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Increasing Emotional Intelligence

A thesis presented to the University of Dublin, Trinity College for the Degree of Doctor of Philosophy

By

Patricia Moriarty

Trinity College Dublin

2008

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PATRICIA MORIARTY

Summary

The aim of this thesis was to evaluate a programme to develop emotional intelligence in work teams. The thesis is presented in two studies. Study 1 describes the design, application and evaluation of a training programme and its effects on emotional intelligence in teams. The fundamental research question addressed was whether EI could be increased through training. Prior to answering this question, it became necessary to define emotional intelligence and select a model of emotional intelligence on which to base the design of the training intervention. Equally essential was the necessity to select an appropriate measure of EI that would reflect the complexity of EI within a workgroup. Study 2 investigated changes in the team process variables of communication, trust, decision making process quality, psychological safety and team development in participants over the same 12-week period.

Chapter 1 introduces the concept of emotional intelligence. Chapter 2 begins with a brief history of the concept of emotional intelligence followed by an outline of models of emotional intelligence. The selection of the Ability Model of emotional intelligence (Mayer & Salovey, 1997) is then justified in conjunction with the development and use of the Workgroup Emotional Intelligence Profile (WEIP-5) (Jordan, 2000) to measure emotional intelligence in work teams. Following an introduction to team learning, previous emotional intelligence training programmes are outlined and evaluated. The focus then moves to the design of the emotional intelligence development programme used in the current study. An outline of the training elements is provided, and justification for the use of these elements in the context of previous research.

The method employed is outlined in Chapter 3, which details the administration of the training programme to a sample of 231 participants over a 12-week period. Both Self-Report and Peer-Report measures of emotional intelligence are recorded. Comparisons are made in Self-Reports of emotional intelligence with a comparison group (N=100). The results obtained are detailed in Chapter 4. The training programme successfully increased both Self-Report and Peer-Report emotional intelligence in the experimental

group. No similar increase was found in the comparison group, as expected. The findings are discussed in the context of previous research findings in Chapter 5. The findings represent an important addition to current literature in that they provide empirical evidence that emotional intelligence can be increased through training.

An outline of previous research in the five team process variables of communication, trust, decision making, psychological safety and team development is provided in Chapter 6. The method employed is reported in Chapter 7 and the findings are reported in Chapter 8. Results showed significant increases in trustworthiness between team members, enhanced communication, increased psychological safety with teams, team development and enhanced decision making process quality associated with the training intervention that increased emotional intelligence. While enhancing communication and decision making processes were included in the training intervention, the increases in trust, psychological safety and team development represent additional outcomes of the emotional intelligence training intervention which provide a theoretical link to enhanced team performance. Chapter 9 provides a discussion of the findings, their implications and suggestions for future research.

The thesis concludes with a general discussion of the findings from both studies and how they relate to each other, and their implications for the future study of emotional intelligence in Chapter 10.

Increasing Emotional Intelligence

Patricia Moriarty

PhD **2008**

Abstract

This research is presented as two studies. Study 1 represented an evaluation of a 12-week training programme designed to increase emotional intelligence in teams. Emotional intelligence was measured pre- ($Time_1$) and post-training intervention ($Time_2$) using Jordan's (2000) self-report and peer-report measures of workgroup emotional intelligence (WEIP-5). An experimental group (n = 231) underwent the team-based training programme consisting of ten elements aimed at increasing emotional intelligence. A comparison group (n = 100) was exposed to similar material in a conventional lecture format, without assignment to teams or undergoing the ten training elements designed to increase emotional intelligence. There was a statistically significant increase in both self-report and peer-report emotional intelligence from $Time_1$ to $Time_2$ within the group that received the training intervention, while no similar increase in self-report emotional intelligence occurred within the comparison group. These results provide empirical evidence that emotional intelligence can be increased through training.

Study 2 represented an examination of changes in team process variables which occurred in the participants undergoing the emotional intelligence training intervention. Statistically significant findings included enhanced communication between team members, increased trust, enhanced decision making process quality, increased psychological safety within teams and enhanced team development. The emotional intelligence training intervention included training in communication and decision making process quality, but the increases in trust, psychological safety and enhanced team development were independent outcomes of the training intervention. These findings suggest theoretical and practical links between increased emotional intelligence and enhanced communication, increased interpersonal trust, increased psychological safety, enhanced team development and enhanced decision making process quality. These findings also suggest theoretical links between these team process variables, increased emotional intelligence, and team performance.

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CHAPTER 10

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Abbreviations

ECI	Emotional Competence Inventory
EI	Emotional Intelligence
EQ	Emotional Quotient
EQ-i	Emotional Quotient Inventory
GPA	Grade Point Average
IQ	Intelligence Quotient
SD	Standard Deviation
WEIP-3	Workgroup Emotional Intelligence Profile Version 3
WEIP-5	Workgroup Emotional Intelligence Profile Version 5

"Emotional intelligence is 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."

Salovey & Mayer, 1990 p. 189

Chapter 1 - General Introduction

1.0 General Introduction

Increasingly within the field of human resource management there have been calls for a programme of research to examine specifically how emotional intelligence (EI) might be developed within organisational contexts (Clarke, 2006; Kunnanatt, 2004). The current research began in the context of a huge increase in interest in the concept of emotional intelligence towards the end of the 1990s. Systematic research into emotional intelligence is a little over a decade old. The field is, however, currently divided between ardent supporters of the concept of emotional intelligence (Bar-On, 1997; Goleman, 1995, 1998; Mayer & Salovey, 1997) and those who refute the concept as presenting anything new to the study of human intelligence, and claim that it is merely a repackaging of already familiar phenomena (Landy, 2005; Woodruffe, 2001).

It became apparent that EI was to become the next hot topic within organisational psychology research with the publication of several books on the topic in the mid-1990s (see Goleman, 1995, 1998; Weisinger, 1998). EI came to be used for selection, training and development programmes, organisational development initiatives, and career development planning (McEnrue & Groves, 2006). EI has been surrounded by controversy, however, and has attracted accolade and disparagement in equal amounts. Ciarrochi, Chan and Caputi, (2000) warned of an overly positive estimation of the influence of emotional intelligence as they suggested many of the studies cited to date supporting the usefulness of EI included vague and contradictory measures of emotional intelligence and of outcomes. Research examining interventions for developing EI remains in its infancy and few studies have examined emotional abilities (Clarke, 2006).

Emotional Intelligence (EI) has been identified as the concept at the forefront of a revolution steadily changing the face of best practice management (Ashkanasy, 2003). EI has generally been defined as the psychological capacity to make sense of and use emotional information (Mayer & Salovey, 1993). It has been posited as an alternative to leadership exclusively through logic and rationality built on systems, checklists, Total Quality Management (TQM), and reengineering, which work well for tasks and machines. The price organisations have paid for an emotionless approach can be counted in lost profit, deeply suspicious relationships, intense competitiveness at the cost of co-operative

success, disappearing loyalty and anger that is acted out instead of worked out (Morris, 1999). Creating an emotionally intelligent work environment brings the subversive and often repressed emotionality of human interaction out into the open and facilitates individual and collective work on the emotional aspects of social interaction.

Teamworking provides one of the best opportunities to successfully use emotional intelligence. When a team consists of a number of team members who must work together to establish and achieve work goals by a deadline, great opportunity is afforded for emotional reaction. These reactions can range from happiness, increased self-esteem, confidence, caring, team loyalty and a strong desire to achieve collective goals to the more negative emotions of anger, resentment, self-doubt and the desire for revenge which can be evidenced through sabotage of collective team goals.

Correctly identifying, categorising and accepting emotional reactions to team interaction represent the basis for emotional intelligence development. The following step is recognising there are several reactions possible and that choices can be made in order to impact behavioural outcomes within the team. These behavioural outcomes occur within each team member and between team members. Team members can, therefore, be considered the best source of measurement of EI within teams as they are privy to intrapersonal and interpersonal emotional content often not obvious to the casual observer.

The consensus view appeared to be that EI was difficult to measure and that no truly robust measure of EI existed (Dulewicz & Higgs, 2000). The current research sought to establish some understanding of what constitutes emotional intelligence as there are many theories and definitions of the concept. The disadvantage of having so many theories and definitions is evidenced through the large list of constructs included under the concept. This extensive list, in turn, makes definitive measurement of the topic problematic. It was essential to isolate a definition which was relevant and withstood operationalisation. Once operationliased the concepts became measureable and a scienfically robust methodology could be applied thereby establishing whether EI can be increased through training, and if so, how this can be achieved.

When emotional identification and emotional reaction have been mastered within teams and team members, a basis has been established for measurement and quantification. Team members can read emotional displays and facial outputs, identify voice tone and inflection, feel their own emotional reactions to team members and come to conclusions about impacting behavioural outcomes. It was, therefore, essential to identify, locate and apply a measure of EI that would capture the complexity of emotionally intelligent team interaction. Such a measure was used in the form of the Workgroup Emotional Intelligence Profile Version 5 (Jordan, 2000), and the additional benefit of obtaining EI measurement through peer-reporting was also included in the study design.

As emotional awareness is increased intrapersonally and interpersonally within teams, the role of team process variables becomes relevant. Emotions are communicated both to the self (intrapersonal communication) and to fellow team members (interpersonally) during team interaction. How that communication actually takes place becomes a central tool in EI development and is measured through communication style. If communication styles reflect honesty, integrity and a sense of caring about team members, they can impact behavioural outcomes in an emotionally intelligent way (Mayer & Salovey, 1997). Changes in participants' communication were measured and provided insights into feelings and emotions while communicating within their teams.

As team members communicated in more emotionally intelligent ways, a basis was laid down for the development of trust between team members and the establishment of a psychologically safe team environment for team members (Druskatt & Wolff, 2001). When team members controlled their emotional displays and were active in controlling the emotional displays of their team members, they engendered a sense of trust. When team members felt they could trust their team to value their input and to afford them respect, a sense of team psychological safety ensued which can lead to enhanced team performance (Edmondson, 1999). Team members felt more motivated to ensure their team succeeded when their input was valued and that the value placed on them enhanced their confidence in the team successfully achieving team goals.

When team members communicate well, trust each other and establish a sense of team psychological safety, team development is enhanced (Druskatt & Wolff, 2001; Rickards,

Chen & Moger, 2001). This team development is evidenced through a sense of shared vision, team cohesion, collective problem solving and willingness to try out new ideas. Team decision making represented a measure of the team's ability to discuss issues, resolve conflicts and reach a consensus approach to goal achievement. All of these team process variables are measured and findings reported and discussed.

This research is presented in two studies. Study 1 outlines the design, application and evaluation of a training programme designed to increase emotional intelligence in teams. Study 2 measures and evaluates the team process variables of communication, interpersonal trust, team decision-making process, psychological safety within teams and team development.

Study 1

Chapter 2 - Introduction

Study 1 - Increasing Emotional Intelligence

2.1 Introduction

Study 1 outlines the design, application and evaluation of a training programme which aims to increase emotional intelligence in teams. The fundamental research question addressed was whether EI could be increased through training. In order to answer this question, it became necessary to define EI and select a model of EI on which to base the design of the training intervention. Equally essential was the necessity to select an appropriate measure of EI that would reflect the complexity of EI within a workgroup.

There have been a number of claims that emotional intelligence (EI) can be increased through training (Cherniss & Goleman, 1998; Goleman, 1998a, 1998b; Goleman 1995; Slaski & Cartwright, 2003; Weisinger, 1998). The research does, however, offer a wide range of techniques for enhancing EI, coupled with a distinct lack of empirical support in many cases (e.g., Druskat & Wolff, 2001; Goleman, 1998; Yost & Tucker, 2000). The lack of a single training design to enhance EI can be traced back to the absence of a single definition of the concept. To add to the confusion, various models of EI exist offering alternative composite factors of EI (Bar-On, 1997; Dulewicz & Higgs, 1999; Goleman, 1998; Salovey & Mayer, 1990), and training in each model will automatically differ as focus is given to different aspects and factors purported to constitute EI.

