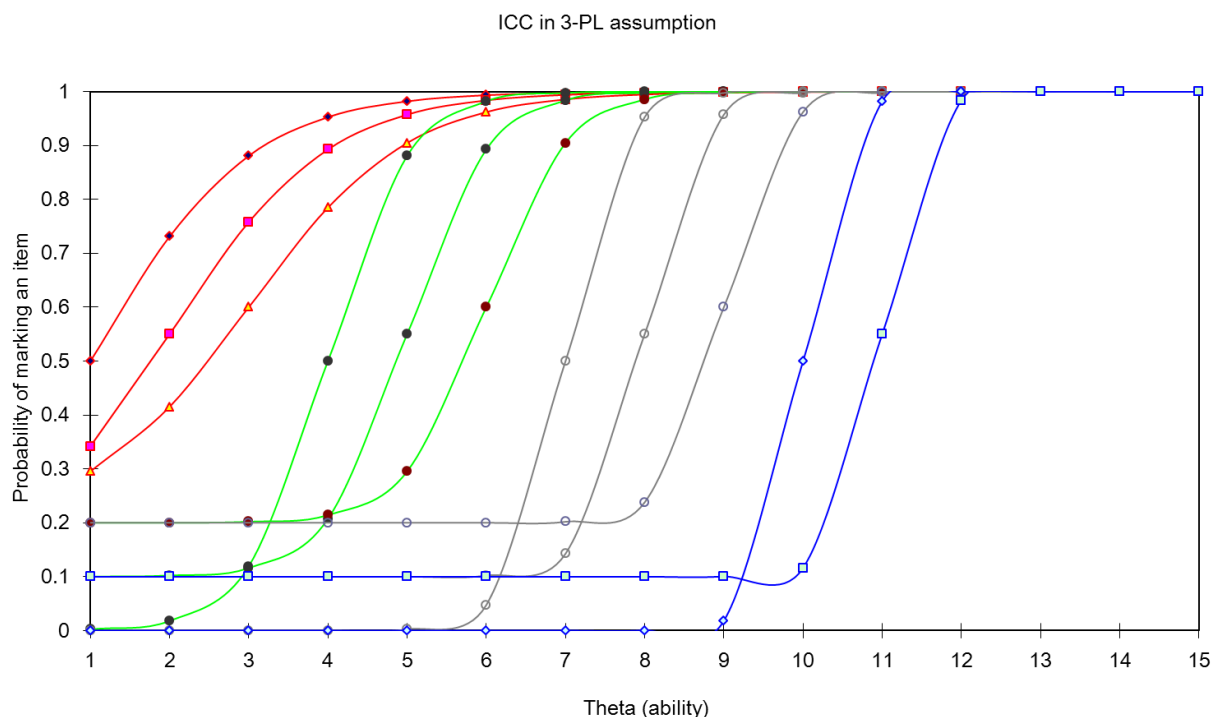
Figure 4.4 *A visual depiction of the three-parameter logistic model (3PL model), Adapted from "Exploring item response theory in forced choice psychometrics for construct and trait interpretation in a cross-cultural context" by T. Huang (2011), Unpublished Master's Thesis, University of South Africa, Reprinted with permission.*

The red blocks indicate easier items with low discrimination and a high amount of guessing, as those with the lowest amount of ability still have a chance of between 0.3 and 0.5 of guessing the item correctly.

On the other hand, the blue lines indicate extremely difficult items (only individuals with above average ability have any chance of answering correctly), with high discrimination (those with an ability level of nine have a much lower probability of answering the item correctly, compared to those with an ability level of 10). The blue curve on the right has the same discrimination value as the blue curve on the left, but

is also slightly susceptible to guessing (those with low ability still have a probability of 0.1 or 10% of answering the item correctly).

Further to these basic models that provide a foundation for modern IRT practice, a more specific model by Samejima is discussed below.

4.8.3.2.1 The General Graded Response Model (GRM)

In this dissertation, IRT analysis is conducted according to the GRM framework, as laid out by Samejima (1999; 1997; 2010). This model is specifically designed to overcome the limitations of the early IRT theories that only dealt with dichotomous items. Instead, the GRM model is specifically designed to handle items with more than two response categories. Samejima's model is structured to represent items with ordered polytomous categories (Samejima, 2010), such as the "strongly disagree" to "strongly agree" Likert scale format of many assessment tools – see figure 4.5 for an example graph.

In this graph, a Likert scale item with seven response options is displayed, with each colour representing a different response option. The GRM model takes into account the three parameters outlined in the 3PL model – the difficulty (b), discrimination (a) and guessing (c) parameters.

Samejima's model is classified as a *difference model* within the IRT family (Thissen & Steinberg, 1997). This is due to the fact that the probability of responding to an item in a particular way is determined by the difference in probability of responding to the upper or lower threshold, as determined by the Likert scale. In other words, the probability of an individual responding with the lowest option (e.g. the probability of responding one on a seven-point Likert scale) is determined by the probability of not passing the first threshold (one on the Likert scale). The probability of an individual responding two on the Likert scale

is determined by the probability of passing the first threshold but not the second (scoring higher than one, but not higher than two), and so on (Revelle, 2010).
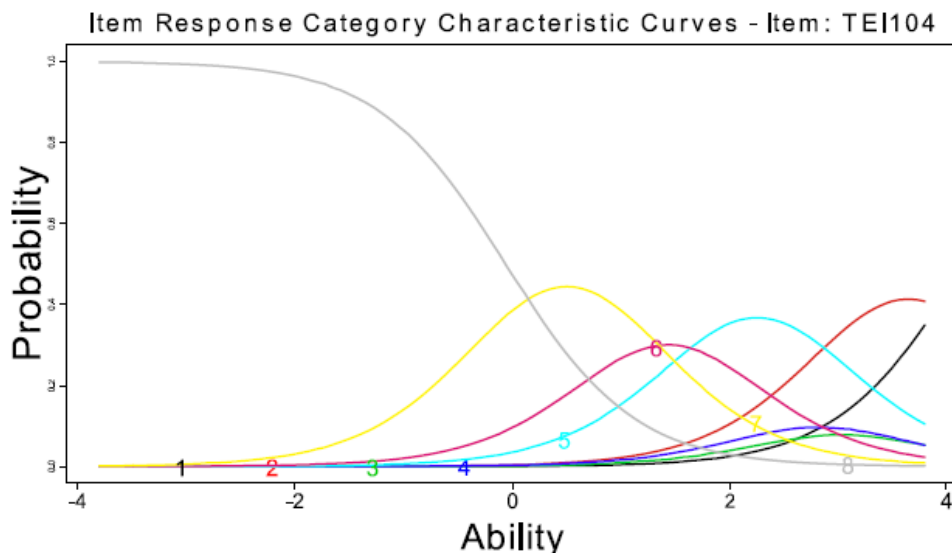
Figure 4.5 *An example graph of Samejima's graded response model, Adapted from "Exploring item response theory in forced choice psychometrics for construct and trait interpretation in a cross-cultural context" by T. Huang (2011), Unpublished Master's Thesis, University of South Africa, Reprinted with permission.*

The GRM was selected as it is ideally suited to the item format used in the measuring instrument in this study, namely the TEIQue. This assessment records responses to items based on a seven-point Likert scale format with answers ranging from one (strongly disagree) to seven (strongly agree).

4.8.3.2.2 The latent trait model (ltm) package

All IRT analysis has been performed in R version 2.1.5. This is free open source software that is freely available on the internet from sources such as http://www.r-project.org/.

Within R, the ltm package, written by Rizopoulos (2006), was used as a basis for the GRM analyis. The latent trait model (ltm) estimates the parameters for the ICC via the use of

marginal maximum likelihood estimation (MMLE). The assumption of this method is that the sample is randomly selected from the population and data is distributed along a normal distribution function (Huang, 2011). Although the sample in the current study has not been randomly selected, it is assumed that it is large enough to have a normal sampling distribution, and thus the results of the item analysis according to the MMLE method should not be greatly biased. See section 5.4.1 for a full explanation of this. However, the results of the IRT analysis should still be interpreted with caution.

The syntax used to perform the IRT analysis is contained in the appendix of this dissertation.

4.9 Ethical Considerations

At all times, the strictest ethical principles were maintained within this dissertation. In order to maintain such strict standards, the four philosophical principles of ethical research were followed, as laid out by Beauchamp and Childress (2001).

4.9.1.1 Autonomy and respect

In order to afford participants autonomy, they need to give informed consent to the research study, and should have their identities kept confidential, unless permission is given to the contrary. Before completing the TEIQue and biographical questions, all respondents completed a consent form giving their permission for the data to be used for research purposes.

In the present study, confidentiality has been maintained by disguising the identity of participants during the data analysis and interpretation stage. No names have been linked to the data at any point, and all results are reported in aggregate.

4.9.1.2 Nonmalfeasance

In the study at hand, the participants run no risk of harm as their personal details have not been disclosed, they have not been deceived, they have given their permission and their personal assessment results have not been revealed. All information was kept strictly between the researcher and the research department of Thomas International. No statisticians or assistants had access to the data.

4.9.1.3 Beneficence

The researcher believes that the information gained from this study will contribute to a greater understanding of job satisfaction, job self-efficacy and emotional intelligence. This understanding will increase the knowledge within the industrial/organisational psychology field. Eventually, this study and others may assist in informing organisations' decisions with regard to maintaining employee well-being and satisfaction.

4.9.1.4 Justice

As no direct data collection was involved in the current research, the researcher did not have control over sample selection procedures. However, in terms of the secondary data analysis, no participant was singled out or treated unfairly.

CHAPTER FIVE: RESEARCH RESULTS

5.1 Introduction and Objectives

The purpose of this chapter is to report on the results of the statistical analysis. First, descriptive statistics are presented that provide an overview of the sample at hand. These include a breakdown of various biographical factors such as gender, age and educational level. Thereafter, various statistical techniques are applied to the data in an attempt to find support for the hypotheses of the study. In the last section of this chapter, exploratory research is done on the data using item response theory. This is included in order to further explore the functioning of the measuring instrument, the TEIQue, in the South African population.

The objective of this chapter is to examine the hypotheses mentioned in chapter one of the current study (see section 1.3). For ease of reference, these are repeated below:

Hypothesis 1: Trait emotional intelligence is significantly related to self-ratings of job satisfaction.

Hypothesis 2: Trait emotional intelligence is significantly related to self-ratings of job self-efficacy.

Hypothesis 3: There is an interaction effect between job satisfaction and job self-efficacy with regard to trait emotional intelligence.

All results reported on in this section are fully aligned with the research design and methodology. For more information on this, refer to chapter four of this dissertation.

5.2 Biographical Data

The final sample, after duplications were removed and data cleaned, consisted of 1336 individuals. Various biographical data were collected. In this section, gender, age, language, educational qualifications, time spent in current job and size of current organisation are discussed.

5.2.1 Gender distribution

See table 5.1 for the breakdown of gender in the current sample. Coincidentally, the number of males and females happens to be identical, resulting in a perfect 1:1 ratio. Given that the distribution of males and females within the population is hypothesised as roughly equal (Statistics SA, 2011), this is a good indication that the study's sample size is large enough to be considered as representative of the gender demographics of South Africa , despite its non-random selection method.

Table 5.1

Gender distribution of sample

Gender	Frequency	Percent
Male	668	50.00
Female	668	50.00
Total	1336	100.00

5.2.2 Age distribution

Candidates were asked to fill in their age as part of the biographical information. This continuous data were broken down into three categories: 18-30 years, 31 to 45 years and 46 to highest. See table 5.2 for further information about the age distribution within the sample.

The mean age in the sample is 36, with a standard deviation of 9.07. The minimum age is 19 and the maximum age is 70 with a range of 52 years.

Table 5.2

Age distribution of sample

Age category	Frequency	Percent
18-30	491	36.80
31-45	650	48.70
46 to highest	176	13.20
Missing	19	1.40
Total	1336	100.00

5.2.3 Language distribution

The original biographical questionnaire captured Afrikaans, English, Setswana, IsiZulu, Sesotho, Northern Sotho, IsiXhosa, IsiNdebele, TshiVenda, Xitsonga, SiSwati and other. For analysis purposes, these languages were split into five categories, namely (1) Afrikaans, (2) English, (3) Coastal African, (4) Inland African and (5) Other. See table 5.3 for a breakdown of these language groups.

Table 5.3

Language group distribution of sample

Language group	Frequency	Percent
Afrikaans	396	29.64
English	552	41.32
Coastal African	117	8.76
Inland African	230	17.22
Other	41	3.07
Total	1336	100.00

Coastal African languages consist of IsiZulu and IsiXhosa. Inland African languages consist of Xitsonga, TshiVenda, SiSwati, Setswana, Sesotho, Northern Sotho and IsiNdebele.

5.2.4 Educational qualifications

Participants were asked to indicate their highest educational qualification. See table 5.4 for a frequency distribution of results. Those who did not study further comprise 15.64% of the sample. Participants who possess a bachelor's degree comprise the largest percentage in the sample (19.16%).

Table 5.4

Education distribution of sample

Qualification	Frequency	Percent
I did not study further	209	15.64
3 or 6 months diploma	94	7.04
1 or 2 year diploma	241	18.04
3 year diploma	222	16.62
Bachelors degree	256	19.16
Honours degree	178	13.32
Masters degree	117	8.76
Doctoral degree	19	1.42
Total	1336	100.00

5.2.5 Time spent in job

The biographical questionnaire also asked participants "how long have you been in your current job?" Table 5.5 shows a frequency distribution based on the answers to this question. Within the sample, roughly 20% have been in their job for less than 12 months or are unemployed. Most participants (21.63%) have been in their job for 3-5 years.

Table 5.5

"Time spent in job" distribution

Length of time	Frequency	Percent
Less than 12 months	280	20.96
1 year	140	10.48
2 years	213	15.94
3 to 5 years	289	21.63
6 to 10 years	211	15.79
10 to 20 years	159	11.90
More than 20 years	44	3.29
Total	1336	100.00

5.2.6 Size of organisation

Given that the current study concerns organisational factors, the size of a participant's organisation is of interest (see table 5.6). The majority of the sample (45.58%) works in large organisations with more than 500 people. The numbers of participants who are self-employed (65; 5%) or work in small organisations (159; 11.15%) are small, compared to the overall sample.

Table 5.6

Size of organisation distribution

Size of organisation	Frequency	Percent
Self-Employed	67	5.01
less than 50 people	149	11.15
between 51 and 500	511	38.25
more than 500 people	609	45.58
Total	1336	100.00

5.3 Descriptive Statistics

In this section, descriptive statistics for the variables included in the study are discussed. Frequency distributions are presented for job satisfaction and job self-efficacy, followed by descriptive statistics on the various facets and factors on the TEIQue measuring instrument.

5.3.1 Job satisfaction

In order to measure job satisfaction, participants were asked "How happy in your job are you?" Answers ranged along a five-point Likert scale. Option one was "I am very unhappy in my job", while option five was "I am very happy in my job" with three serving as a neutral option. For the purposes of data analysis, job satisfaction was treated as a nominal variable with five equal groups. Table 5.7 shows the sample size of the five groups. These were considered large enough to not warrant the recoding of the variable into smaller groups.

Table 5.7 shows that the majority of the participants rated themselves as "mostly happy" within their jobs. Very few people marked "very unhappy" – suggesting that either these participants are all happy in their jobs or they are simply unwilling to admit that they are unhappy.

Table 5.7

Job satisfaction distribution

Amount of satisfaction	Frequency	Percent
I am very unhappy in my job	62	4.64
I am mostly unhappy in my job	79	5.91
I am neither happy nor unhappy in my job	200	14.97
I am mostly happy in my job	684	51.20
I am very happy in my job	311	23.28
Total	1336	100.00

Figure 5.1 displays a histogram of results to the question indicating job satisfaction. As shown in table 5.7, the vast majority of candidates responded as "mostly happy" in their jobs (option four). Given that the range of the Likert scale item was one to five, one would expect the majority of responses to fall closer to the middle option (neutral).

Histogram of job satisfaction
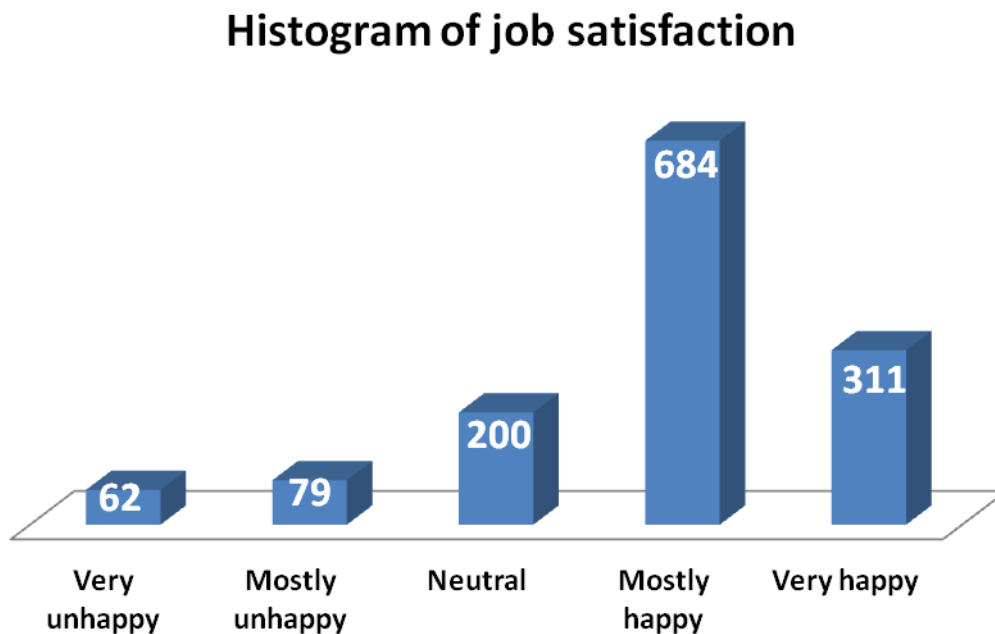
Figure 5.1 *A histogram of answers to the question: "How happy in your job are you?"*

One can hypothesise that, due to social desirability or impression management, respondents were more likely to choose more positive options, such as option four (mostly happy in my job) or option five (very happy in my job), even if their true feelings indicated job dissatisfaction. Social desirability, or "faking good" is a relatively common bias with Likert scale items (see section 4.6.2), and refers to the tendency for certain individuals to mark items as consistently more positive in order to portray themselves in a better light (Furnham, 1986).

Given the apparent faking good bias, it is important to interpret the results of the job satisfaction item cautiously, particularly as it is the only indicator of job satisfaction in this dissertation. Generally, constructs should be measured with many items in order to obtain a

full understanding. Unfortunately, this was not possible in this study due to the limitations of the secondary sample (see section 4.5 and 4.6 for more information).

5.3.2 Job self-efficacy

In order to measure job self-efficacy, participants were asked "How good are you in your line of work?" Similar to job satisfaction, answers ranged from one to five on a Likert scale. Option one represented the most negative reply – "I am not good at all in my line of work". Option five represented the most positive response – "I am very good in my line of work". Option three served as a neutral response – "I am average in my line of work".

A frequency distribution was performed on the data. Table 5.8 displays the results for job self-efficacy. Over half of the sample rated their job self-efficacy as "very good", followed by 36% who marked themselves as "mostly good". Very few marked themselves as "mostly not good" – instead those with lower job self-efficacy had a tendency to mark themselves in the extreme – "not good at all". Once again, the vast majority gave more positive answers than expected.

Although it is possible that the sample may all have high levels of self-efficacy, these responses may also be the result of a social desirability bias, similar to job satisfaction above (see section 5.3.1). Once again, participants may have rated themselves as "good" in their line of work in order to impress future employers or their current employers. It is speculated that this may be due to respondents' beliefs that that their jobs might be threatened if they admit to feelings of failure.

Table 5.8

Job self-efficacy distribution

Amount of self-efficacy	Frequency	Perfect
I am not good at all in my line of work	23	1.72
I am mostly not good in my line of work	8	0.59
I am average in my line of work	75	5.61
I am mostly good in my line of work	482	36.07
I am very good in my line of work	748	55.98
Total	1336	100.00

Job self-efficacy was treated as a nominal variable for the purpose of the study. Given the extremely small sample sizes within the five groups (see table 5.8), the original job self-efficacy variable was recoded into a three-group nominal variable (see table 5.9). Options one and two from the original Likert scale were coded into one group ("not good at job"), option three was coded into a second group ("average at job"), while options four and five were coded into a third group ("good at job"). See figure 5.2 for a histogram of job self-efficacy: recoded.

Table 5.9

Job self-efficacy - recoded distribution

Amount of self-efficacy	Frequency	Percent
Not good at job	31	2.32
Average at job	75	5.61
Good at job	1230	92.07
Total	1336	100.00

Histogram of job self-efficacy: recoded
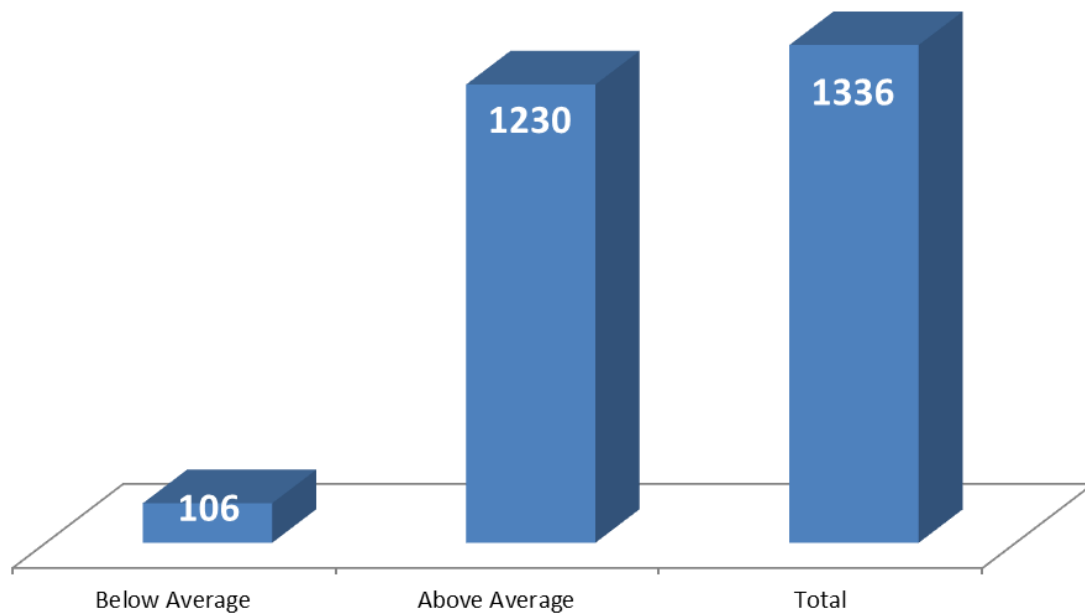
Figure 5.2 *A histogram of the recoded job self-efficacy variable*

5.3.3 The Trait Emotional intelligence Questionnaire (TEIQue)

This section looks at descriptive statistics concerning the dependent variable in the research study, namely the TEIQue. As discussed in section 4.6, the TEIQue consists of 153 questions measured on a seven-point Likert scale. The scale ranges from one (strongly disagree) to seven (strongly agree). On this scale, four serves as a neutral option. The results from the questionnaire are split into 15 facets; these facets are then grouped into factors, and finally an overall score is generated.