In order to address the issues raised by the initial research question - whether EI can be increased through training - it is necessary to define EI, to determine the most appropriate way to measure EI and to examine existing research to date on EI training.

The aim of the study was to increase EI in a team setting using a training programme designed around self-awareness and team process. The design of the study incorporated practices used by previous researchers in their EI training programmes, but also, novel aspects were included which are described in detail later.

2.2 History of Emotional Intelligence

The specific concept of emotional intelligence has only been defined since the beginning of the 1990s with the publication by Salovey and Mayer (1990) that contained the first definitive application of the term, making popular the idea of viewing the experience and expression of emotions as a domain of intelligence. Salovey and Mayer (ibid.) provided the initial definition of emotional intelligence in terms of an individual's ability to perceive emotion in oneself and others, to understand emotion, and then to manage emotion in oneself and others.

The earliest studies in what has now come to be known as emotional intelligence (EI) date back to the 1920s, to research conducted by Robert Thorndike. His work focused on identifying the components of intelligence and indicated that 'social intelligence' was a part of general intelligence, in addition to abstract and mechanical intelligence. He defined social intelligence as "the abilities to understand others and to act or behave wisely in relation to others" (Thorndike, 1925, p. 130). Thorndike's definition had both a cognitive and a behavioural aspect. It implied the ability to understand and manage people was an intellectual capacity and that the capacity was different from the abstract-verbal and concrete-mechanical aspects of intelligence (Derksen, Kramer, & Katzko, 2002). Mayer and Salovey (1993, p. 435) interpreted Thorndike's social intelligence as "the ability to perceive one's own and others' internal states, motives and behaviours and to act toward them optimally on the basis of that information"

Wechsler (1943) proposed that there were a range of intelligences, including non-intellective intelligence. He added that individuals with identical intelligence quotients (IQs) may differ very markedly in regard to their effective ability to cope with the environment.

Leeper (1948) made a small but important contribution to support the early work of Wechsler (1940) in his study of 'emotional thought'. He argued that emotions arouse, sustain and direct activity. He proposed that emotional thought was part of, and contributed to logical thought and intelligence in general, proposing a link between emotional thought and action.

Gardner (1983) proposed a model of intelligence that went beyond IQ to include aspects of social intelligence – intrapersonal and interpersonal aspects. Gardner's personal intelligences included the ability to relate to others (interpersonal intelligence) by understanding their behaviour, motives, feelings and emotions. Intrapersonal intelligence represents our understanding of ourselves. This proposal was very similar to later theories of the constructs underlying emotional intelligence, particularly in the case of the Emotional Competency Inventory (ECI: Cherniss & Goleman, 2001).

Sternberg (1985) proposed a triarchic model of intelligence – problem solving ability, verbal ability and social intelligence/competence. Sternberg (1985) took the approach of asking people to describe the behaviours of an "ideally intelligent" person (p. 31) and developed the concept of practical intelligence. He defined practical intelligence as the ability to adapt to, change or alter real-life situations and again created a view of intelligence that was broader than what was traditionally measured by intelligence Quotient (IQ).

Salovey and Mayer (1990) published the first research paper coining the phrase 'emotional intelligence'. Their early definition of emotional intelligence, drawing on the work of Thorndike (1925), was "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 action" (p.189). This model of EI consisted of three categories of adaptive abilities: appraisal and expression of emotion, regulation of emotion and utilisation of emotions in problem solving. The first category of appraisal and expression of emotion referred to both the self and others. Appraisal and expression of emotion in the self is divided into verbal and non-verbal, while when applied to others, it is divided into non-verbal perception and empathy. Regulation of emotion is again divided between the self and others. The third category, utilisation of emotion, included the subcomponents of flexible planning, creative thinking, redirected attention and motivation.

Mayer and Salovey (1997) revised their definition of emotional intelligence to "involving the ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion

and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth" (p.10). The definition proposed emotional ability as involving four aspects: the ability to perceive emotion, the ability to integrate emotion to facilitate thought, the ability to understand emotions, and the ability to manage emotions. This revised model gave more emphasis to cognitive components of EI, with potential for intellectual and emotional growth. The perception, appraisal and expression of emotion are viewed as the most basic processes, with reflective regulation of emotions requiring complex processing. Mayer and Salovey (1997) published their Multifactor Emotional Intelligence Scale (MEIS), an ability measure of EI.

Goleman (1995) published his book *'Emotional Intelligence: Why It Can Matter More Than IQ'* which has sold over five million copies to date, firmly placing it on the best-seller list. Prior to publication, Goleman had used 'Socio-Emotional Learning' and 'Emotional Literacy' as working titles, which give insight into the focus of the topic but changed the title on reading Mayer and Salovey's (1990) work. *Time Magazine* published a cover feature *'What's your EQ?'* in 1995, and went on to add that EQ (Emotional Quotient) may be the best predictor of success in life, redefining what it meant to be smart. The book largely contained anecdotal evidence of the use of intelligent thinking and behaviour in workplace settings when interacting with other people.

Goleman's book came to the attention of Rueven Bar-On, a doctoral graduate who had just completed his dissertation on psychological wellbeing. Bar-On quickly recognised the potential of the measure he had developed as part of his dissertation work and presented his scales which he called the Emotional Quotient Inventory (EQi). Bar-On's EQi was published in Toronto by Multi-Health Systems (MHS) in 1997 and was hailed by MHS as the first scientific instrument to measure emotional intelligence.

Goleman (1998) went on to publish his second book 'Working with Emotional Intelligence', which set out twenty-five competencies for leaders. He went on to publish a 360° measure of emotional intelligence with the Hay Group in the United Kingdom called the Emotional Competency Inventory (ECI) (Cherniss & Goleman, 2001). This measure seeks feedback from all of the stakeholders involved in the person's work (e.g., their superiors, their subordinates, their colleagues and their clients/customers).

Goleman's books and *Time Magazine's* coverage brought emotional intelligence to the forefront of public attention. The works of Goleman (1995, 1998), Bar-On (1997) and Mayer and Salovey (1990, 1997) remain the three dominant definitions, models, and measures of emotional intelligence to date, despite the advent of many other measures and models of EI (e.g., Schutte, Malouff, Hall, Haggerty, Cooper, Golden & Dornheim, 1998).

2.3 Models of EI

A difficulty exists in choosing a way of measuring emotional intelligence due to the number and array of measures of EI that currently exist (Law et al. 2004). It is only to be expected that several measures exist due to the very fact that so many differing definitions and models of the concept exist.

Ashkanasy and Daus (2005) divided current measures and concepts of EI into three Streams, namely: abilities model of EI, mixed abilities models, and personality models, and this typology has been adopted in this study to aid clarification. Stream 1 is based on Mayer and Salovey's (1997) four-branch abilities model of EI (MEIS, MSCEIT) which is a performance-based model based on their definition of EI which includes "the ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth" (p. 10). Daus & Ashkanasy (2005) pointed out that the operationalisation of EI in the ability model demands that participants must accurately read emotions in others' facial expressions, show good judgement and make good decisions regarding emotionally laden scenarios. Clarke (2006) pointed out that the abilities model depicts emotional ability as a cogent set of skills that include the ability to identify, reason with and utilise emotions effectively.

Steam 2 models, according to Ashkanasy and Daus (2005), encompass various self-report and peer-report measures based on Mayer and Salovey's (1997) abilities model (e.g., Jordan et al. 2002; Schutte et al. 1998; Wong & Law, 2002).

Stream 3 models include a mixture of personality-type items and behavioural preferences (Ashkanasy & Daus, 2005). Models that mix emotional intelligence qualities with other personality traits, considered unrelated to either emotion or intelligence, are referred to as mixed models of emotional intelligence. They mix together the core idea of EI with a variety of other personality traits. Bar-On's (1997) EQ-i (Emotional Quotient Inventory) and the ECI (Emotional Competency Inventory) developed by Boyatzis, Goleman and Rhee (1999), include aspects of personality and social competence that deviate greatly from the original definition of EI proposed by Mayer and Salovey (1997). Ashkanasy and Daus (2002) pointed out that these models may be useful for organisational development purposes but that they do not appear to be significantly different from existing personality models or competency models and that they should not be confused with emotional intelligence. Mayer et al. (1999) pointed out that EI has been portrayed in popular literature as comprising much more than ability at perceiving, assimilating, understanding and managing emotions. The alternative models (e.g., Bar-On, 1997; Goleman, 1995) include "not only emotion and intelligence, but also motivation, non-ability dispositions and traits, global and personal functioning. Such broadening seems to undercut the utility of the terms under consideration" (Mayer et al. 1999, p. 268). The inclusion of non-ability dimensions in the EI construct has been seen as having a damaging effect on the scientific rigour of the EI construct (Schultea, Ree & Carrettab, 2004).

Clarke (2006) went further to suggest that Stream 3 models, which he entitled personality models, include Goleman's model (Cherniss & Goleman, 2001; Goleman, 1998), and comprise a diverse range of emotional dispositions and competences including motives, traits and learned capabilities. Goleman (1998), defined a competence as a learned capability based on EI giving rise to outstanding performance at work.

2.4 The Ability Model of EI

Salovey and Mayer (1990) defined emotional intelligence as the ability to detect and to manage emotion-based information and cues. The ability to be aware of one's own emotions and the emotions of others, the ability to be able to manage those emotions, and

the ability to understand complex relationships between emotions embodies the ability model of EI (Jordan et al. 2002).

Mayer and Salovey (1993) derived their ideas on emotional intelligence from the work of previous researchers using concepts such as Thorndike's (1920) social intelligence and Gardner's (1983) constructs of intrapersonal or intrapsychic intelligence (defined as understanding ourselves, who we are, what makes us tick, what drives us, how we can change ourselves into becoming more fulfilled given the constraints of our abilities and interests) and interpersonal intelligence (defined as relating to others, understanding their feelings, behaviour, motives and emotions). Thorndike's (1920) definition had both a cognitive and a behavioural aspect. It implied the ability to understand and manage people was an intellectual capacity and that the capacity was different from the abstract-verbal and concrete-mechanical aspects of intelligence (Derksen, Kramer, & Katzko, 2002). Mayer and Salovey (1993, p. 435) interpreted Thorndike's (1920) social intelligence as "the ability to perceive one's own and others' internal states, motives and behaviours and to act toward them optimally on the basis of that information". They saw emotional intelligence as a framework for organising personality as well as an outline for the study of emotion.

Mayer and Salovey (1993, p. 186) viewed emotions as "organised responses crossing the boundaries of many psychological subsystems, including the physiological, cognitive, motivational and experiential systems". They went on to define emotional intelligence as the ability to detect and manage emotional cues and information, "the subset of social intelligence that involves the ability to monitor one's own and other's feelings and emotions, to discriminate among them, and to use this information to guide one's thinking and actions" (p. 189). Bringing together research as disparate as measuring alexithymia, emotional expression and empathy, they looked at the underlying constructs in order to operationalise emotional intelligence. They went on to argue that emotional intelligence was different from other forms of intelligence and personality as it dealt directly with the way people recognised and dealt with emotions and emotional content.