First, the descriptive statistics for each factor and the facets therein are displayed. Thereafter, the descriptive statistics for the two facets which do not group into a factor are displayed, as well as for the overall emotional intelligence score.

5.3.3.1 Well-being

The first factor on the TEIQue is well-being. It consists of three facets, namely happiness, optimism, and self-esteem. Altogether, this factor aims to look at how happy a person is in the present moment, how positively they view the future and how good they feel about themselves. Table 5.10 consists of descriptive statistics for well-being. The mean for happiness (6.08) is very high – in fact, it is only one point away from the maximum score on the Likert scale. This indicates that the majority of participants view themselves as very happy. The means for optimism and self-esteem are slightly lower (5.72 and 5.57 respectively), although these too are rather high. Overall, the sample has a high score on well-being. The minimum scores for all of these facets are above 1 (the lowest option on the questionnaire). This indicates reluctance on the part of the participants to select "strongly disagree" to questions on the well-being factor.

Table 5.10

Descriptive statistics for well-being

Facet	Mean	Median	Std Deviation	Variance	Minimum	Maximum	Range
Happiness	6.08	6.25	0.79	0.63	1.25	7.00	5.75
Optimism	5.72	5.75	0.79	0.62	2.25	7.00	4.75
Self-esteem	5.57	5.64	0.71	0.50	2.18	7.00	4.82
Well-being	5.79	5.85	0.64	0.41	2.48	7.00	4.52

N=1336; Missing=0

5.3.3.2 Self-control

The second factor on the TEIQue is known as self-control. It consists of three separate facets – emotion regulation, impulse control and stress management. Overall, this factor gives an indication of how well participants control their emotions, how they respond to impulses and

how they manage their stress levels. A high score on impulse control indicates an individual who feels able to control his or her impulses very well, while a low score indicates someone who gives into his or her desires without much thought. See table 5.11 for results.

Table 5.11

Descriptive statistics for self-control

Facet	Mean	Median	Std Deviation	Variance	Min	Max	Range
Emotion regulation	5.10	5.08	0.85	0.72	2.38	7.00	4.62
Impulse control	5.19	5.22	0.96	0.92	1.56	7.00	5.44
Stress-management	5.19	5.30	0.85	0.73	2.30	7.00	4.70
Self-control	5.16	5.17	0.76	0.58	2.65	7.00	4.35

N=1336; Missing=0

The mean score for these facets is between 5.10 and 5.19. This suggests that participants generally rate themselves equally on each one of the facets. Similar to the mean scores on well-being, these higher means indicate a tendency for individuals to rate themselves in a positive light. This may once again reflect a social desirability bias in the research results. There is also a limited range of scores; while participants are willing to rate themselves as "strongly agreeing" with positive statements and "strongly disagreeing" with negative statements, they are unwilling to rate themselves as "strongly disagreeing" with positive statements and vice versa. This could suggest that participants are unwilling to view themselves in a negative light.

5.3.3.3 Emotionality

Emotionality consists of four facets, namely empathy, emotion perception, emotion expression and relationships. Overall, this factor gives an indication of participants' emotional intelligence with regard to their close friends, family and personal relationships.

Empathy pertains to feelings of "being in someone else's shoes". Emotion perception involves the self-rated ability to perceive the emotions of other people. Emotion expression is the subjective ability of an individual to express his or her emotions in a healthy way. The facet relationships pertains to how much an individual values and works to sustain close personal relationships (Petrides, 2009).

See table 5.12 for descriptive statistics for the four facets and the overall emotionality factor. Compared to the other three facets, the mean score for empathy is the lowest (5.09) with little variance in scores (0.41) and a high minimum score (2.44). This shows that overall participants rated themselves as neutral to empathetic, but did not score in the extremes. Looking at emotion expression, the mean is slightly higher (5.22) but there is a lot more variance in the scores (1.21) with a lower minimum score (1.30), implying that participants tend to score very differently on this facet and score more in the extremes.

Table 5.12

Descriptive statistics for emotionality

Facet	Mean	Median	Std Deviation	Variance	Min	Max	Range
Empathy	5.09	5.11	0.64	0.41	2.44	7.00	4.56
Emotion perception	5.32	5.40	0.79	0.62	1.70	7.00	5.30
Emotion expression	5.22	5.40	1.10	1.21	1.30	7.00	5.70
Relationships	5.72	5.75	0.75	0.56	2.38	7.00	4.63
Emotionality	5.34	5.38	0.66	0.43	2.46	6.83	4.37

N=1336; Missing=0

5.3.3.4 Sociability

The sociability factor on the TEIQue consists of three facets – emotion management, assertiveness and social awareness. Someone who is high on the sociability factor would see

themselves as able to influence the emotions of others, adapt to different social situations and stand up for themselves when necessary.

Table 5.13 contains the descriptive statistics for sociability. Among the three facets, there is not much difference in variance or standard deviation. The mean score on social awareness is 5.42, slightly higher than the means of emotion management (5.04) and assertiveness (5.24). This may imply that participants view themselves as more socially aware, compared to the other two facets.

Table 5.13

Descriptive statistics for sociability

Facet	Mean	Median	Std Deviation	Variance	Min	Max	Range
Emotion management	5.04	5.11	0.84	0.71	2.00	7.00	5.00
Assertiveness	5.24	5.33	0.87	0.75	2.11	7.00	4.89
Social Awareness	5.42	5.50	0.86	0.73	1.73	7.00	5.27
Sociability	5.23	5.26	0.72	0.52	2.39	7.00	4.61

N=1336; Missing=0

5.3.3.5 Adaptability, self-motivation and total EI score

Besides the four factors, each made up of their respective facets, there are also two facets that do not load onto any factor. These are adaptability and self-motivation. A person who is adaptable enjoys change and responds well to situations where adjustment is necessary. Self-motivation concerns a person's ability to motivate him or herself internally – a low score indicates that external motivators may be required for good performance.

Besides these two facet scores, there is also a total EI score. This overall score sums up the different factors, as well as adaptability and self-motivation, to provide an indication of an

individual's emotional intelligence functioning. Table 5.14 displays results from a descriptive analysis on these variables.

Table 5.14

Descriptive statistics for adaptability, self-motivation and total score

Facet	Mean	Median	Std Deviation	Variance	Min	Max	Range
Adaptability	5.09	5.11	0.80	0.64	2.11	7.00	4.89
Self-motivation	5.28	5.30	0.69	0.48	2.30	7.00	4.70
Total EI	5.35	5.38	0.56	0.32	2.81	6.77	3.96

N=1336; Missing=0

Total EI score has a mean value of 5.35 with a standard deviation of 0.56. There is a very small amount of variance in the total score with not many scores falling in the lower extremes (nothing below 2.81). However, the maximum score is 6.77, indicating that respondents did sometimes score in the higher extremes.

5.4 Assumptions

Before any statistical analysis was conducted, and throughout the analysis process, the data were checked to ensure that certain parametric assumptions were met. The statistical procedures used in this study are parametric tests, and thus are subject to various assumptions. There are four main assumptions relevant to the study at hand, namely (1) a normal distribution, (2) homogeneity of variance, (3) interval level data and (4) independent data. These are addressed in turn.

5.4.1 Normally distributed data

The normal distribution underlies probability theory and thus many of the commonly used statistical procedures. In many tests, it is necessary for the sampling distribution to be

normally distributed. In order to discover if the sampling distribution is normal, researchers check that their variables are normally distributed and then assume the same for their sampling distribution (Field, 2009).

As Field (2009) points out, for large samples (generally above 30), the sampling distribution can be assumed to be normal, regardless of the actual data collected, based on the central limit theorem. Given the large size of the current sample (n=1336), it may be assumed that the underlying sampling distribution is normal. In addition, the ANOVA (the main form of analysis in this dissertation) is considered to be a robust test – one that is not affected by skewed datasets (Norman, 2010).

5.4.2 Homogeneity of variance

For certain statistical tests, it is necessary for the variance to be the same or equal throughout the data. Specifically, for different levels of job satisfaction or job self-efficacy, the variance of scores on the TEIQue should remain the same (Field, 2009, p. 133). In order to examine this assumption, "differences in the variation of the distributions among subgroups are examined" (Salkind, 2010, p. 578).

After running Levene's test for homogeneity of variance, it was determined that many of the variables within this study violate the assumption of homogeneity of variance (see table 5.15 for job satisfaction; table 5.16 for job self-efficacy). For different levels of job satisfaction, well-being, sociability, self-control and total EI score have heterogeneous variances. For example, variances for well-being are significantly unequal for different levels of job satisfaction, $F_{(4, 1331)} = 4.52$, $p < 0.01$. Variances are considered equal for emotionality, $F_{(4, 1331)} = 1.95$, ns.

Table 5.15

Levene's test for homogeneity of variance - job satisfaction

Factor	Levene's statistic	df1	df2	Sig.
Well-being	4.52	4	1331	0.00
Self-control	2.77	4	1331	0.03
Emotionality	1.95	4	1331	0.10
Sociability	2.57	4	1331	0.04
Total EI	2.15	4	1331	0.07

Levene's statistic based on mean

When it comes to job self-efficacy (table 5.16), each factor on the TEIQue as well as the total score have equal variances, according to Levene's test. For the total EI score, $F_{(1, 1334)} = 0.34$, ns.

Table 5.16

Levene's test for homogeneity of variance - job self-efficacy

Factor	Levene Statistic	df1	df2	Sig.
Well-being	0.10	2.00	1333.00	0.91
Self-control	1.26	2.00	1333.00	0.28
Emotionality	1.50	2.00	1333.00	0.22
Sociability	1.58	2.00	1333.00	0.21
Total EI score	0.79	2.00	1333.00	0.46

It is clear that the assumption of homogeneity of variance is violated by some of the variables under study. In order to deal with this problem, the Games-Howell post-hoc test is used for the analysis of variance statistical procedures. This test has been specifically designed to provide accurate results when dealing with unequal variance (Field, 2009, p. 374). See section 4.8.2 for more information.

5.4.3 Interval level data

The key principle for interval data is that the distance between any value and its neighbouring value should be the same as between any two other adjacent values on the scale (Salkind, 2010). To illustrate: on a five-point anxiety scale, in order for the results to be interval, the distance between a score of one and two on the scale should be the same as the distance between 4 and 5 on the scale – in terms of the latent trait being measured.

Although Likert scales may technically be an ordinal level of measurement (as there is no way to prove that the distance between the response options is equal), the summed scores created from Likert scale items (such as the facet and factor scores used in this study) can quite defensibly be considered as an interval level of measurement (Carifio & Perla, 2008; Norman, 2010).

In this dissertation, the facet and factor scores on the TEIQue are treated as interval variables, given that they are summed.

5.5 Hypotheses

In this section, the statistical analyses relating to the hypothesis testing part of the study are reported. Each hypothesis (see section 5.1) is separately analysed, and thereafter a discussion in chapter six of this dissertation integrates the findings. Below, the three hypotheses for the study at hand are repeated for ease of reference, and thereafter the findings of the analysis are presented.

5.5.1 Hypothesis one

The first hypothesis in the study is "Trait emotional intelligence is significantly related to self-ratings of job satisfaction". Therefore:

Null hypothesis = There is no statistically significant relationship between trait emotional intelligence and job satisfaction.

In order to determine whether the null hypothesis should be accepted or rejected, a multivariate analysis of variance (MANOVA) was performed with job satisfaction as the independent variable and the main factors on the TEIQue, as well as the *total EI* score, as the dependent variables. A MANOVA is necessary in order to take into account any possible relationships between the dependent variables, and to prevent the chance of making a type I error (Field, 2009). As the results of the MANOVA indicated a significant relationship between the independent and dependent variables, one-way ANOVAs were subsequently performed upon each of dependent variables in turn in order to further determine the significance and pattern of the results

Levene's test for homogeneity of variance was performed in order to test the assumption of equal variance. See table 5.15 for results. Well-being, self-control and sociability violate the assumption of equal variance. For these variables, the Games-Howell post-hoc test was used for further analysis (see section 4.8.2).

In addition to the assumption of homogeneity of variance, a MANOVA test also requires homogeneity of covariance matrices. This implies that the correlation between any two dependent variables is the same or similar across all levels of the independent variable. This assumption is tested using Box's Test of Equality of Covariance Matrices (Field, 2009, p. 604). A non-significant result indicates that there is no significant difference between the covariance matrices.

Table 5.17 demonstrates the results of Box's test for the sample at hand. The assumption for homogeneity of covariance is not met as the result is highly significant at $p < 0.001$. Therefore the results of this analysis need to be interpreted with caution. However, according to

Tabachnick and Fidell (2001), larger sample sizes that violate Box's test will generally produce conservative probability values, leading to results that may be trusted.

Table 5.17

Box's Test – job satisfaction

Box's M	F	df1	df2	Sig.
126.63	2.07	60.00	237702.59	0.00

Table 5.18 displays the results of the multivariate tests from the MANOVA analysis. Each of these tests is significant at $p<0.001$ for all dependent variables in relation to job satisfaction. All dependent variables are significantly related to job satisfaction at $p<0.01$. Therefore, the null hypothesis can be rejected.

Table 5.18

Multivariate tests - job satisfaction

		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	0.98	13395.82	5.00	1327.00	0.00
	Wilks' Lambda	0.02	13395.82	5.00	1327.00	0.00
	Hotelling's Trace	50.47	13395.82	5.00	1327.00	0.00
	Roy's Largest Root	50.47	13395.82	5.00	1327.00	0.00
Job satisfaction	Pillai's Trace	0.09	6.19	20.00	5320.00	0.00
	Wilks' Lambda	0.91	6.34	20.00	4402.11	0.00
	Hotelling's Trace	0.10	6.47	20.00	5302.00	0.00
	Roy's Largest Root	0.08	22.12	5.00	1330.00	0.00

Separate one-way ANOVA analyses were then performed between job satisfaction and each of the dependent variables. Table 5.19 displays the results from these analyses, all of which are significant at $p<0.001$. In order to determine the effect size of the one-way ANOVAs, eta squared (η^2) was also calculated. According to Cohen's specifications for an analysis of

variance, an effect size of 0.10 is considered small, 0.25 medium and 0.40 large (Cohen, 1992).

Table 5.19

Analysis of variance - job satisfaction

Factor		Sum of squares	df	Mean square	F	Sig.
Well-being	Between Groups	34.15	4.00	8.54	22.37	0.00
	Within Groups	508.14	1331.00	0.38		
	Total	542.30	1335.00			
Self-control	Between Groups	17.92	4.00	4.48	7.91	0.00
	Within Groups	753.40	1331.00	0.57		
	Total	771.32	1335.00			
Emotionality	Between Groups	18.33	4.00	4.58	10.92	0.00
	Within Groups	558.47	1331.00	0.42		
	Total	576.80	1335.00			
Sociability	Between Groups	31.33	4.00	7.83	15.61	0.00
	Within Groups	667.89	1331.00	0.50		
	Total	699.23	1335.00			
Total EI	Between Groups	22.81	4.00	5.70	19.05	0.00
	Within Groups	398.39	1331.00	0.30		
	Total	421.19	1335.00			

The largest relationship, in terms of F values, seems to be between job satisfaction and well-being: $F(4, 1331) = 22.37$, $p<0.01$, followed by total EI score (F=19.05), sociability (F=15.61), emotionality (F=10.92) and finally self-control (F=7.91), all $p<0.01$. The effect sizes for this analysis of variance are very small:

1. Well-being: $\eta^2 = 0.063$. Job satisfaction predicts 6.3% of well-being scores on the TEIQue.

2. Total EI score: $\eta^2 = 0.054$. Job satisfaction predicts 5.4% of total EI scores on the TEIQue.

3. Sociability: $\eta^2 = 0.044$. Job satisfaction predicts 4.4% of sociability scores on the TEIQue.

4. Emotionality: $\eta^2 = 0.031$. Job satisfaction predicts 3.1% of emotionality scores on the TEIQue.

5. Self-control: $\eta^2 = 0.023$. Job satisfaction predicts 2.3% of self-control scores on the TEIQue.

5.5.1.1 Well-being post-hoc test results

In order to determine the direction of the differences, the post-hoc tests were examined. For well-being, the Games-Howell post-hoc test was used as unequal variances were assumed (see table 5.20). Those who answered as "very happy in my job" tend to score significantly higher on the well-being factor, compared to those who are "mostly happy" ($p<0.01$), "neither happy nor unhappy" ($p<0.01$) and "mostly unhappy" ($p<0.01$). Oddly, those who are "very unhappy" in their jobs do not differ significantly on the well-being factor of the TEIQue, compared to those who are "very happy" ($p>0.05$). In this sense, it does not fit with the expected pattern of results. One would assume that higher scores on job satisfaction lead to higher scores on well-being, and this is the case, except for those within the most negative category.

Table 5.20

Games-Howell post-hoc test for well-being

(I)	(J)	MD (I-J)	Sig.
Very happy in my job	Very unhappy in my job	0.15	0.40
	Mostly unhappy in my job	0.47	0.00
	Neither happy nor unhappy in my job	0.48	0.00
	Mostly happy in my job	0.18	0.00

MD = Mean Difference

5.5.1.2 Self-control post-hoc test results

As with well-being, unequal variances are assumed with self-control. Results from the Games-Howell post-hoc test are shown in table 5.21.

Table 5.21

Games-Howell post-hoc test for self-control

(I)	(J)	MD (I-J)	Sig.
I am very happy in my job	I am very unhappy in my job	0.08	0.96
	I am mostly unhappy in my job	0.48	0.00
	I am neither happy nor unhappy in my job	0.25	0.00
	I am mostly happy in my job	0.17	0.01

MD = Mean Difference

Although the effect size for self-control is very low ($\eta^2 = 0.023$), there are still significant differences in terms of scores on the self-control factor. Specifically, those who rate themselves as "very happy" score significantly higher than those who are "mostly unhappy", "neither happy nor unhappy" and "mostly happy" (all $p<0.01$). As with well-being, there is almost no difference between those who are "very unhappy" and those who are "very happy" with regard to scores on self-control.

5.5.1.3 Emotionality post-hoc test results

As emotionality had a non-significant result on Levene's test for homogeneity of variance, the Hochberg GT2 test was used for further analysis (see section 4.8.2). The pattern is the same with emotionality as with both self-control and well-being – see table 5.22. The only exception is that the difference between "very happy" and "mostly happy" is not significant

Table 5.22

Hochberg's GT2 post-hoc test for emotionality

(I)	(J)	MD (I-J)	Sig.
I am very happy in my job	I am very unhappy in my job	0.05	1.00
	I am mostly unhappy in my job	0.38	0.00
	I am neither happy nor unhappy in my job	0.46	0.00
	I am mostly happy in my job	0.13	0.09

MD = Mean Difference

5.5.1.4 Sociability post-hoc test results

As stated above, job satisfaction can be assumed to predict 4.4% of scores on sociability. Table 5.23 displays the results of the Games-Howell post-hoc test for this factor. The pattern from the first three factors remains the same, suggesting that there could be a similar pattern of results throughout the TEIQue test. The biggest difference in sociability scores lies between those who are "very happy" and those who are "neither happy nor unhappy" with a mean difference of 0.46 ($p<0.01$).

Table 5.23

Games-Howell post-hoc test for sociability

(I)	(J)	MD (I-J)	Sig.
I am very happy in my job	I am very unhappy in my job	0.05	0.99
	I am mostly unhappy in my job	0.38	0.00
	I am neither happy nor unhappy in my job	0.46	0.00
	I am mostly happy in my job	0.13	0.05

MD = Mean Difference

5.5.1.5 Total EI score post-hoc test results

Table 5.24 displays the results of Hochberg's GT2 post-hoc test. As expected, this post-hoc test confirms the overall pattern seen thus far. However, the biggest difference lies between

those who are "very happy" and those who are "mostly unhappy" with a mean difference of 0.48 (p<0.01) – a pattern that is more in line with what would generally be expected.

Table 5.24

Hochberg's GT2 post-hoc test for total EI score

(I)	(J)	MD (I-J)	Sig.
I am very happy in my job	I am very unhappy in my job	0.08	0.96
	I am mostly unhappy in my job	0.48	0.00
	I am neither happy nor unhappy in my job	0.25	0.00
	I am mostly happy in my job	0.17	0.01

MD = Mean Difference

5.5.1.6 Summary of hypothesis one

From the results above, it is evident that there is a statistically significant relationship between job satisfaction and trait EI, as reflected by scores on the TEIQue. Therefore, hypothesis one can be provisionally accepted. However, the exact pattern of this relationship is more complex than first assumed. It was supposed that those with higher job satisfaction would score higher on emotional intelligence, and for the most part this is true. Nonetheless, there are a few major exceptions to this. See figure 5.3 for a graphical depiction of results.