Examining Mayer and Salovey's (1997) four-branch model of EI, Jordan et al. (2002) posited that emotional identification and perception (Branch 1) provides a platform for

assimilation of emotional cues and information (e.g., sensing the degree of fear, anger, or surprise). Mayer and Salovey (1997) identified perceiving emotion as the initial and most basic skill of non-verbal reception and expression of emotion. A central aspect of this perception is the ability to perceive false display of emotion in others (Jordan et al. 2002). As we store up knowledge of emotion and how it is expressed by facial expression, voice pitch and tone, and movement, we compare inputs to assess how they match what we have stored in memory.

Once this information has been assimilated with existing knowledge (Branch 2), it provides a foundation for understanding emotions (Branch 3) and highlights the link between feelings and emotions, and also moods and emotions. Using emotions to facilitate thought and direct thinking causes focus to be placed on issues that grab our attention and cause us to respond emotionally (Mayer & Salovey, 1997). We can, therefore, direct our thinking towards matters that are of importance to us.

Emotions provide us with information as each emotion conveys a pattern of possible messages and actions (Mayer & Salovey, 1997). For example, if we feel anger (an emotion) it may produce a need to attack or harm others (an action) because we feel unfairly treated. The message of anger may result in action options - attack and seek revenge, forgive and move on, ignore and try to remain calm, or make peace. Once these messages and action options have been identified, we can then reason which to take. This is a central ability within EI (Mayer & Salovey, 1997). Once we recognise and analyse the sequence of emotions that emerge from our perceptions, we can overcome negative responses to emotions (Jordan et al. 2002). We can then apply this logic to others and gain understanding into their sequence of emotions, their emotional expressions and their behavioural outcomes.

The final stage of the ability model depicts the use of this understanding to manage emotions (Branch 4). This emotional management refers to both the self and to others. An emotionally intelligent person knows that emotions convey information (Mayer & Salovey, 1997). That information contains knowledge about the origin of the emotion, its meaning for us, and the behavioural outcomes that are possible as a result of feeling that emotion. It then becomes possible to regulate and manage both our own emotions and the

emotions of others. We can decide whether to connect with or disconnect from an emotion, depending on how useful it is for us in that particular situation (Jordan et al. 2002).

While each of these stages/branches can be considered separately, in combination they contribute to the development of emotional intelligence (Jordan et al. 2002; Mayer & Salovey, 1997).

Applying Mayer & Salovey's (1997) ability model of EI to teams, using this four-stage application, suggests the value of EI in the social interaction that is the essence of teamwork. Emotional perception, the ability to be self-aware of emotions, to be able to express those emotions, and emotional needs accurately to others drive the emotional and behavioural consequences that result (Jordan et al. 2002).

2.5 EI models: an evaluation

Research, in general, has supported the criticisms levelled at Stream 3 models of EI (Conte, 2005; Davies, Stankov & Roberts, 1998; McRae, 2000; Matthews, Zeidner & Roberts, 2002; Mayer et al. 2004a; Van Rooy & Viswesvaran, 2004). McRae (2000) illustrated that Steam 3 models of EI display overlap with measures of personality. Questionnaire measures performed poorly in early empirical evaluations of reliability (Davies, Stankov & Roberts, 1998). Davies et al. (1998) qualitatively summarised the literature and developed a four-dimensional definition of EI. They did not develop a measure of EI. They used earlier models and measures to show they loaded on the same factors as the Big Five personality dimensions. On the basis of their findings in a series of exploratory factor analyses, Davies et al. (ibid.) concluded that EI was an elusive construct. A criticism of their methodology is that they did not consider Mayer and Salovey's (1997) four-branch model of EI in their analyses.

Daus & Ashkanasy (2005) argued Stream 3 models (Bar-On, 1997; Goleman, 1995) measure something other than emotional intelligence. They point out that much of the criticism of EI has included research using Stream 3 models, in addition to the more

scientifically robust ability model, which, in turn, has caused the ability model to receive undue criticism (e.g., Conte, 2005; Davies, Stankov & Roberts, 1998; Matthews, Zeidner & Roberts, 2002; Van Rooy & Viswesvaran, 2004). In contrast, research conducted on Stream 1 - the ability model (Mayer & Salovey, 1997) on its own - has yielded results supporting the conceptual relevance and distinctiveness of the construct. Mayer, Salovey, Caruso and Sitarenios (2003) conducted an evaluation of the ability model (MSCEIT Version 2.0, Mayer, Salovey & Caruso, 2002b). Total MSCEIT V2.0 score reliability was calculated across two populations - 2112 general participants and 21 expert participants (members of International Society for Research on Emotions). The split-half test reliability yielded Cronbach's Alpha Coefficients of .93 for general participants and .91 for expert participants. Reliabilities for Branch scores were also high, ranging from coefficient alphas of .76 to .91. Confirmatory factor analyses conducted by Mayer at al. (2003) indicated that a four-factor model of EI provided the most viable representation of the EI domain using the MSCEIT V2.0.

Mayer et al. (2003) found MSCEIT overall internal consistency ranged from .90 to .96 with branch score reliabilities ranging from .76 (facilitating) to .98 (understanding and perceiving), which show high internal reliability for the measure. Confirmatory factor analyses based on the MSCEIT yielded a unitary EI factor (Mayer et al. 2003; Palmer, Gignac, Manocha & Stough, 2005) and Day and Carroll (2004) identified the ability model consisting of four branches as an excellent fit to the data.

Criticism that EI added no predictive validity beyond cognitive ability, or that EI was little more than a constellation of Big Five personality factors of Neuroticism, Extraversion, Psychoticism, Agreeableness and Openness (Davies et al. 1998; Matthews et al. 2002; Van Rooy & Viswesvaran, 2004) was statistically disproved using the ability model of EI (Mayer & Salovey, 1997). Mayer et al. (2004a) found that EI and cognitive ability produced correlations showing discrimination from cognitive ability. Findings also showed correlations for each of the Big Five factors and the MSCEIT. Daus and Ashkanasy (2005) report higher overlap between Bar-On's (1997) EQ-i and Big Five factors, again showing that Stream 3 models of EI go beyond the measurement of a single EI construct. Clarke (2005) pointed out that EI had been found to overlap with existing measures of social and psychological functioning citing anxiety and the Symptom

Checklist-90 (SCL-90: Brackett & Mayer, 2003; Davies, Stankov & Roberts, 1998; Law et al. 2004; O'Connor & Little, 2003). He attributed these findings to the ambiguity and multifaceted nature of the concept in mixed and personality models of EI.

EI has been shown to be distinct from personality dimensions and has incremental predictive power on criterion variables such as life satisfaction, job satisfaction and job performance using Wong's Emotional Intelligence Scale (WEIS: Law, Wong & Song, 2004; Saklofskea, Austin & Minskic, 2002; Wong, Wong & Law, 2005). The WEIS was developed for Chinese respondents and is based on the ability model of EI (Davies, Stankov & Roberts, 1998; Mayer & Salovey, 1997). It includes four EI dimensions: appraisal and expression of emotion in oneself, appraisal and recognition of emotion in others, regulation of emotion in oneself, use of emotion to facilitate performance.

Ciarrochi, Chan and Caputi (2000) conducted a critical evaluation of the EI construct using the ability model (MEIS; Mayer & Salovey, 1997). Ciarrochi et al. (2000) administered the MEIS to 134 undergraduate Australian students along with IQ, personality, life satisfaction and relationship quality measures. Findings supported the reliability and validity of the test; EI factors were found to be reliable, and all of the subscales loaded onto a single factor 'emotional *g*' which, they concluded, supported the case for EI as a distinct concept and added weight to its usefulness in predicting outcomes in life satisfaction and relationship quality.

Law, Wong and Song (2004) found that EI measured emotion-related abilities that were distinct from personality traits, and proposed the use of EI measures that do not rely solely on self-report. They concluded that the four-dimensional model of EI be adopted in future EI research. The model was based on Davies et al.'s (1998) model but also included the WLEIS scale (WLEIS: Wong & Law, 2002) which included self-emotion appraisal, others-emotions appraisal, use of emotions, and regulation of emotions. Law et al. (2004) identified that the definitions of EI used by Davies et al. (1998) and Mayer et al. (2000b) were not identical, but very similar. Ciarrochi, Chan and Caputi (2000) pointed out that a review of EI literature showed that while different definitions of EI were used by different researchers, in general, they tended to be complementary rather

than contradictory and that measures, in general, covered four areas: emotion perception, regulation, understanding and utilisation.

Law et al. (2004) pointed out that a mutually acceptable, unitary definition of EI would be beneficial and would form the basis of more standardised measures based on the four-dimensional model. There is an obvious limitation of Law et al's (ibid.) research in the question of the generalisability of Chinese and Hong Kong samples and findings to Western cultures. Eastern cultures can be portrayed as bound by strict codes of social practice (e.g., respect for superiors and the fact that the questioning of authority is forbidden), and they operate as a collective society where social norms and relationships appear to take precedence over individual personal development. Their findings are, despite this limitation, interesting in that they convey the existence of the EI construct and support the future use of the ability model proposed by Mayer and Salovey (1997).

In the face of criticism of the EI concept (Landy, 2005), Daus and Ashkanasy (2005) concluded that EI was a distinct intelligence based on research findings using the ability model of EI (Brackett, Mayer & Warner, 2004; Mayer, Caruso & Salovey, 1999; Mayer & Salovey, 1993; Mayer, Salovey, Caruso & Sitarenios, 2003). Furthermore, the ability model of EI performed as an intelligence psychometrically and showed solid convergent and discriminant validity (McEnrue & Groves, 2006). Mayer et al. (1999), having conducted research using the MEIS, provided evidence that EI produces patterns of correlations similar to known intelligences and that EI only correlated weakly with other intelligences, showing it as distinct from previously identified intelligences. They also found that EI developed with age using a sample of 229 adolescents and 220 adults. Using seven tasks from three branches (Emotional Identification (faces, music, design, stories); Assimilating Emotions (synesthesia); and Understanding emotions (blends, relativity)), combined test means for adult scores were 0.378 and 0.359 for adolescents. Using three scoring procedures (agreement with consensus, expert ratings and target reports) ANOVA revealed statistically significant differences between adult and adolescent scores. Mayer et al. (1999) concluded that the result demonstrated that EI ability levels increase with age.

Emotional intelligence has grown into a multimillion dollar training industry (Adkins, 2004; Kunnanatt, 2004). McEnrue and Groves (2006) pointed out that the major vendors of training use different measures of emotional intelligence and that human resource development professionals face a difficult task in ensuring they select the most valid instrument for their purposes. They conducted an in-depth analysis of four popular measures of EI and evaluated all four on available data for content, construct, face, predictive and external validity. The four measures included data from the technical manuals and direct communication with the authors for the MSCEIT (Mayer, Salovey & Caruso, 2002) based on the ability model of Salovey and Mayer (1990, 1997); the ECI-2 (Sala, 2002) based on the work of Boyatzis, Goleman and Rhee (1999); the EQ-i (Bar-On, 1997, 2004); and the EIQ (Dulewicz & Higgs, 1999b). The MSCEIT (Mayer, Salovey & Caruso, 2002) obtained the highest rating from McEnrue and Groves (2006) in their comparison, showing moderate content validity (as it omits emotional expression and excludes management of emotions); high construct validity (with independent reviews demonstrating discriminant and convergent validity); low face validity (due to items demonstrating little resemblance to organisational phenomena); moderate predictive validity (with a limited but growing number of studies showing a positive relationship with job performance) and moderate external validity (based on North American samples for validation data and showing comparative data for gender, age and ethnicity).

2.5.1 Advantages of the Ability Model

The scientific advantage of the ability model is that it is cohesive. It does not include personality characteristics such as achievement orientation or initiative which are found in mixed models of EI, and those attributes are not considered directly related to either emotion, or to intelligence (Mayer & Salovey, 1997). The ability definition emphasises that EI relates to the ability to reason with and about emotions and the capacity of emotion to enhance thought. This clarity of definition ensures that scientists and practitioners can communicate clearly what is being measured or studied (Mayer & Salovey, 1997). Conversely, this clarity allows researchers to exclude variables that are not aspects of EI (e.g., achievement motivation, personality variables). Furthermore, measures based on the ability model (Mayer & Salovey, 1997) can be confident they will

assess EI and will correlate highly with each other. Most importantly, according to Mayer and Salovey (1997), when an ability-based measure of EI correlates with an outcome, the researcher can be confident that it is EI as an ability that is related to the outcome (as opposed to another attribute that was mixed into the measure, as is the case with mixed models of EI).

2.5.2 EI and Gender

Ciarrochi et al. (2000) found gender differences in EI scores using the MEIS. Women scored significantly higher than men on Overall. This finding reflected earlier findings which suggested that women were better than men at perceiving emotions (Mayer, Caruso & Salovey, 1999; Mayer & Geher, 1996; Rosenthal, Hall, DiMatteo, Rogers & Archer, 1979). The explanation offered was that women may be socialised to read emotions better than men or, alternatively, they may be biologically prepared for emotion perception (Mayer et al. 1999).

Differences in gender scores of EI have been reported by a number of other researchers also. Ciarrochi, Chan and Bajgar (2001) found that adolescent females self-reported higher EI scores than their male counterparts. Petrides and Furnham (2000) found that males rated themselves significantly higher than females on all three factors of Dulewicz and Higg's (1998) EI measure (ability to understand own emotions; ability to handle conflict and settle disputes; and being positive and optimistic). In the same study, EI was also measured with Schutte et al.'s (1998) EI measure, and, conversely, females scored higher than males. This is a trait measure of EI and the factor "social skills" was measured. Petrides and Furnham (2000) attributed the difference to a self-enhancing bias in males and a self-derogating bias in females in self-reports. While females may be more socially skilled than males as rated on EI tests, their self-estimation of their EI ability tends to be lower.

Goleman (1995) suggested that women experience more ranges of emotion, with more intensity, due to their socialisation, and are, therefore, more "emotional" than men (p.

132). This suggestion was not backed up with empirical evidence, but it does show the general perception held that women are more emotional beings than men.

2.6 Jordan's (2000) model of EI

Jordan (2000) based his model of emotional intelligence on Salovey and Mayer's (1990) and Mayer and Salovey's (1997) ability model of EI. He operationalised EI along two constructs - the ability to deal with own emotions and the ability to deal with others' emotions. Jordan (2000) divided Salovey and Mayer's (1990) four dimensions (Branches) in two for many of the dimensions. The first dimension of verbal and non-verbal appraisal and expression of emotion was divided into self-awareness of own emotions and awareness of the emotions of others. The second dimension, regulation of emotion in the self and others, was also split into two - the ability to manage own emotions and the ability to manage others' emotions. The third dimension, emotional growth, according to Jordan (2000), included the knowledge about self and knowledge about others. Finally, the fourth dimension, the ability to generate emotions to assist problem solving, was divided into the ability to facilitate own emotions to assist with problem solving, and, the ability to facilitate others' emotions to facilitate problem solving. In general, Jordan (2000) divided Mayer and Salovey's (1990) EI construct into abilities relating to the self, and abilities relating to others (see Appendix A for a diagrammatic outline of Jordan's (2000) EI model in relation to Mayer and Salovey's (1997) four-branch model of EI).

2.7 Development of the WEIP-3 (Jordan, Ashkanasy, Härtel and Hooper (2002)

Jordan, Ashkanasy, Härtel and Hooper (2002) described the development of the Workgroup Emotional Intelligence Profile - Version Three (WEIP-3) scale to measure emotional intelligence specifically in work teams. Jordan et al. (2002) based their measure of emotional intelligence on the ability model of EI developed by Salovey and Mayer (1990, 1997), which, the literature has shown, has proven to be the most empirically robust model and measure of EI (McEnrue & Groves, 2006). Consequently, the measure fits into Stream 2 models of EI (Ashkanasy & Daus, 2005) which are Self-Report and

Peer-Report measures of EI based on the ability model. As the WEIP measures EI in teams, it was considered the most suitable Stream 2 measure of EI and version 5 was used for the measurement of EI in the current study.

Following personal communication between the author and Dr. Peter Jordan, extensive details were supplied on the development of this set of measures specifically designed to measure EI in workgroups. At the time, the latest version (version 5) of the measures were provided for use in this study and had been developed by Jordan (2000) despite the fact that version 3 research was not published for a further number of years.

Development of the WEIP-3 and its prototypes commenced in 1997. Early development involved a detailed content analysis of the literature relating to emotional intelligence. From this analysis, forty-four statements and concepts were identified as contributing to the emotional intelligence construct. A Q-sort of these statements resulted in a number of specific themes emerging providing an initial construct definition of emotional intelligence. Originally, three themes were identified: dealing with own emotions, dealing with others' emotions, and use of emotions in problem solving (Salovey & Mayer, 1990). Based on these three themes, statements from the literature content analysis were further sorted to create sub-themes. Three sub-themes were identified as fitting under the broad theme of dealing with own emotions. These were: awareness of own emotions, control of felt emotions, and ability to display emotions. Similarly, the broad theme of dealing with another's emotions included three sub-themes: recognition of other's emotions, ability to manage other's emotions, and empathy. Finally, the problem-solving theme was considered to be a single construct. These constructs were consistent with the early definitions for emotional intelligence (Mayer & Salovey, 1993), but differed by separating abilities in relation to self, and abilities in relation to others. Between the development of WEIP-2 and WEIP-3, Mayer and Salovey (1997) altered and refined their operational definition of emotional intelligence significantly. Thus, while there is continuity with the earlier work of Salovey and Mayer (1990), their conception of the construct has evolved as a cognitive model, rather than as a set of personality traits (Mayer and Salovey, 1997). The WEIP-3 was therefore modified from the WEIP-1 and WEIP-2 to conform to Mayer and Salovey's (1997) revised construct.

Jordan et al. (2002) established the validity of the "Workgroup Emotional Intelligence Profile" (WEIP-3) through correlation with related measures. Jordan et al. (2002) found seven variables to be significant in their factor analysis of the WEIP-3. These variables were sub-divided into two constructs, the first being the "ability to deal with own emotions" which included the three variables "awareness of own emotions", "ability to discuss own emotions" and "use of emotions to facilitate thinking, and the second construct being the "ability to deal with others' emotions" which included the four variables "ability to recognise others' emotions", "ability to detect false displays of emotion in others", "empathetic concern" and "ability to manage others' emotions".

Using Australian undergraduate students working in problem-based learning teams for 14 weeks, Jordan et al. (2002) administered the WEIP-3 using a 7-point Likert-type response scale. Team performance data were based on log-sheets that teams submitted weekly over a nine-week period. Three independent raters assessed the log-sheets from the 44 teams based on seven criteria - three relating to team process and four assessing the team's goal focus. Process criteria included quality, understanding and attention to group processes. Goal focus criteria dealt with the generation of appropriate goals and the focus of the team on goal attainment. Reliability of the independent markers scoring for each of the teams averaged .74 for process effectiveness and .75 for goal focus criteria.

Means, standard deviations and inter-correlations of the WEIP-3 obtained by Jordan et al. (2002) are shown in Appendix B. Results supported the division of the WEIP-3 into seven sub-scales and also its use as a uni-dimensional index of emotional intelligence of work groups. An overall scale alpha of .86 was reported.

The WEIP-3 was tested against five existing scales to determine convergent validity. These scales included: (1) Lennox and Wolfe's (1984) self-monitoring scales, (2) the Trait Meta Mood Scale (TMMS) by Salovey et al. (1995), (3) Davis' (1994) Interpersonal Reactivity Index (IRI), (4) Jabri's (1991) Associate Bisociate Review Index (JABRI) and (5) Riggio's (1986) Emotional Control Scale. Convergent and discriminant validities of the WEIP-3 against the five known measures were also obtained and details are shown in Appendix C. As Jordan et al. (2002) predicted, there was a significant correlation between the WEIP-3 and all aspects of the Self-Monitoring Scale as, by definition,

individuals with high emotional intelligence are able to manage both their own emotions and the emotions of others. Lennox and Wolfe's (1984) Revised Self-Monitoring Scale includes two factors: acquisitive self-monitoring (with two sub-factors - ability to modify self-presentation; sensitivity to others) and protective self-monitoring (again with two sub-factors - cross-situational variability; attention to social comparison). The strongest correlation obtained was between 'ability to deal with the emotions of others' and acquisitive self-monitoring. A weaker relationship with protective self-monitoring and no relationship with cross-situational variability were obtained as predicted. Jordan et al. saw emotional intelligence as being concerned with managing emotional situations, rather than altering personal behaviours specifically to fit into a social situation.

The Trait Meta Mood Scale (TMMS) (Salovey et al. 1995) sub-scales of Clarity of Moods and Repair of Moods correlated with the overall WEIP-3, but the sub-scale of Attention to Moods did not. Jordan et al. (2002) were satisfied with the finding as the WEIP-3 reflects affective events more than the TMMS. They argued that compulsively paying attention to one's emotions might be as unproductive as a lack of attention, as the person was closed off to their environment and those people in it.

The Interpersonal Reactivity Index (IRI) measures both cognitive and emotional constructs of empathy. The inclusion of empathy as a component of emotional intelligence was contentious. Some writers have included empathy in their models of emotional intelligence (Bar-On, 1997; Cooper & Sawaf, 1997; Goleman, 1995, 1998a,b). Mayer and Salovey (1997), however, saw empathy as a shadow construct - related to, but not an essential component of emotional intelligence. Jordan et al. (2002) tested the WEIP-3 against the IRI which included four dimensions - perspective taking, empathetic concern, fantasy and personal distress. Both scales of the WEIP-3 correlated with the "perspective taking" scale of the IRI, but only "ability to deal with others' emotions" correlated with "empathetic concern" at the .05 level. There was a significant negative correlation between the WEIP-3 scales and the "personal distress" scale.

The Job Associate-Bisociate Review Index (JABRI) was included to test the problem solving aspects of emotional intelligence. The associate thinker is constrained into adopting logic using tried and tested means of problem solving, while the bisociate

problem solver adopts a more creative and intuitive style of problem solving. The JABRI Bisociate scale was correlated with the "ability to deal with own emotions" scale and the "ability to deal with others' emotions" scale of the WEIP-3 but the JABRI Associate scale results were not correlated with either scale of the WEIP-3. Both WEIP-3 scales correlated with scores on the emotional control scale, as predicted.

Jordan et al. (2002) found that the Emotional Control Scales of the Social Skills Index (Riggio, 1986) were positively related to both WEIP-3 scales of ability to deal with own and others' emotions. This was expected, as the construct definition of emotional intelligence used highlighted the ability to analyse and manage emotions. In summary, the WEIP-3 and its scales performed well in tests of convergent and discriminant validity.

Jordan et al. (2002) also examined performance data results against emotional intelligence in this study. The link between emotional intelligence and two measures of team performance, namely, team process effectiveness and team goal focus were examined. Jordan et al. (2002) failed to define both performance measures, but they included items from the measures. Typical items used to assess team process effectiveness included: "How concerned were the group with monitoring its own application of the processes?" and "How appropriate were the processes for learning about the content?" (Jordan et al. 2002, p. 21). Typical goal focus assessment items included "Does the group remain focussed on the goals in this session?" and "Do they return to set goals if diverted?" (Jordan et al. 2002, p. 21).