Most notably, those who answer "very unhappy" – a response which is seemingly an extreme marker of dissatisfaction – tend to score similarly to those who are "very happy" on the TEIQue. In addition, on sociability, emotionality and well-being, those who are "mostly unhappy" score higher on the TEIQue than those who are "neither happy nor unhappy". The two lowest scoring groups are either those who are "mostly unhappy" or those who are "neither happy nor unhappy".
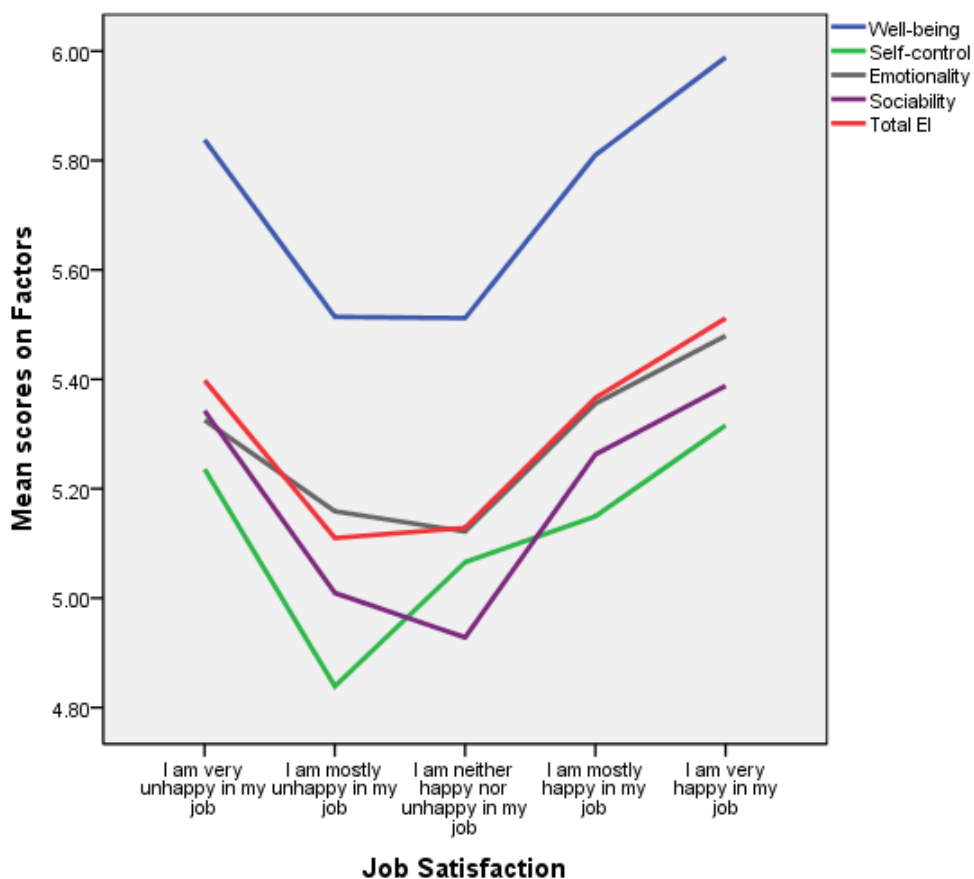
Figure 5.3 *Line graph depicting mean scores on factors of the TEIQue by levels of job satisfaction.*

5.5.2 Hypothesis two

The second hypothesis in this study concerns the second independent variable under study, namely job self-efficacy. Therefore:

Null hypothesis = There is no statistically significant relationship between job self-efficacy and trait emotional intelligence.

Hypothesis two = Trait emotional intelligence is significantly related to self-ratings of job self-efficacy.

As in the section above, this hypothesis was examined by performing a multivariate analysis of variance (MANOVA), with job self-efficacy as the independent variable and the main TEIQue factors, as well as total EI score, as the dependent variables.

Once again, Box's test was performed in order to assess for the assumption of homogeneity of covariance matrices. See table 5.25 for results. Once again, this test is highly significant and thus it cannot be assumed that the covariance matrices are equal.

Table 5.25

Box's Test – job self-efficacy

Box's M	F	df1	df2	Sig.
89.42	2.85	30.00	24996.15	0.00

Multivariate test results are displayed in table 5.26. Each of the multivariate tests demonstrates a highly significant relationship between job self-efficacy and factors on the TEIQue with a significance of $p<0.001$.

Table 5.26

Multivariate tests - job self-efficacy

		Value	F	H. df	Error df	Sig.
Intercept	Pillai's Trace	0.93	3820.04	5.00	1329.00	0.00
	Wilks' Lambda	0.07	3820.04	5.00	1329.00	0.00
	Hotelling's Trace	14.37	3820.04	5.00	1329.00	0.00
	Roy's Largest Root	14.37	3820.04	5.00	1329.00	0.00
Job self-efficacy	Pillai's Trace	0.07	10.15	10.00	2660.00	0.00
	Wilks' Lambda	0.93	10.29	10.00	2658.00	0.00

	0.08	10.43	10.00	2656.00	0.00
Hotelling's Trace	0.08	10.43	10.00	2656.00	0.00
Roy's Largest Root	0.07	19.36	5.00	1330.00	0.00

H. df = Hypothesis df

With the confirmation of a significant MANOVA to prevent type I error, multiple one-way ANOVAs were performed between job self-efficacy and TEIQue factors – see table 5.27 for results. These were done in order to examine the picture between the independent variable and each dependent variable separately, as well as to get an effect size for each dependent variable.

Table 5.27

One-way analysis of variance - job self-efficacy

Factor		Sum of squares	df	Mean square	F	Sig.
Well-being	Between Groups	19.70	2.00	9.85	25.13	0.00
	Within Groups	522.59	1333.00	0.39		
	Total	542.30	1335.00			
Self-control	Between Groups	16.04	2.00	8.02	14.15	0.00
	Within Groups	755.28	1333.00	0.57		
	Total	771.32	1335.00			
Emotionality	Between Groups	11.19	2.00	5.59	13.18	0.00
	Within Groups	565.61	1333.00	0.42		
	Total	576.80	1335.00			
Sociability	Between Groups	41.69	2.00	20.85	42.26	0.00
	Within Groups	657.53	1333.00	0.49		
	Total	699.23	1335.00			
Total EI	Between Groups	19.53	2.00	9.76	32.40	0.00
	Within Groups	401.67	1333.00	0.30		
	Total	421.19	1335.00			

Table 5.27 displays the results from the analysis of variance. All dependent variables are statistically related to job self-efficacy at $p < 0.01$. The strongest relationship exists between job self-efficacy and sociability, $F(1, 1334) = 42.26$, $p < 0.01$, $\eta^2 = 0.06$. This is a small effect size, compared to the findings with regard to job satisfaction. The effect sizes for the rest of the dependent variables are:

- Total EI score: $F = 32.40$, $\eta^2 = 0.05$.

- Well-being: $F = 25.13$, $\eta^2 = 0.04$.

- Self-control: $F = 14.15$, $\eta^2 = 0.02$.

- Emotionality: $F = 13.18$, $\eta^2 = 0.02$.

From the findings in table 5.27, it can be concluded that the null hypothesis is rejected, and hypothesis two accepted. It is interesting to note that the relationship between job self-efficacy and trait emotional intelligence is weaker than the relationship between job satisfaction and trait emotional intelligence.

5.5.2.1 Well-being post-hoc test results

In terms of Hochberg's GT2 post-hoc test (table 5.28), there seems to be significant differences between those who are "average" in their line of work, those who are "good" (MD=-0.51, $p < 0.01$) and those who are "not good" (MD=0.68, $p < 0.01$). There is no significant difference between those who consider themselves as "good at their jobs" and "not good at their jobs" with regard to scores well-being, although the "not good" group score higher.

Table 5.28

Hochberg's GT2 post-hoc test for well-being

(I)	(J)	MD (I-J)	Sig.
Average at job	Not good at job	-0.68	0.00
	Good at job	-0.51	0.00

MD = Mean Difference

5.5.2.2 Self-control post-hoc test results

See table 5.29 for results from Hochberg's GT2 test for the factor of self-control. The pattern of results is similar to that found in table 5.27. Those who consider themselves "average" at their jobs score significantly lower than those who consider themselves "not good" or "good". Once again, those who consider themselves as "not good" do score higher than those who consider themselves as "good", but this difference is not significant.

Table 5.29

Hochberg's GT2 post-hoc test for self-control

(I)	(J)	MD (I-J)	Sig.
Average at job	Not good at job	-0.51	0.00
	Good at job	-0.47	0.00

MD = Mean Difference

5.5.2.3 Emotionality post-hoc test results

With regard to the emotionality factor on the TEIQue, those who are "not good" in their line of work score the highest, but not significantly so, followed by those who are "good" in their line of work. Those who consider themselves as "average" score lowest of all and significantly so: $p < 0.01$. See table 5.30 for results.

Table 5.30

Hochberg's GT2 post-hoc test for emotionality

(I)	(J)	MD (I-J)	Sig.
Average at job	Not good at job	-0.50	0.00
	Good at job	-0.39	0.00

MD = Mean Difference

5.5.2.4 Sociability post-hoc test results

See table 5.31 for results from Hochberg's GT2 post-hoc test. Contrary to the results above, those who consider themselves as "good" score higher on sociability, compared to those who consider themselves as "not good" at their jobs, ns. Once again, the "average" group score significantly lower.

Table 5.31

Hochberg's GT2 post-hoc test for sociability

(I)	(J)	MD (I-J)	Sig.
Average at job	Not good at job	-0.64	0.00
	Good at job	-0.77	0.00

MD = Mean Difference

5.5.2.5 Total EI post-hoc test results

The pattern for total EI score (table 5.32) is similar to what has been found on the factors of the TEIQue, with those who are "not good" scoring higher than all the other response categories, yet only significantly so from those who consider themselves "average".

Table 5.32

Hochberg's GT2 post-hoc test for total EI score

(I)	(J)	MD (I-J)	Sig.
Average at job	Not good at job	-0.57	0.00
	Good at job	-0.52	0.00

MD = Mean Difference

5.5.2.6 Summary of hypothesis two

Hypothesis two is accepted, as the results reach statistical significance. See figure 5.4 for a graphical representation of results.
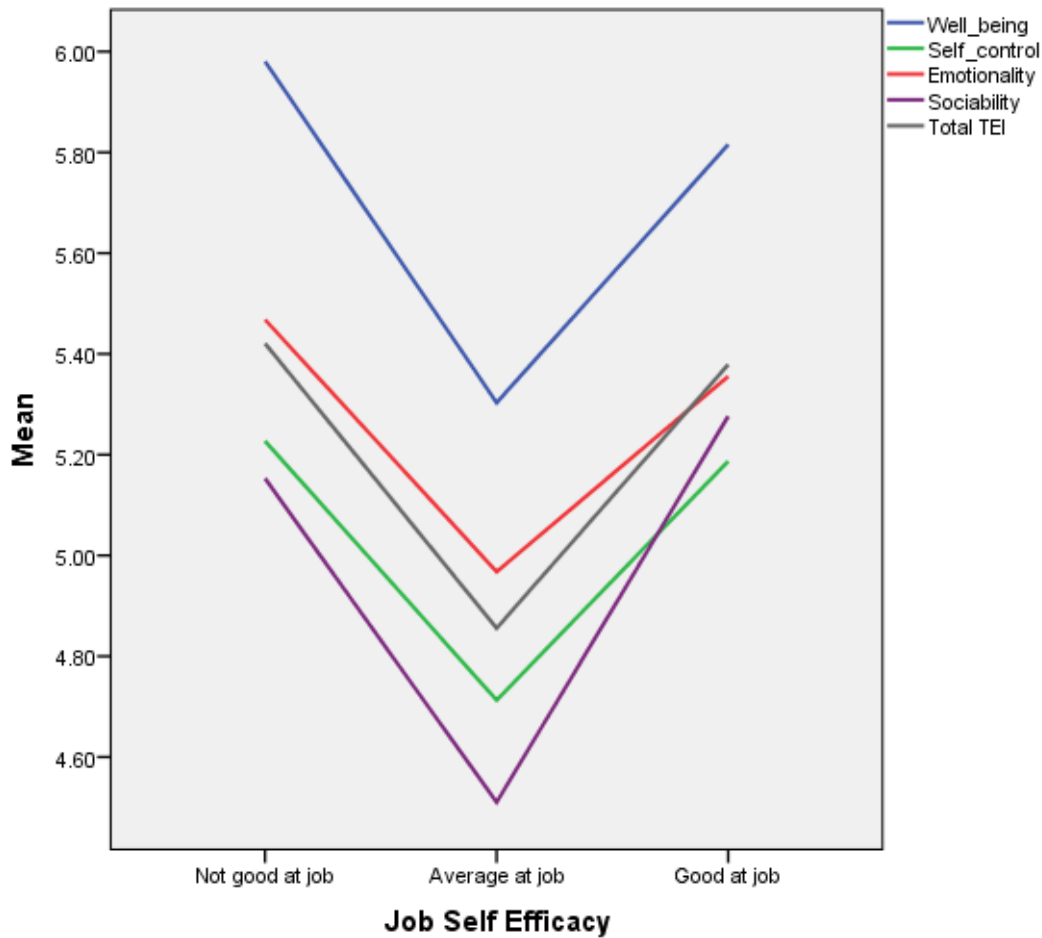
Figure 5.4 *Line graph depicting mean scores on factors of the TEIQue by levels of* job self-efficacy.