Jordan et al. (2002) conducted their study on 448 Australian undergraduate students enrolled in a managerial skills and communication course. The students used problem-based learning (Engel, 1993) and worked in designated teams of three to seven members for the duration of the 14-week semester. Team performance assessment took place over a 9-week period during the semester (week 2 to week 11). Teams were required to submit weekly log-sheets containing reports of their two one-hour self-directed team meetings. Teams were asked to explore specific topics using problem-based learning techniques (Engel, 1993). At the end of the meetings teams submitted a log sheet detailing the goals set by the team and the processes that had contributed to their learning. They were asked

for information on team interactions, team processes and any significant learning or insights the meeting produced.

Three independent raters then scored the log sheets under seven criteria: three relating to team process (quality, understanding of, and attention to group processes); and four relating to goal focus (including the generation of appropriate goals, the focus of the team on goal attainment).

Teams completed the WEIP-3 measure of emotional intelligence at week 9. An average team emotional intelligence score was then calculated for each of the 44 teams participating. Correlating the goal focus and process effectiveness scores with team emotional intelligence scores indicated a significant relationship for goal focus, but not for process effectiveness (Jordan et al. 2002).

Jordan et al. (2002) divided teams into two groups - one containing the 15 highest average emotional intelligence teams, and the other group containing the 15 lowest average emotional intelligence teams. The increase in scores for the low emotional intelligence teams was significant for both process effectiveness and goal focus criteria. Jordan et al. (2002) interpreted this finding as evidence that the WEIP-3, when used to measure average team emotional intelligence, predicted team performance. High emotional intelligence teams operated at high levels of performance throughout the study period. Low emotional intelligence teams, interestingly, performed at a low level initially, but they went on to perform as well as the high emotional intelligence teams at the end of the intervention. At the beginning of the team reporting period, low emotional intelligence teams had lower performance on both process and goal criteria. By the end of the reporting period, the difference in performance between the low and high emotional intelligence teams had declined by half for the process criteria, and had almost vanished for the goal criteria. Jordan et al. (2002) attribute the reduction in performance gap between the two sets of teams to significant improvements made by the low emotional intelligence teams. High emotional intelligence teams possessed the skills to perform well at goal focus criteria and team process criteria from the outset. Low emotional intelligence teams lacked these skills at the outset but acquired them during the intervention. Jordan et al. (2002) posited a number of causal factors - training, familiarity

with other team members, or the influence of skilled dominant team members whose individual skills improved the performance of the team as a whole. Jordan et al. (2002) suggested that future research should explore these causal factors.

2.8 Limitations of WEIP-3 research

The research conducted by Jordan et al. has been subject to a number of limitations. The study by Jordan et al. (2002) failed to measure the influence on emotional intelligence of the training intervention. WEIP-3 scores were only taken at week 9 so that any increase, or otherwise, in emotional intelligence over the period was not recorded, as a measure of emotional intelligence was not taken prior to the training intervention. Jordan et al. (2002) suggested that future studies include pre- and post-measures of emotional intelligence to investigate if training or awareness raising influence the emotional intelligence of individuals and teams. This advice was incorporated into the current study with the use of both pre- and post-measures of emotional intelligence and a training intervention built around awareness raising.

The undergraduate student teams used by Jordan et al. (2002) cannot be directly compared to work teams and therefore there may be some issues around the generalisability of their results. Finally a control group was not used in their study, so no base line measurement was established to which results could be compared.

2.9 Development of the WEIP-5 (Jordan, 2000)

Jordan (2000) went on to develop Version 5 of the Workgroup Emotional Intelligence Profile (WEIP-5) building on work from the WEIP-3. There are significant differences in this later measure which he incorporated following two studies. The first study contains the addition of a peer-report aspect to the measure.

In his first study, Jordan (2000) performed an analysis of emotional intelligence measures by the method the measure employed. The most common method used was self-report

(Cooper & Sawaf, 1997: Bar-On, 1997; Schutte et al. 1998) which had high reliability. Jordan (2000) expressed concern about the potential for self-assessment bias and faking. Bar-On (1997) contended that faking could be overcome using checks and balances in the questionnaire design. He included both a Positive Impression Scale to detect individuals who attempted to exaggerate their positive responses, and a Negative Impression Scale and an Inconsistency Index to overcome faking. Task analysis of emotional intelligence assumed that any intelligence could be measured in the same way as crystallised or fluid intelligence. Task measures included identifying the emotional content of art, music and facial expressions and responses to scenarios using multiple choice answers. As there was an element of subjectivity on deciding 'correct' answers, Jordan (2000) concluded that task analysis suffered poor reliability (Ciarrochi et al. 2000; Lam & Kirby, 1999).

The third method for measurement of emotional intelligence identified by Jordan (2000) was examination of behavioural information. Boyatzis and Goleman (1999) employed this method in their Emotional Competence Inventory (ECI 360) and through the convergence of self and peer reporting in the Workgroup Emotional Intelligence Profile (WEIP-3) outlined above. Boyatzis and Burckle (1999) reported good reliability (internal consistency) for the ECI-360 which assessed the person in their relational context by soliciting the opinion of work and social peers, family members and superiors by direct reporting. Jordan (2000) concluded that the purpose of testing for emotional intelligence in the workplace was in order to predict behaviour and performance. Hogan (1998) noted that reputation predicted performance more accurately than personality traits, indicating that the best predictor of future performance was that person's past performance. Jordan (2000) assumed that a measure of previous behaviour in the workplace would provide a good measure of predicting subsequent behaviour. A rider was added that such a measure needed to be simple to administer, time effective and an accurate reflection of the individual's behaviour. It was concluded, therefore, that of the number of ways of measuring behaviour, a self-report of previous behaviour appeared to be the most attractive. Jordan (2000) pointed out that some of the factors of emotional intelligence (e.g., awareness of own emotions and the ability to detect false displays of emotion) were probably only apparent using complex testing methods.

Seeking corroboration from a third party who has experience of working with an individual in real life situations has been considered more accurate than complex personality assessment procedures (D'Augelli, 1973). In a work setting, fellow workers (peers) gain experience of a broad range of behaviours, opinions and abilities from colleagues. While research on peer assessment has provided low positive correlations with self-assessment (D'Augelli, 1973; Powell, 1948; Shore, Tetrick & Shore, 1998), complex psychometric constructs were assessed in that research. Jordan (2000) assumed the assessment of a simpler construct such as work-based behaviour could provide a more accurate assessment. He predicated the WEIP-5 on this belief. In developing the WEIP-5, Jordan (2000) expressed concern that individuals with low emotional intelligence would be masked by self-assessment techniques. He felt they may rate themselves higher than they should due to their lack of awareness of their own emotions, and this would produce a false result. In order to overcome this potential for bias, Jordan (2000) developed a peer-assessment element to accompany his WEIP-5.

Version 5 of the WEIP consisted of two instruments - a 48 item self-report form and a peer reporting form (27 items). Jordan (2000) also used the Barratt Impulsivity Scale (BIS11) (1985) which measured impulsiveness; Need for Emotion Scale (Chattopadhyay, 1999) which measured the individual's propensity to seek out emotional experiences or to exhibit a preference for dealing with others on an emotional level; and the Positive Affect Negative Affect Scale (PANAS) (Watson, Clark & Tellegen, 1988).

Research was conducted by Jordan (2000) on 539 Australian undergraduate students assigned to problem-based learning teams for fourteen weeks. The teams were asked to explore specific topics, setting goals and planning processes for achieving those goals at weekly two-hour meetings. As part of their session, participants were asked to complete a series of self-awareness questionnaires over eight weeks (details not supplied). The respondents were given feedback on the outcomes of the tests throughout the study to ensure continued participation.

The six factors included in the WEIP-5 by Jordan (2000), including their reliability using Cronbach alphas, were (1) the awareness of own emotions (.80); (2) the ability to discuss own emotions (.80); (3) the ability to control own emotions to facilitate thinking (.66); (4)

the use of emotions in decision-making (.67); (5) the ability to recognise others' emotions (.77); and (6) the ability to manage others' emotions (.78). A seventh factor of empathetic concern was extracted, but similar to the WEIP-3 research, was dropped as a shadow construct of emotional intelligence.

Jordan (2000) noted that two scales (i.e., emotional control and use of emotions for decisions) returned alphas below the 0.7 threshold, but their appearance in the factor analysis convinced Jordan et al. (ibid) that they contributed to the overall construct of emotional intelligence.

The WEIP-5 scale Ability to Deal with own Emotions, correlated inversely with the Attentional Impulsivity and Non Planning Impulsivity of the BII11. There were no significant correlations between the WEIP-5 measure and the Motor Impulsivity scales of the BII11. No significant correlation was found between Attentional Impulsivity and Awareness of Others' Emotions Scale as predicted by Jordan. Further predictions were also upheld - the Ability to Deal with own Emotions scale was positively correlated with and the Positive Affect scale of the PANAS and negatively correlated with the the Negative Affect scale. The Need for Emotion Scale correlated with Ability to Deal with own Emotions scale. The Ability to Deal with Others' Emotions scale of the WEIP-5 also correlated with Non Planning Impulsivity and the Need for Emotion scale. Finally, the Positive Affect scale of the PANAS was correlated to the Ability to Deal with Others' Emotions scale and also with the Negative Affect scale. Results are shown in Appendix D.

In his second study, Jordan (2000) explored the relationship between self and peer ratings of EI. Individuals with high EI, having accurate self-awareness, would be expected to rate themselves in accordance with the assessment of their peers. Conversely, those with low emotional intelligence would be expected to exhibit a disparity between self and peer reports, due to their poor emotional self-awareness.

The Peer WEIP-5 (Jordan, 2000) was designed to mirror the content of the Self WEIP-3 (described earlier) and consisted of 24 items asking for an assessment of the emotional skills and abilities of each individual in the work team (see Appendix E). The sample

used by Jordan, 2000 consisted of 428 Australian undergraduate students again over a 14-week period assigned to problem based learning teams. The Peer WEIP-5 was completed at week 13 as part of the self-awareness programme. Strategies were employed to address concerns raised by critics of peer rating (Imada, 1982; Murphy & Blazer, 1989) to reduce intentional errors. The results of the peer reports were given out at the end of the 14 weeks to avoid producing conflict within the teams. Average peer scores were calculated and given out to ensure anonymity of the raters.

Performance was measured by examining qualitative data relating to an early team report focussing on set goals and processes to achieve those goals. The data collected were measured against six criteria: three relating to process effectiveness and three relating to goal focus. Process effectiveness reflected quality, understanding and attention to group processes. Goal focus criteria included goal generation and focus on goal attainment. An independent rater scored the qualitative reports and scores were averaged.

An analysis of the Self WEIP-5 and Peer WEIP-5 resulted in Cronbach's alphas of .84 and .82 respectively. The reliability of the performance data gave alphas of .72 for goal focus criteria and .76 for process effectiveness criteria. The overall performance of the measures was .84. Correlations were calculated between both the Self- and Peer-WEIP-5 and performance and no significant results were obtained.

Jordan (2000) was interested in the link between high emotional intelligence and performance. Accurate self-assessment (i.e., participants' self-assessments matched the assessments of their peers) and both the goal measure, and the overall performance measure, showed positive correlations. There was no positive correlation between the Self WEIP-5 and performance. Similarly, there were no positive correlation between the Peer WEIP-5 and performance. Jordan (2000) concluded that accurate self-awareness was correlated with performance, based on preliminary analysis of data. Individuals whose self-assessment matched the assessment of their peers were likely to have higher performance. This finding supported the findings of Sosik and Megerian (1999), who suggested that emotional intelligence, leader behaviour and performance were all influenced by self-awareness. Jordan (2000) could not, however, conclude whether

accurate self-awareness was also an indicator of high emotional intelligence from the results.

2.10 Effective work teams

The current study involves attempting to increase emotional intelligence in teams. The beneficial use of teams in both learning and productivity contexts has been widely supported (Edmondson, 1999; Kaplan & Welker, 2001; Knowles, 1990; Neumann & Wright, 1999). Organisational work teams have been defined as "groups that exist within the context of a larger organisation, have clearly defined membership, and share responsibility for a team project or service" (Edmondson, 1999, p. 351). In the current study, the terms "team" and "group" have been used interchangeably, and no distinction has been made by the author between the two.

The movement to the adoption of teamworking in the workplace has been widely noted in the last decade (Van Offenbeek, 2001; Osterman, 1999). There is clear evidence that the adoption of a teamwork approach has several advantages for the organisation including increased productivity, consumer satisfaction, greater employee job satisfaction, improved safety and lower costs (Dooley & Fryxell, 1999; Kirkman & Shapiro, 1997; Neumann & Wright, 1999; Newton McClurg, 2001). In tandem with the beneficial aspects of working in teams, there have been many lists of characteristics of successful teams published (Goleman, 1995; Rogers, Metlay, Kaplan & Shapiro, 1995). Following a meta-analysis of existing literature, Parker (1990) published a twelve-point list of characteristics of effective teams. They included open communication, definition of clear goals, consensus decision making, shared leadership, civilised disagreement, listening and participating, an informal team climate and style diversity within teams, defined as differing focus on task and social aspects of teamwork.

2.10.1 Teams in a learning setting

Due to the fact that organisations are utilising teams more at all hierarchical levels, researchers have identified a need for educational institutions to prepare students for the group decision-making processes that exists in the real world, as well as increasing their ability to function within a team structure (Kaplan & Welker, 2001). Kremer and McGuinness (1998) explained that as not only the ability to work in a team, but also, the ability to think and act independently, were highly desired skills and competencies for success in the work place, educational institutions needed to actively and overtly seek to develop those skills in their graduates.

Such skills are not best taught through the formal and traditional lecture style educational model, and indeed the static and unidirectional format of lectures may have perpetuated passivity and dependency (Kremer & McGuinness, 1998). Research into adult education in recent decades clearly demonstrated that adults learn better when experiencing the andragogical approach to learning facilitation. This model sought to treat students like adults rather than children, and is based on a number of premises outlined by Knowles (1990), which are described below.

Adults are typically responsible for their own lives and make their own decisions. It follows then, that they should also be responsible and self-directing in their education rather than treated as passive learners. Adults learn best when they decide there is a need to learn something, and not when they are told that to learn something would benefit them. Adults need to know why they should learn something. They tend to need to explore the benefits and costs involved in learning something and once they understand the value, they are more likely to put time and effort into the learning experience. Due to life experience, adults bring a wealth of knowledge and experience to the educational setting. As they have learned from their life experience, it follows that there should be an emphasis on experiential learning, which they could analyse and learn from. Due to the "broader base of experience" adults have (Knowles, 1990, p. 171), the use of discussion and reflection, rather than instruction, ensures that new skills and ideas are linked to this experience and therefore learning is more permanent. Unlike pedagogic-learning, in

which the student just needs to learn a subject to pass a test, adults need to focus on life's tasks and to assess the added value of the undertaking.

Research has shown that there are certain advantages to active team learning in an educational setting. For example, Cracolice and Deming (2001) explained how their programme of peer-led team learning encouraged students to be responsible for their own learning through team meetings, in which the course content was discussed and problems solved without the intervention of a teacher. This not only gave the students the specialist knowledge of a topic, but also gave them the opportunity to develop their own conceptions regarding what they had learned about that topic. In addition, personal responsibility was fostered as students were encouraged to become active agents facilitating their own learning.

Kaplan and Welker (2001) also described the successful application of team learning to ensure that students not only learned about concepts, but through group activity, more importantly, learned to use those concepts. Through team learning, students not only learned about the specific topic (accountancy), but also acquired skills such as communication, delegation of workload, problem solving and leadership. The acquisition of these skills were a direct result of having to develop and employ them in the team setting.

In a study by Kremer and McGuinness (1998), students were presented with a broad overview of a subject in lecture format and then participated in discussion groups facilitated by a tutor. As well as task assessment, these groups were assessed through self and peer evaluation of an individual's socio-emotional and task contribution. This enabled the examination of an individual's ability to function within the group. However, it was a measure taken in the final session of the course and therefore did not show how an individual had developed and improved their team social-skills through participation in the group since joining that group.

The above research suggested that active team learning strategies enhance a deeper understanding of the concepts and issues on a curriculum than traditional passive learning techniques. Although research claimed that the success of the approach was reflected in

the course evaluations, it was important to establish whether this form of learning had measurable benefits for the development of the student's ability to function efficiently in a group setting.

2.10.2 Active learning processes

The learning that takes place in groups is mostly experientially based. This adheres to Knowles' (1990) Andragogical model, which states that, as we have learned from life experience, academic learning should also be experientially based in order to facilitate learning. Through active participation in teams, learning and incorporating information about group dynamics and processes takes place. This learning enables team members to function well in team-settings.

According to Dweck (1986), when an individual feels they are ready to learn (or does not fear learning) and that there is a need to learn, they are motivated to do so. If learners do not appreciate the need for learning to occur, they are not motivated and so learn slowly and more passively. Traditional teaching methods do not encourage students to develop the appropriate cognitive abilities which facilitate learners to develop the mental representations required for effective functioning in a group problem-solving setting (Boud & Walker, 1998).

2.11 EI training programmes

The widespread interest in EI at work engendered by Goleman (1995) led to the development of programmes designed to educate about the relevance of EI in the workplace, assess the relative strengths and weaknesses of the concept, and provide a framework to develop and enhance people's ability to interact with others with greater EI (Boyatzis, 1999). Within the past decade emotional intelligence has been identified as an indicator of career success, enhanced performance, greater leadership capacity, and has been increasingly used for training and development in organisations (Bar-On, 1997; Covey, 1996; Cooper, 1998; Druskat & Wolff, 2001; Goleman, 1998a, 1998b; Weisinger,

1998). To date, research into the development of EI remains in its infancy (Law et al. 2004) and despite the growth in the number of training programmes purporting to develop EI (Chapman, 2004; Cherniss & Caplan, 2001; Cooper, 1997), a distinct lack of empirical evidence exists in support of the efficacy of these programmes (Clarke, 2006b). There have been calls for research to examine how EI can be developed for use within organisations (Kunnanatt, 2004; Opengart, 2005; Weinberger, 2002). Additionally, to date research published on the limited number of studies into development of EI has tended to feature personality or mixed model conceptualisations of EI (Dulewicz & Higgs, 2004; Goleman, 1998; Slaski & Cartwright, 2003). As previously discussed, Stream 3 models of EI (Ashkanasy & Daus, 2005) have been criticised as measures of something other than EI. Despite this criticism, the lack of publications detailing EI training interventions necessitated inclusion of Stream 3 models of EI in an evaluation of EI training interventions in the current study.

A number of studies based around Stream 3 models of EI attempted to increase EI through training (Druskat & Wolff (2001); Sala, (2001); Slaski & Cartwright, 2003), while others have used Stream 2 models of EI which remain closer to Mayer and Salovey's (1997) concept (Jordan et al. 2002; Moriarty & Buckley, 2003). A brief review of each study follows, identifying aspects of the programmes and findings that are incorporated into the design of the training programme used in the current study.

Druskat and Wolff (2001) identified that individual EI had a "group analog" i.e. teams can develop greater EI and enhance their performance through the use of emotionally intelligent team norms (i.e., rules and patterns of behaviour that are accepted and expected by members of a group or team) (Druskat & Wolff, 2001, p.2) (For an outline of the team norms identified by Druskat and Wolff, 2001, see Appendix F). In order to create trust, establish group identity and group efficacy, the three conditions essential to group effectiveness, a team must possess an atmosphere in which the team norms build emotional capacity (i.e., the ability to respond constructively in emotionally uncomfortable situations) and influence team emotions in constructive ways (Druskat & Wolff, 2001). Druskat and Wolff (ibid.) gave a central role to emotions within these three conditions, emphasising that emotions should not be suppressed. Emotions should be brought to the surface in a deliberate fashion in order to understand their effect on the

working of the team. Emotional intelligence was seen as exploring, embracing and ultimately relying on emotion in work.

Druskat and Wolff (2001) also emphasised the role of self-awareness in teams which, they proposed, was enhanced through feedback. Using Goleman's model of EI, Druskat and Wolff (2001) defined the chief characteristics of a person with high EI. The person is aware of emotions and able to regulate them in both an inward direction (in the self) and an outward direction (in others). They become self-aware emotionally and they extend that awareness to others in their team. They receive feedback, in the form of reactions from team members, to emotionally triggered behaviour and develop their personal and social competence, that is, they are both aware of, and can regulate, their own emotions and the emotions of others.

Druskat and Wolff (2001) identified another level of awareness and regulation that exists in groups. The group is a third entity beyond the self and others. The group can have emotions and moods and, as an entity, it must interact with other groups who also possess emotions.

While Druskat and Wolff (2001) produced convincing arguments for their ideas, they were largely supported by anecdotal evidence based on work teams. They failed to back up their training outline with empirical evidence. In addition, Daus and Ashkanasy (2005) have identified Goleman's model of EI as a Stream 3 measure which comprises a group of models that bear little or no resemblance to Mayer and Salovey's (1997) original definition or model of EI. Stream 3 models, the most popular of which is based on Goleman's (1995, 1998) work, have been identified as measuring personality factors, and Daus and Ashkanasy (2005) go so far as to point out that both Bar-On (1997) and Goleman, in his measure developed by Sala (2002), are measuring a completely different construct from the original EI defined by Mayer and Salovey (1990, 1997).

The Consortium for Research on Emotional Intelligence in Organizations attempted to provide empirical evidence of the beneficial effects of increasing emotional intelligence in response to criticism levelled at the claims made by Goleman (1995, 1998) in his books in respect of the benefits to organisations of enhanced emotional intelligence (Conte, 2005;

Landy, 2005). Criticism mainly took the form of demands for empirical evidence to support findings. The website (http:// www.eiconsortium.org) details research by Sala (2001), in which he attempted to identify whether programmes designed to increase EI at work were effective. Two groups of participants who participated in a Mastering Emotional Intelligence (MEI) workshop were tested for emotional intelligence using the Emotional Intelligence Inventory (ECI) based on the twenty emotional competencies identified by Goleman (1998). Goleman (1998) differentiated between emotional intelligence and emotional competence as follows: emotional intelligence determines potential for learning practical skills based on its five elements (self-awareness, motivation, self-regulation, empathy and adeptness in relationships (Goleman, 1998)). Emotional competence demonstrates how much of the potential can be translated into on-the-job capabilities. For example, being good at serving customers is an emotional competence based on empathy, while trustworthiness is a competence based on self-regulation or handling impulses and emotions in an appropriate way (Goleman, 1998).

The MEI programme outlined by Sala (2001) extended over one year and participants were first assessed on the ECI ($Time_1$) to establish baseline levels of EI and again at the end of the programme ($Time_2$). Participants then took part in five full days of training during the year. Two days on Building Awareness (an introduction to EI and how it works), two days on Deciding to Change (participants received individual attention on those EI competencies where their self-assessments were dramatically different from rating for the total group), and one day Practising and Mastering (using emotionally intelligent behaviours). Participants were encouraged to meet with group members to improve EI by providing support and feedback in challenging situations outside of the formal five-day programme. No further details of the training intervention are supplied.