Figure 5.4 shows that those who consider themselves as "average" workers consistently score lower on the TEIQue. On the other hand, both those who mark themselves as "not good" and "good" tend to score quite high on the TEIQue. These differences between the "not good" and "good" groups are not significant after performing a one-way analysis of variance.

One possible explanation for this pattern of results is that the small sample sizes in both the "not good at job" (31) and "average" (75) groups are leading to skewed results that are not indicative of the wider population.

5.5.3 Hypothesis three

The third hypothesis in this study concerns the possible interaction effect between job satisfaction and job self-efficacy in terms of scores on the TEIQue. Therefore

Null hypothesis = There is no significant interaction effect between job satisfaction and job self-efficacy with regard to trait emotional intelligence.

Hypothesis three = There is a significant interaction effect between job satisfaction and job self-efficacy with regard to trait emotional intelligence.

In order to test this hypothesis, the original multivariate analysis of variance (MANOVA) was expanded to include both independent variables simultaneously. Job satisfaction and job self-efficacy were the independent variables and the four factors on the TEIQue, along with the total EI score, were the dependent variables.

Once again, Box's test was used to check the assumption of homogeneity of covariance – see table 5.33. Results showed Box's test to be significant ($p < 0.01$). Therefore, the null hypothesis of equal matrices is rejected and results should be interpreted with caution.

Table 5.33

Box's Test – job satisfaction and job self-efficacy

Box's M	F	df1	df2	Sig.
278.49	1.91	135.00	21420.61	0.00

Results from the multivariate tests (table 5.34) show a non-significant interaction effect between job satisfaction and job self-efficacy with regard to scores on the TEIQue.

Table 5.34

Multivariate tests - job satisfaction and job self-efficacy

		Value	F	H. df	Error df	Sig.
Job satisfaction* Job self-efficacy	Pillai's Trace	0.31	1.16	35.00	6610	0.24
	Wilks' Lambda	0.97	1.16	35.00	5546.76	0.24
	Hotelling's Trace	0.03	1.16	35.00	6582.00	0.23
	Roy's Largest Root	0.02	3.07	7.00	1322.00	0.00

Therefore, the null hypothesis cannot be rejected and there is no scientific basis for hypothesis three. Although both job satisfaction and job self-efficacy have significant interactions with the TEIQue, these two variables are not showing an interaction effect. In other words, these two variables do not affect each other when determining outcomes on the dependent variable.

5.6 Item Response Theory

As mentioned in the methodology chapter of this dissertation (specifically section 4.8.3), exploratory item response theory (IRT) analysis has been done in order to further understand the functioning of the TEIQue test items within the South African sample and to determine if social desirability is, in fact, playing a role in the results discussed above. In this sense, the

additional analysis adds to the validity of the findings by providing another method through which the occurrence of bias can be assessed, at an item level.

Specifically, this analysis is used to determine how participants responded to the items on the TEIQue and provides an indication of the functioning of the item, including its difficulty, discrimination and the extent to which guessing or social desirability is influencing responses.

In the context of this dissertation, it is not feasible to conduct an IRT analysis on all 153 items of the TEIQue assessment. Therefore, this analysis is only performed on one facet of the TEIQue, namely *happiness*. This facet was chosen as previous literature has shown a relationship between happiness, job satisfaction and job self-efficacy (Downey, 2008; Furnham, Petrides, Jackson, & Cotter, 2002). In addition, in the current study both job satisfaction and job self-efficacy showed a positive relationship with well-being, a factor that includes the facet of happiness.

The IRT analysis in this dissertation is based on Samejima's (1999) general graded response model (GRM) – specifically designed for Likert-type items. R version 2.1.5, as well as the ltm package (see section 4.8.3.2.1) was used for analysis – see the appendix for a copy of the syntax used to generate the IRT graphs.

For a full explanation on IRT, the model used in this dissertation and an introductory indication of how to interpret the output, please see section 4.8.3 of chapter four.

The happiness facet consists of eight items:

1. I don't have a lot of happy memories.
2. On the whole, I am pleased with my life.
3. I generally don't find life enjoyable.

4. Life is beautiful.

5. On the whole, I'm not a happy person.

6. Most days, I feel great to be alive.

7. I frequently have happy thoughts.

8. I find it difficult to take pleasure in life.

The negative items have been reversed. Therefore, an answer of strong agreement (seven on the Likert scale) does, in fact, indicate a positive answer on all of the items.

In the graph below (figure 5.5), the options on the seven-point Likert scale are represented by the coloured lines. Recall that one indicates strong disagreement while seven indicates strong agreement. The x axis of the graph represents the underlying ability or trait that the item is attempting to measure. In the case of these items, the underlying trait would be happiness. The Y axis represents the probability of answering the item in a certain way.
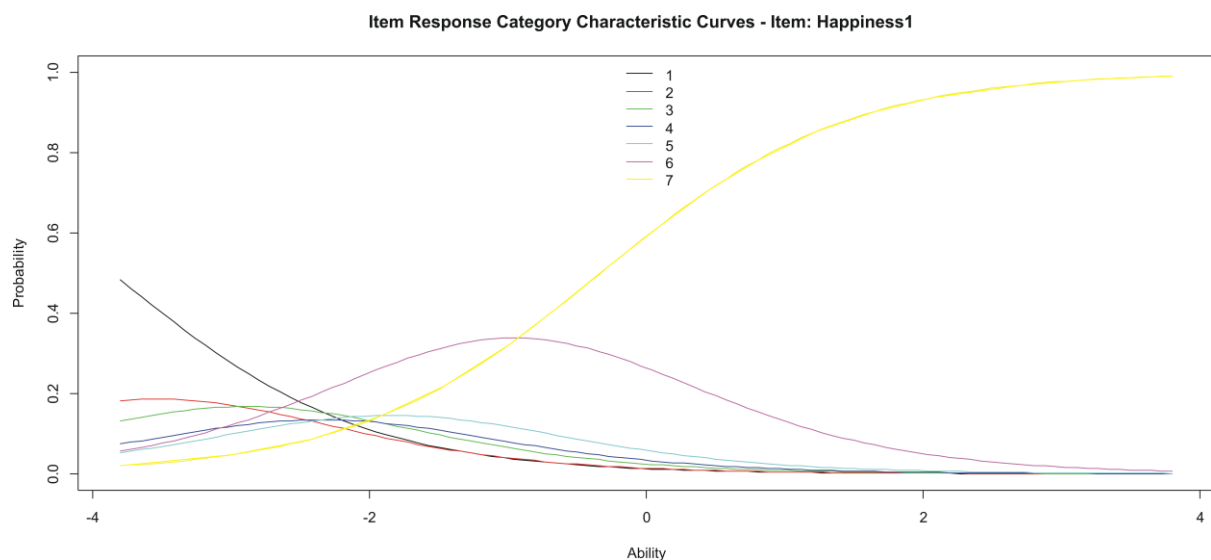

Figure 5.5 *IRT graph of the happiness item: I don't have a lot of happy memories*

Figure 5.5 represents item responses to the first happiness item (I don't have a lot of happy memories). From a visual examination of this graph, it is evident that respondents are far more likely to indicate option seven (strong agreement). Given that the negative item has been reversed, this score implies that respondents consider themselves as having a lot of happy memories. Those who have a low level of happiness on the x axis still have a very good chance of indicating strong agreement to the item. The second most popular response is six on the Likert scale – a rating which also indicates relatively strong agreement. Those with very low levels of happiness do show an increased tendency to strongly disagree with the item but this tendency strongly drops off as levels of happiness increase. The other response options are not very popular and respondents have a low probability of choosing these. In summary, this item is not very difficult and there is a strong indication of socially desirable responses. Those who are even moderately happy automatically choose the highest option on the Likert scale. This may be because they do not want to be stigmatised as depressed or gloomy.

The pattern found on the first item is generally repeated for the other items within the happiness facet, including both those that are positively and negatively worded. Option seven on the Likert scale consistently has the highest probability to be chosen, even at lower levels of happiness.

Figure 5.6 provides IRT responses to the second item within the happiness facet: "On the whole, I am pleased with life". Once again, respondents indicated a high probability to select seven or six on the Likert scale. Respondents also demonstrated a slightly higher probability of answering this item as five on the Likert scale, compared to the first item. However, only those with extremely low scores on happiness show any inclination to strongly disagree (mark one or two) with the item.
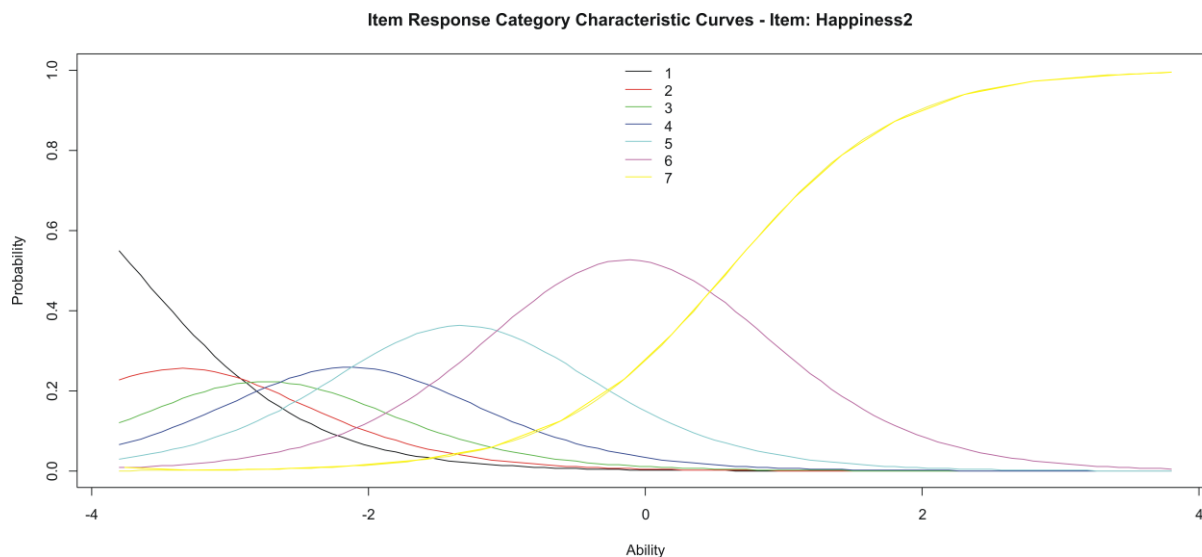
Figure 5.6 *IRT graph of the second happiness item: On the whole, I am pleased with life*

For item four and item six (see figure 5.7 and figure 5.8 respectively), there is a higher chance of answering items neutrally by indicating the response option of 4 on the Likert scale. It is interesting to note that this probability only occurs for those who have lower levels of underlying happiness. Once individuals experience positive levels of happiness, this probability declines to almost zero.

Results found in the one-way ANOVAs (see section 5.5.1 and 5.5.2) consistently demonstrate that those who answered as neutral on the job satisfaction and job self-efficacy questions are more likely to obtain statistically lower scores on the TEIQue. These individuals may be influenced by the phenomenon of central tendency bias described in section 4.6.2. From the IRT graph, we can see that the group of individuals who respond to the items as neutrally have negative levels of underlying happiness. This may indicate that individuals who are actually unhappy have a greater tendency to neutrally answer the TEIQue and biographical questions. If we assume the same for the other facets and factors of the TEIQue, this may provide an explanation for the u-shaped pattern of results described in the previous sections.
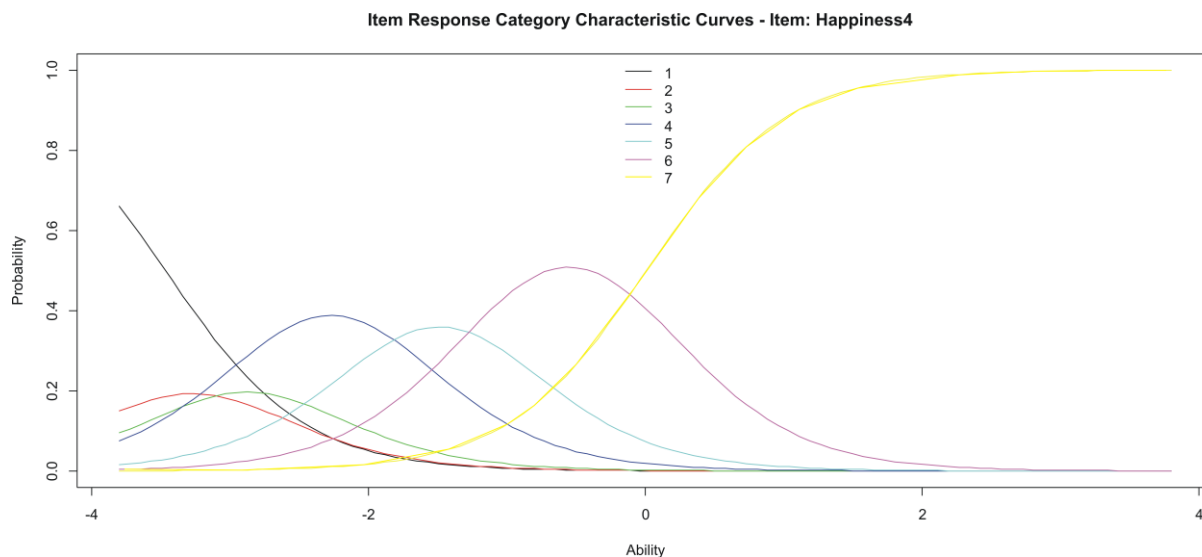
Figure 5.7 *IRT graph of item 4 on the happiness facet: Life is beautiful*

For item six (most days, I feel great to be alive – figure 5.8), there is a high probability to answer neutrally or relatively positively for respondents with lower levels of underlying happiness. Individuals who are unhappy also do not have a very high probability to answer this item by strongly agreeing, until they start to exhibit higher levels of underlying happiness. Respondents who are happy have an extremely high probability to answer as seven on the Likert scale, while the probability for all other response options fall steeply.

5.6.1 Difficulty and discrimination

With regard to IRT theory, difficulty is indicated by the position of the line, while discrimination is indicated by the slope of the line. Section 4.8.3.2 contains a full discussion of these terms.

All items within the happiness facet on the TEIQue demonstrate similar difficulty and discrimination patterns. These items may be considered as "too easy" as they are susceptible to social desirability bias. Respondents may be able to "guess" what the ideal answer should be – a fact that may influence their answer. In a perfect world, items should present with

equally preferable options, curtailing the ability of respondents' answers to be influenced by bias.

In addition, the items on the TEIQue are unable to easily discriminate between respondents' underlying trait or ability. In other words, it is not easy to differentiate individuals into different levels of happiness, based on their responses to the happiness items. This is because even those with lower levels of happiness have a high probability of answering items positively.
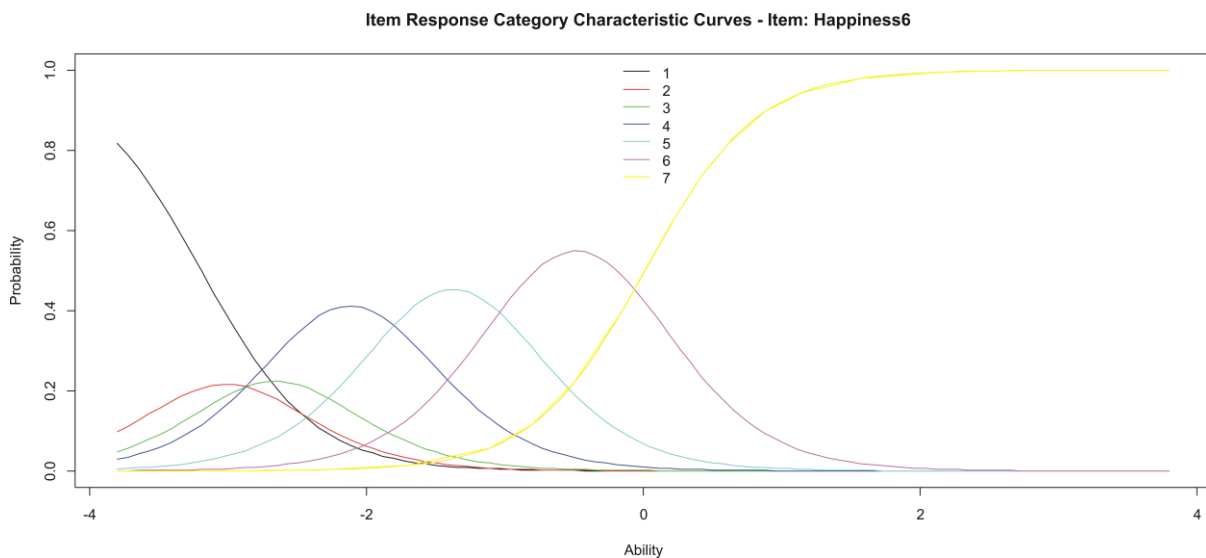
Figure 5.8 *IRT graph of item 6 on the happiness facet: Most days I feel great to be alive*

5.7 Conclusion

This chapter sought to align the research design of the study with the data in order to statistically examine the hypotheses. For hypotheses one and two, the null hypotheses were rejected. Both job satisfaction and job self-efficacy were found to be significantly related to scores on the TEIQue. However, there was no interaction effect between job satisfaction and

job self-efficacy with regard to EI. Therefore, there is no evidence to substantiate hypothesis three, and it has been rejected.

While these results are statistically significant, the practical significance is relatively small, with effect sizes ranging from 2% to 6.3%. In addition, the findings seemed to be affected by a variety of biases, which played a role in confounding the relationship between these variables.

The results displayed in this chapter are discussed and integrated with the literature review in the following chapter.

CHAPTER SIX: CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

6.1 Introduction

The aim of this study was to explore and describe the relationship between three constructs – job satisfaction, job self-efficacy and emotional intelligence. In this chapter, the results provided in chapter five are discussed and interpreted in line with relevant literature.

6.2 Discussion and Conclusion of Research Study

This dissertation sought to discover the possible relationship between trait emotional intelligence, as measured by the Trait Emotional Intelligence Questionnaire (TEIQue), job satisfaction and job self-efficacy. Included in the study were three main hypotheses.

Hypothesis one concerned a statistically significant relationship between job satisfaction and trait EI. A secondary aim was to discover the direction of such a relationship. While support was found for a statistically significant relationship, thus allowing for the null hypothesis to be rejected, the effect sizes were relatively small and thus the practical significance of these findings was not overly large. Happiness, within the well-being factor, had the strongest relationship with job satisfaction with an effect size of 8%. This effect size is very small, and thus its practical value can be debated. However, such findings can still be interpreted in line with common sense (those who are satisfied with their jobs do seem more likely to be happy and vice versa) as well as past research findings (Fisher, 2010; Ashkanasy, 2011).

It was expected that as job satisfaction ratings increased, so would scores on the TEIQue. While this was true to some extent, certain groups did not fit the expected pattern. Those who scored as average – "neither happy nor unhappy" – tended to score the lowest on the TEIQue, while those who scored as "very unhappy" tended to score quite high and certainly not anywhere close to the bottom.

One can hypothesise that those who answered the job satisfaction question with "neither happy nor unhappy" ended up with a low TEIQue result as they may have been influenced by central tendency bias (see section 4.6.2) when responding to Likert scale type items. Central tendency can be defined as the affinity to mark items as neutral or avoid extreme response categories (Hollingworth, 1910). Such behaviour on the job satisfaction item may have carried over to their test behaviour, where they were reluctant to mark items in the extreme, leading to a lower emotional intelligence score.

While this explains the lower score for those who answered as "neither happy nor unhappy", it does not explain why those who marked "very unhappy" on the job satisfaction item scored almost as high on the TEIQue as those who marked "mostly happy" and "very happy". One explanation may be that certain individuals are unhappy in their jobs as they were forced to accept a career opportunity for economic reasons, rather than for personal reasons. In today's harsh financial climate, it is often extremely difficult to pick and choose jobs which suit one's personality. In some cases, individuals with high emotional intelligence may be obligated to accept positions that do not satisfy them, leading to a discrepancy between feelings of satisfaction in one's job and emotional functioning.

The findings between job satisfaction and EI echo the findings of Carmeli (2003) who found a positive and significant relationship between these two variables using the Schutte Emotional Intelligence Scale (Tapia, 2001) – based on ability EI – and a six item job satisfaction scale. His method of choice was a hierarchical regression analysis (B=0.32, p<0.01) with a similar effect size (R^2=0.098). However, Carmeli did not elaborate on the specific pattern of the relationship.

In a gender-specific study examining the relationship between the TEIQue, job stress, job control, organisational commitment and job satisfaction, Petrides and Furnham (2004) found

a correlation of .385 for males and .215 for females (both p<0.01) between job satisfaction and trait EI. This is a moderate relationship, similar to the one found in this study.

These previous findings assist in adding weight to the findings of the current study, by establishing a pre-existing relationship between EI and satisfaction at work. However, the research mentioned above was performed overseas, and thus this dissertation aimed to establish the relationship between job satisfaction and emotional intelligence in a South African context.

Hypothesis two was similar to hypothesis one, except that instead of job satisfaction, the independent variable in question was job self-efficacy. The original Likert-scale item for job self-efficacy was recoded into three categories ("good at job", "average at job" and "not good at job"), in an attempt to minimise the unequal sample size within the different levels of the variable. Hypothesis two was accepted as a statistically significant relationship was indeed found between job self-efficacy and TEIQue scores, in line with previous literature (Tsai et al., 2011). The practical significance of these findings is similar than those found for job satisfaction. The largest effect size was between job self-efficacy and sociability (6.6%). A systematic literature review did not find any past research studies supporting such a link between self-efficacy and sociability.

As mentioned in chapter one of this dissertation (see section 1.5.4.4), sociability on the TEIQue measures an individual's self-perceptions of his or her efficacy in social situations. It consists of three facets: emotion management (managing the emotions of other people through influence/persuasion), assertiveness (being able to speak up in a confident manner) and social awareness (social sensitivity; ease with which an individual can adapt to different social situations).