Sala's (2001) results showed an increase in EI for the two groups studied. Sample 1 (N = 20), Brazilian consumer retail managers, showed statistically significant increases, using paired-sample t-tests, on eight of the twenty ECI sub-scales (self-confidence; organisational awareness; service orientation; conscientiousness; adaptability; initiative; communication; conflict management). Sample 2 (N = 19), United States government accountants, showed statistically significant increases on nineteen of the twenty ECI sub-scales (emotional self-awareness; accurate self-assessment; self-confidence; empathy;

organisational awareness; service orientation; self control; trustworthiness; adaptability; achievement orientation; initiative; developing others; leadership; influence; communication; Change catalyst; conflict management; building bonds; teamwork and collaboration). The sub-scale conscientiousness was the only sub-scale not showing a statistically significant result. Sala (ibid.) failed to offer any explanation for this finding.

Sala's (2001) research was subject to a number of limitations. Firstly, the sample size in both samples was very small with 19 participants in the first programme and 20 in the second, making generalisability of results questionable. Future research would require the use of much larger sample sizes to ensure robust findings. The use of a control group would also add empirical weight to the research. Finally, and most critically, while the five days spent in training are outlined, the work participants did to enhance their EI skills and behaviours through meeting with other group members who were committed to helping each other improve EI in the face of situations that challenged their EI skills, is not measured or documented. It would not be safe to assume that each dyad underwent the same development and at the same pace. Further, no attempt to isolate the training aspect(s) or practice(s) that enhanced EI was made in the research, so it is not possible to conclude which aspect(s) enhanced EI. Finally, and very importantly, Sala's research is based on Goleman's model and definition of EI which has been categorised as a personality or Stream 3 model (Clarke, 2006; Daus & Ashkanasy, 2005) with the associated criticisms that it is not a measure of EI.

The website (www.eiconsortium.org) details an article by Cherniss outlining 19 points to build a case for how emotional intelligence contributes to profit within organisations. At point number 9, reference was made to Pesuric and Byham (1996) who, it was claimed found that accidents were reduced by half, formal grievances were reduced from 15 to 3 per annum, and the manufacturing output exceeded goals by $250,000 when supervisors received training in emotional competencies. The competencies listed were how to listen better and help employees resolve problems on their own. On locating this publication, no details of such findings are given, nor are there any details of a training programme in emotional intelligence. Weaknesses such as this do little to advance the claim that emotional intelligence can be enhanced through training.

Dulewicz and Higgs (1999, 2000c) developed a self-report measure of EI, the Emotional Intelligence Questionnaire (EIQ). Originally their research was based on a study they conducted over seven years on general managers measuring emotional, intellectual and management competencies (Dulewicz & Higgs, 2000a). They then divided the job competencies surveyed into three sets: intellectual, managerial and emotional. The emotional set was subdivided into six components, and sixteen competencies. McEnrue and Groves (2006) point out that Dulewicz and Higgs (1999) then abandoned this approach and after conducting a comprehensive review of the EI literature of the time, and an item analysis, seven separate elements of EI were identified and included in the EIQ. The seven elements are: Self-awareness (being aware of one's feelings and being able to manage them); Emotional resilience (being able to maintain one's performance when under pressure); Motivation (having the drive and energy to attain challenging long-term goals or targets); Inter-personal sensitivity (showing sensitivity and empathy towards others); Influence (the ability to influence and persuade others to accept your views or proposals); Intuitiveness (the ability to make decisions, using reason and intuition when appropriate); and Conscientiousness (being consistent in one's words and actions, and behaving according to prevailing ethical standards). These elements were then used to examine the predictive power of the test in explaining job performance defined in the original terms of intellectual and managerial competencies from the original research conducted by Dulewicz and Higgs (1999) (McEnrue & Groves, 2006).

The EIQ has been shown to have good psychometric properties (Dulewicz & Higgs, 2004) with Cronbach's alpha reliability co-efficients for each of the seven elements being "acceptable" (p. 97). It is worth noting that these figures are not outlined, but an overall EIQ score is given as 0.77. McEnrue and Groves (2006), in their analysis of EI measures, point out that Dulewicz and Higgs (1999, 2004) provided little information regarding factor analysis (e.g., Eigenvalues), making it difficult to evaluate the factor structure of the measure. They do provide alpha coefficients below 0.70, the standard reliability cut-off of a scale, for five of the seven scales, which suggests research findings using this measure will be questionable (McEnrue & Groves, 2006). Furthermore, the items that comprise the EIQ are not available in published literature and no sample items were offered by the authors for evaluation of content validity. The descriptions provided by the authors include: Motivation scale - measures the drive and energy to achieve clear results;

Influence scale - measures the ability to change the point of view of others; and the Conscientiousness/Integrity scale measures the ability to display a clear commitment to a course of action in the face of a challenge. Based on these scale descriptions, it is unclear how the measure can be considered a measure of EI as there does not appear to be a link to emotion or the ability to use emotion. The EIQ also omits several aspects of emotional ability namely emotional expression and the ability to use emotions in the changing of perspectives, using emotions to enhance problem solving, focus attention and make judgements, leading to a question over the content validity of the EIQ (McEnrue & Groves, 2006).

Dulewicz, Higgs and Slaski (2003) found a strong relationship between the EIQ and Bar-On's (1997) EQ-i, with a total correlation of 0.63, showing substantial convergent validity between the two measures. As discussed, the EQ-i includes many trait-based factors as core dimensions and fits among Stream 3 models of EI (Ashkanasy and Daus, 2005) which are mostly measures of personality and behavioural preferences and deviate widely from Mayer and Salovey's (1997) original definition of EI.

Slaski and Cartwright (2003) examined the role of emotional intelligence as a moderator in the stress process in a sample of managers in the United Kingdom. Results showed that emotional intelligence was increased through training and that it improved health and wellbeing. The managers (N = 60) were given training in emotional intelligence. A matched control group (N = 60) was used in the study and they received no training at all. Pre (before programme commenced) and post (six months after programme had ended) measures of emotional intelligence were taken using Bar-On's EQ-i (Bar-On, 1997) and a second measure of emotional intelligence was taken on the experimental group only using Dulewicz and Higgs' Emotional Intelligence Questionnaire (EIQ: Dulewicz & Higgs, 2000). General health, psychological distress, morale and quality of working life were also measured using the General Health Questionnaire (GHQ: Goldberg & Williams, 1998), and the Queensland Public Agency Staff Survey (QPASS: Hart, Griffin, Wearing & Cooper, 1996) respectively. Stress was measured using a subjective measure where participants rated their felt stress at a point between 1 and 10, with 10 indicating feeling extremely stressed. Performance was measured using 16 management performance

indicators used by the organisation for performance appraisal and included factors covering setting objectives, organisation and planning, and influencing decision-making.

The emotional intelligence training programme required that managers attend training for one day per week for a total of 4 days. A one-week interval was taken between sessions to allow participants embed and practice their learning (Slaski & Cartwright, 2003). A limit of 12 participants was placed on group size. Slaski and Cartwright (2003) based their training design on the work of Cherniss and Adler (2000). This training model developed emotional intelligence in participants through the development of insight. Insight was gained into self-constructs such as values, beliefs, expectations, goals and aspects of self-image. Slaski and Cartwright (2003) focused on the development of emotional intelligence through the enhancement of self-awareness and detachment (which were not defined). Participants were also instructed in techniques designed to regulate emotions, recognise emotions in others, and to understand the impact of one's own behaviour on the emotions of others. Training techniques included short lectures, group discussions, role play and paired exercises involving the sharing and relating of emotional experiences. Participants also received individual coaching feedback on the results of the EQ-i and kept an "emotions diary" throughout the training programme (Slaski & Cartwright, 2003, p. 236).

At the beginning of the study, results showed no significant differences between the training and control group on any of the research variables - emotional intelligence, general health, morale, quality of working life, distress, subjective stress or performance. The EQ-i mean score for the participants in the training programme increased by 5.2 points post training, showing a significant increase. Scores on all subscales increased significantly with the exception of interpersonal factors, which was surprising given that participants were placed in groups of twelve, and participated in role play and paired exercises to share emotional experiences. Similarly, the EIQ mean score increased by 11.4 points giving a statistically significant increase. Again, scores on all subscales increased significantly with the exception of decisiveness and conscientiousness. Slaski and Cartwright (2003) failed to offer an explanation for these subscale results.

The control group mean score for emotional intelligence decreased slightly, but not significantly, over the six-month period from 98.4 to 97.0. Again, Slaski and Cartwright (2003) offered no explanation for this finding.

Results from the experimental group also showed a positive and significant effect on measures of health and wellbeing with a reduction in distress of -11.1%, an increase in morale of 10.5%, a decrease in subjective stress of -1.4%, and quality of working life showed an increase of 6.6%. The performance measure, interestingly, failed to show a significant increase and Slaski and Cartwright (2003) attributed this to the use of organisational performance appraisal criteria that did not include any emotional component.

Individual results in their research showed that not all participants increased their EI scores significantly due to the EI training intervention. Slaski and Cartwright (2003) observed that this finding was in line with other developmental training, where individual effort was required and that some trainees put in more effort and were more motivated in the programme than others. A limitation of Slaski & Cartwright's (ibid.) study is that they did not capture the aspects of their training that resulted in increased EI.

Slaski and Cartwright (2003) concluded that the development of emotional intelligence through training programmes was a worthwhile endeavour, due to inferring that EI can be taught, can be learned, and may be useful in reducing stress, improving health, well-being and performance. It must be remembered that both the EIQ (Dulewicz & Higgs, (2000) and the EQ-i (Bar-On, 1997) represent models of EI that have been considered Stream 3 models as outlined previously, and very different from the original model of Mayer and Salovey (1990, 1997).

Cherniss and Adler (2000) proposed a comprehensive four-phase model for the development of EI in the workplace following a review of the research literature in training and development, counselling and psychotherapy, and behavioural change. Each phase is accompanied by a number of guidelines on how to achieve the desired outcome. The four phases are Phase 1: securing organisational support; Phase 2: preparing for

change; Phase 3: training and development; and Phase 4: encouraging, maintaining and evaluating change.

Phase 1 involves securing organisational support through eight guidelines which include introducing organisational change only when the timing is right; finding a powerful sponsor for the project on the executive and management team; liking EI to business needs through information sessions, case studies and links to strategic plans; recruiting emotionally intelligent leadership; giving the initiative plenty of autonomy; using existing research (e.g., case studies); maintaining high quality in training and providing feedback; and infusing EI throughout the organisation through briefings, forums, and intranet.

Phase 2 involves preparing for change. This is achieved through assessing organisational needs through surveys, interviews and reading reports to gauge work related problems; assessing individuals and providing results and feedback with care in a safe and supportive environment (e.g., assistance with conflict handling; improving social and emotional competencies) through employee assistance programmes (EAPs); gauging readiness of learners to accept change through individual assessments and experiential exercises; setting clear, meaningful and manageable goals through self-reflection, action planning, behaviour modification and psychological contracts; making learning self-directed; and building positive expectations for building social and emotional competencies through learning strategies such as feedback.

Phase 3 involved fostering a positive relationship between trainer and learner through the use of professional trainers; providing immediate feedback when desired behaviour was exhibited; using coaches and mentors; using experiential learning techniques and keeping diaries; practising new skills and reflecting on the experience; sharing the experience with their learning team; providing practice and feedback, particularly on emotive issues; using role plays to practise new skills and obtain feedback; inoculating against setbacks by keeping goals realistic and informing learners that emotional and social competencies do not change overnight.

The fourth and final phase of Cherniss and Adler's (2000) model involves encouraging, maintaining and evaluating change. This is achieved through building in support through

mentors or learning groups and facilitation; creating an encouraging environment by including supervisors in training interventions and facilitating mediation when conflict arose; conducting ongoing evaluation and research through surveys and interviews several months after the programme implementation.