Judging from this description, it could be hypothesised that individuals who have greater self-efficacy feel more confident, and thus see themselves as more capable in broader, social settings in which they may have to influence or interact with others. This postulation extends from the work of Bandura, who refers to the effect that self-efficacy beliefs have on an individual's motivation, thoughts, feelings and ultimately behaviour (1994). Job self-efficacy was also significantly related to self-esteem on the TEIQue in line with the postulation above. This link is also in line with theories on the effects of high self-efficacy (Bandura, 1978) which logically draw a relationship between self-efficacy beliefs, an individual's confidence in him or herself and a self-perceived sense of control with regard to the environment. It must also be noted that the opposite effect holds true, in that lower self-efficacy beliefs have been associated with depression, anxiety and negative affect (Bandura, 1994).

For hypothesis two, it was also expected that, as job self-efficacy ratings increased, so would TEIQue scores. Generally those who rated themselves as possessing extremely high self-efficacy ("good at job") scored equal to, or lower, than those who rated themselves as possessing low self-efficacy ("not good at job"). Those who considered themselves as average consistently scored significantly lower on the TEIQue factors ($p<0.01$).

This may be considered as a further example of the central tendency bias that was discussed above. To reiterate, those who answer according to this bias tend to answer as "neutral" or to avoid an extreme response. Within the TEIQue assessment, those who mark very positive responses to positively phrased items and very negative responses to negatively phrased items score higher than those who are consistently neutral, leading to an overall lower score for the less opinionated group.

6.2.1 Role of bias

Response bias exists when respondents answer Likert scale questions in the way that reflects their idea of what the questioner wants, rather than their own beliefs, feelings and ideas (Furnham, 1986). As stated above, those who score as average – either on the job satisfaction question or the job self-efficacy question – consistently show lower scores on the TEIQue as they are influenced by the effects of the central tendency bias.

The left-skewed distribution (see chapter five) and IRT analysis (see section 5.6) also suggest the occurrence of social desirability bias– this occurs when participants answer items in a manner that portrays them in a more positive light, even if this is not necessarily true (Randall & Femandes, 1991). See section 4.6.2 for a discussion on social desirability.

One reason why people may feel pressured into selecting socially desirable options may be the nature of the TEIQue testing situation. The TEIQue is a high-stakes test that is often used for recruitment purposes. Because respondents are vying for limited job positions, they may want to come across as someone who is happy and self-efficacious in a working environment, and who won't cause trouble for other people

It is postulated that the bias in respondents' test scores contributes considerably to the skewed pattern of results seen in chapter five of this study. Although the TEIQue technical manual does highlight the greater psychometric power of a seven-point Likert scale over a five-point Likert scale (Petrides, 2009), within the sample used in this dissertation, what is actually considered as a "neutral" score by the scale may not actually serve as such. It seems that participants are more likely to mark an item positively, even if they in fact feel neutral about it – a hypothesis that is supported by the IRT graphs that show how those with lower levels of trait happiness still have a very high probability of answering the TEIQue questions positively. In addition, only those with negative underlying happiness had any probability of

rating the items as neutral (option four on the Likert scale). Following from this assertion, it may be hypothesised that those who marked their responses as "average" may in fact feel negatively about an item, providing a possible explanation to their lower scores on the TEIQue.

Various studies have found that personality measures are susceptible to bias and faking (Furnham, 1990; Martin, Bowen, & Hunt, 2002; Viswesvaran & Ones, 1999). Given that trait emotional intelligence is measured via a self-report format, much like many personality inventories, it makes sense that these tests may also be prone to faking. In a study examining faking on two EI tests – Bar-On's EQ-i (see section 2.4.2.2) and the MSCEIT (see section 2.4.1.1) – Day and Carroll (2008) found that the EQ-i (the self-report measure) was more susceptible to faking than the maximum performance measure.

Unfortunately, although Likert scales are well suited to researching aspects such as personality and EI, faking does seem to be one of its major flaws. These findings coincide with the views of Paulhus and Vazire (2009), discussed in the literature review section of this study (see 2.4.2.5). However, one must not forget that maximum performance measures, such as those utilised within the ability EI model are themselves vulnerable to flaws, such as negatively skewed distributions, a lack of differentiation among high scorers, the fallibility of expert scoring and more (see section 2.4.1.2 for a full discussion on the criticisms of ability EI measures).

Altogether, the issue within this study is that, while the TEIQue also showed signs of bias, the measures of job satisfaction and job self-efficacy were affected by the two forms of bias discussed above, namely social desirability and central tendency. Future research, using valid and reliable measures for these two constructs, should further investigate whether these self-same biases occur, and along with them, the patterns found in this study.

6.3 Limitations

Stringent research processes were followed in order to ensure that this study was free from bias, and as psychometrically sound as possible. However, certain limitations are unavoidable. These are further discussed below:

1. The greatest limitation was the nature of the sample. As it was secondary data, it was originally collected for another purpose and thus was not ideally suited to the specific research objectives within the current study.

2. Linked to the point above, is the fact that the constructs of job satisfaction and job self-efficacy were measured by only one statement each, a limitation that is fully acknowledged. However, given the exploratory nature of this study, it provides a good starting point for future research with more comprehensive measures of these variables.

3. Another limitation is that the current sample was originally selected according to a non-random convenience method. However, this limitation has, to a large degree, been accounted for, as the size of the sample may be large enough to overcome much of the sampling bias introduced by such a method.

4. A final limitation concerns the unequal sizes employed in the MANOVA. Job self-efficacy was adjusted to try and minimise the impact of this issue. In addition, significance was only declared with a significant value on Pillai's trace – a multivariate test that is assumed to be robust with small and unequal samples (Brace, Kemp & Snelgar, 2006). However, the sample sizes are still very unbalanced, and thus the results must be interpreted with caution.

6.3.1 Limitations of the dataset

There are various limitations associated with the data used in this study. Firstly, while the sample size was large (more than 1300), the data were heavily skewed, a fact proposed to be related to bias in participants' responses.

The skewed data affected the results of Levene's Test for Homogeneity of Variance by indicating that the data were not homogenous across different levels of the independent variable(s). This was accounted for by using a post-hoc test specifically designed for heterogeneous variance. The skewed data also affected the results of Box's test for Equality of Covariance Matrices. This implies that the results from the MANOVA should be interpreted with caution.

6.3.2 Limitations of parametric tests

The main issue with parametric tests is that they rely on certain assumptions to produce statistically robust results. The researcher attempted, at each point, to address and account for the relevant assumptions. However, as discussed above, the assumption of equality of covariance matrices (specifically applicable to the MANOVA test) could not be entirely accounted for, although scientific literature was cited that defends the robustness of MANOVA test results within larger samples, despite the violation of this assumption (see section 5.5.1).

6.3.3 Limitations of item response theory

Although it has been said that IRT is the future for test development and psychometric research (Ho Yu, 2010) , it is a method that also has limitations. According to Huang (2011, p. 59-60), some of these are:

1. **The need for a very large sample size:** The entry requirements for IRT analysis is a sample of 500 individuals. This is a disadvantage of many small scale studies. This limitation, however, did not affect the results within the current study, as the sample size was more than sufficient to meet this requirement.

2. **A lack of support from classical test theory researchers:** Theorists who advocate the use of CTT in psychometric construction and validation may question the practicality of a mathematically advanced technique such as IRT. For example, they may argue that IRT requires an extremely large sample that is difficult to attain in everyday research studies. In addition, IRT has been criticised for having an academic, rather than practical, focus.

6.3.3.1 Limitations of the GRM model

While the GRM model is specifically designed to address Likert-type items, it relies on certain mathematical assumptions that may influence the results (Samejima, 2010).

1. **Uni-dimensionality:** The GRM model assumes that each item measures one construct only. There is the danger that an item may be tapping into more than one construct; however, this issue can be addressed in factor analyses. During the construction phase, the TEIQue was stringently researched to ensure that the items are loading onto one facet/factor only (Petrides, 2009).

2. **Summarising:** The GRM model summarises/cleans the data in order to produce an interpretable graph. In the process of this summary, there may be certain problems with the items that are overlooked.

6.4 Recommendations

The goal of this study was to describe and explore the relationship between job satisfaction, job self-efficacy and EI within the current sample.

As discussed above, the results found positive relationships between these variables, but these were relatively weak. There was no interaction effect between job satisfaction and job self-efficacy.

It is hoped that the study at hand can lay the groundwork for further research, given that it had, in part, an exploratory aim, and was examining these constructs in a context where no prior research had been done (see section 1.4).

With mind to the limitations outlined above, it is anticipated that researchers can use the results at hand to fruitfully direct future endeavours in the field of job satisfaction, job self-efficacy and EI.

It is recommended that the current research design be replicated, with a few major changes. The sample collected should not be secondary, and should preferably be selected according to a quantitatively defendable random method. However, it should still be large enough to facilitate the application of advanced methods such as MANOVA and IRT. This is a tall order, in the sense that such perfect samples are difficult to come across in practice. With this in mind, a fairly large sample that is selected for the specific purpose of the research study should be sufficient.

Secondly, the constructs of job satisfaction and job self-efficacy should be measured by valid and reliable psychometric tools. This is necessary to verify the findings found in the current study, wherein these two constructs were measured with only one statement each.

Another option could be to use a different measuring instrument. A forced choice emotional intelligence tool could assist in elucidating the relationships between constructs, without the influence of the biases that Likert scales are susceptible to.

In this way, the results of this dissertation could be verified, and further knowledge added to the field within the South African context.

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APPENDIX

IRT syntax used to generate graphs (see section 4.8.3.2.2)

```
library(ltm)

Happiness=read.csv("C:/R/Happiness2.csv")

fit5=grm(Happiness)

plot(fit5,legend=TRUE)

fit5

margins(fit5)

margins(fit5, type = "three-way")

information(fit5,c(-4,4))

windows()

cols <- c("black", "red", "blue", "cyan", "green3", "magenta", "aquamarine4",
"darkgoldenrod4", "yellow2", "darkorchid4", "mediumvioletred", "orange", "steelblue",
"slateblue1", "orchid4", "purple4", "rosybrown1", "navyblue", "saddlebrown", "blue2",
"brown1", "orangered1", "olivedrab3", "lightgreen" )

plot(fit5, type = "IIC", lwd = 1, cex = 1.2, cx = "topleft",

    xlab = "Latent Trait", cex.main = 1.5, cex.lab = 1.3, cex.axis = 1.1, col=cols, lty = rep(1:2,
each = 12))

windows()

plot(fit5, type = "IIC", items = 0, lwd = 2, xlab = "Latent Trait",

    cex.main = 1.5, cex.lab = 1.3, cex.axis = 1.1)

rcor.test(D,method="kendall")


windows()

par(mfrow = c(2, 2))

plot(fit5, category = 1, lwd = 1, cex = 1.2, cx = -4.5,

    cy = 0.85, legend = TRUE, xlab = "Latent Trait", cex.main = 1.5, cex.lab = 1.3,

    cex.axis = 1.1, col=cols, lty = rep(1:2, each = 12))

for (ctg in 2:3) {

    plot(fit5, category = ctg, lwd = 1, cex = 1.2, annot = FALSE,
```

```
        xlab = "Latent Trait", cex.main = 1.5, cex.lab = 1.3,

        cex.axis = 1.1, col=cols, lty = rep(1:2, each = 12))

}

windows()

par(mfrow = c(2, 2))

plot(fit5, type = "OCCu", lwd = 2, cex = 1.2, legend = TRUE, cx = "topleft",

    xlab = "Latent Trait", cex.main = 1.5, cex.lab = 1.3, cex.axis = 1.1)

}
```