Cherniss and Adler's (2000) four-phase model was implemented in an Australian organisation employing 900 staff in a range of corporate services (e.g., personnel, finance management, human resource). An unpublished paper by Murphy and Walker outlined the success of the programme which was implemented over one year commencing in December, 2000 and involved 70% of the workforce.

The EI training intervention was selected in response to poor morale and increased conflict within the organisation following three structural changes which resulted in downsizing and outsourcing of services over a two-year period. Productivity suffered through resignations, disciplinary actions and work health claims. Consultants (registered psychologists and social workers) managed and facilitated the programme based on self-directed learning where employees initiated a self-perpetuating change process (Goleman, Boyatzis & McKee, 2002). Participants were divided into teams of differing sizes (no details were supplied). The training and development phase (Phase 3) involved two hours per fortnight where the consultant modelled social and emotional competence and provided the resources, strategies and feedback required for the teams to meet their learning goals. The team training sessions focussed on skills practice based around social and emotional competencies.

The EI training contributed to a culture of change for teams by perpetuating an atmosphere of learning and team-based working. The major outcomes were improvements in employees' mental health and wellbeing, workplace relationships and performance. One of the factors identified as making a contribution to the success of the EI training was the trusting and positive relationships developed between the consultants, manager, team leaders, and team members. Organisational recognition of the value of the programme to employees and organisational effectiveness was evidenced through the decision to extend funding for the programme for a further two years.

While this paper outlined the success of EI training in this case, no empirical evidence was supplied. EI was not measured pre- and post-training to assess the impact of the training on EI levels. The support this paper offers for the Cherniss and Adler (2000) model of EI development remains, therefore, largely anecdotal.

Unlike IQ, which is accepted as remaining stable and relatively unchangeable throughout a person's lifetime, research into emotional intelligence suggests that it can be increased through learning (Cherniss & Goleman, 1998; Goleman, 1995). The Consortium for Research on Emotional Intelligence in Organizations (www.eiconsortium.org) outlined the optimal process for the development of emotional intelligence (Cherniss & Goleman, 1998). The four-phase model encompasses preparation, training, transfer and maintenance, and evaluation. Cherniss and Goleman (1998) drew heavily on the work of Weisinger (1998) in the design of their training by incorporating many techniques outlined by Weisinger. They included: (i) self-awareness - trainees list commonly felt emotions, select the emotions that they expect to experience that day, record felt emotions and make comparisons with predicted emotions, and discuss the findings; (ii) managing emotions - requires that trainees write about a negative event in which they experienced negative emotions, then re-write the scenario with different solution options. Results are then discussed with peers who were not emotionally involved in the situation and solution options evaluated; (iii) self-motivation - trainees take a large assignment and identify the emotions felt about the assignment. Trainees then break the assignment down into steps and write a positive statement about their ability to achieve that step. Smaller steps will engender positive emotions (Weisinger, 1998). Trainees then compare their initial emotions with their final emotions and their sense of confidence in achieving the goals set by the assignment; (iv) relating well - students identify four dimensions of a troublesome incident in a relationship (e.g., differing expectations and perceptions). Trainees then evaluate both their verbal and non-verbal communication during the incident and discuss alternative options for behaviour; (v) emotional mentoring - trainees teach peers to identify when they are not in emotional control and to manage their emotions. For example, when a peer becomes agitated or angry, another trainee will ask them to sit down, calm down, take a drink of water, recount the incident slowly and direct the conversation to a less emotionally volatile place. The trainee will later recount their own

feelings and assess their emotions when dealing with the incident. Skills used and help given are evaluated by trainees and their peers.

Tucker, Sojka, Barone and McCarthy (2000) took Cherniss and Goleman's (1998) four phase model and proposed how best to apply it to business graduates in the classroom. Tucker et al. (2000) designed the training intervention around the use of self-assessment EI measures administered both pre and post-training, coupled with experiential exercises as follows.

The preparation phase of the model involves the assessment of trainees' strengths and weaknesses, providing feedback, linking learning goals to personal values, adjusting expectations and gauging readiness to change and learn (Cherniss & Goleman, 1998). Tucker, Sojka, Barone and McCarthy (2000) proposed that in the preparation phase, it should be borne in mind that people have formed perceptions of themselves and how they relate to others. People are also generally less aware of their social and emotional weaknesses than of their work or technical deficiencies. Weisinger (1998) pointed out that self-evaluation can be generated by examining social responses and looking for ways to improve by making a conscious effort to enhance their self-awareness and their social skills to increase their emotional intelligence.

Cherniss and Goleman (1998) advised that in the preparation phase, trainees need to be moved from initially denying they have a need for change to seeing the need to improve, viewing alternative behaviours and creating a plan to change and putting it into action. Tucker et al. (2000) suggest the use of experiential exercises to achieve this (e.g., role play, group discussions, and simulations).

The second phase, the training phase, requires trainer monitoring for trainee motivation by being cognisant of threats to self-esteem. Other factors to monitor include the amount of time and effort required and the potential outcome value to trainees of the training intervention. Trainees are more likely to develop their emotional competence (i.e. ability to deal with emotions) if they are free to decide which competencies they wish to work on and which goals they wish to set (Cherniss & Goleman, 1998). Homework assignments coupled with in-class activities to enhance intra-personal and interpersonal skills are

advised including exercises in self-awareness, identification of emotions exercises, relating exercises to identify difficult incidents. Tucker et al. (2000) advised that watching behaviour modelled, performing an analysis of the observation, and emulating positive aspects of the behaviour lead to social and emotional learning. This idea supports the central tenet of Bandura's (1977) Social Learning Theory. Bandura (1977) found that individuals learn by observing, by being told about incidences and by direct experience. Bandura's (1977) Social Learning Theory assumes that behaviour is a function of consequences in that people respond to how they perceive and define the behavioural consequences of an action. Individuals will be motivated to copy behaviour seen to produce positive or desired results and rewards. In a team setting, participants are free to observe the effects of behaviour and to select out behaviour they wish to reproduce to ensure valued outcomes. For example, seeking advice on a decision option from team members can result in full team input and the eventual acceptance of the decision option by the team. This is in direct contrast to a scenario where one dominant individual attempts to force their decision option on the rest of the team, resulting in complete dismissal of the decision option for reasons unconnected with the value of the decision option and more related to the emotional response of the team members to being coerced. Social Learning Theory (Bandura, 1977) suggests that by observing the two outcomes, the more socially desirable method of introducing a decision option to the team is by seeking the advice of fellow team members. The behaviour to be adopted and learned for the future would, therefore, be seeking advice in order to succeed in getting a decision option adopted by the team.

The third phase, transfer and maintenance of emotional skills, required a supportive environment to ensure continued use of the skills and further growth and development (Tucker et al. 2000). This can be achieved by ensuring trainers reinforce, encourage and enhance trainees' use of new behaviours. Also, opportunities should be provided for trainees to practice their new EI skills in various settings throughout the programme. Tucker et al. (2000) failed to outline how precisely this could be achieved.

Cherniss and Goleman (1998) identified self-awareness as a cornerstone of social and emotional competence, and emphasised the role of reflection during this phase. In reflection, trainees consciously worked on behavioural options and emotional outcomes

(e.g., how best to respond to an angry customer). They developed the link between thought, behaviour and outcome. Tucker et al. (2000) include the use of reflection at the transfer and maintenance phase to evaluate the benefits of changed behaviour.

The fourth and final phase, evaluating change, proposed a follow-up assessment of skills learned during training several months post-training intervention. An emotional intelligence self-assessment instrument should be used to gauge progress made by trainees according to Cherniss and Goleman (1998).

Tucker et al. (2000) failed to implement their model or to evaluate it statistically. Consequently it remains a theoretical model for the enhancement of EI.

Ashkanasy and Daus (2002) emphasised the central role of emotions in attitude formation and employee behaviour in organisations. Daily work events result in both positive and negative emotions being experienced, particularly in employment which involves a component of emotional labour (Hochschild, 1983) (e.g., being patient and smiling at difficult customers in customer-service positions). The felt emotions impact on work attitudes (e.g., commitment to the job, job satisfaction, company loyalty) and affect-driven behaviour emerges as an outcome. The behaviour can be positive (e.g., having a calming influence and helping peers to rise above the conflict) or negative (e.g., deliberately sabotaging client relationships or damaging company property). Emotional intelligence involves the abilities to perceive emotions, identify emotions, understand emotions and manage those emotions (Mayer, Caruso & Salovey, 1999). Ashkanasy and Daus (2002) suggested that increasing emotional intelligence in managers could improve the emotional functioning of their organisations. They outlined a programme for development of emotional intelligence in which employees should be trained in emotional intelligence skills and expressing emotions in a healthy manner. Training should include strategies for appropriate outlets for emotions such as anger while at work (e.g., taking a 5-minute break; taking deep breaths). Positive emotion should be expressed through deep acting (i.e., learning to get into character by simulating feeling the appropriate emotion until one actually does feel that emotion). Emotional burnout strategies should also be included in training programmes such as relaxation training, meditation, exercise, counselling, or taking leave.

The programme for development of EI proposed by Ashkanasy and Daus (2002) takes a very different approach to other EI development programmes. EI training has tended to concentrate on personal development through social interaction with less emphasis on behavioural strategies, and more emphasis on development of an understanding of the self and the self in relation to others (Cherniss & Goleman, 1998; Slaski & Cartwright, 2003; Tucker et al. 2000; Weisinger, 1998). Ashkanasy and Daus (2002) have focussed more on the Human Resource Management (HRM) facet of EI to ensure an organisation has put strategy training in place to deal with emotions in the workplace (e.g., job redesign and reengineering, culture change, counselling). No attempt was made by Ashkanasy and Daus (ibid.) to inform or educate participants in the concept of EI or its components. No model of EI was selected for application or testing in this programme. Ashkanasy and Daus (2002) provided no empirical evidence to support their training programme so it remains a theoretical model essentially. Their programme design has not been included in the design of the current training intervention due to fact that it operates at an organisation level and not at an individual level.

2.12 Team-based EI training programmes

Most research on EI has tended to focus on individuals (Bar-On, 1997; Bar-On, Taylor, & Parker, 1997; Goleman, 1998; Salovey & Mayer, 1990). Few studies relating to the development of EI in teams exist (e.g., Jordan et al. 2002; Moriarty & Buckley, 2003; Yost & Tucker, 2000).

Yost and Tucker (2000) predicted that more and more work would be completed using teams in the future as work moved more towards being project-based in structure. They pointed out that it was crucial that team members understand themselves and relate well to others. This, they argued, could be achieved through awareness of how communication is achieved, how motivation is achieved, having positive self-talk and handling emotions. In addition, importance was placed on understanding how others feel and assisting others in communicating positively in volatile situations. Social skills, empathy, motivation, and effective communication produce more satisfying and successful teams. This list of competencies maps directly onto models of EI, in particular the model of Mayer &

Salovey (1997), which includes perception of emotion in self and others, assimilation of emotion to facilitate thought, understanding emotion and managing and regulating emotion in the self and in others.

Yost and Tucker (2000) found that teams with higher emotional intelligence were more effective than teams with lower emotional intelligence, that is, they scored higher in problem-solving self-reports, obtained higher marks on team reports and scored higher on self-report team performance items. Research was conducted using a sample of 73 undergraduate business students, divided into teams of three or four members, adopting a problem-based mode of instruction. The training intervention lasted for four weeks, commencing in week 5 of a ten-week term. Students completed Weisinger's (1998) 45-item EI scale to assess team EI. One aggregate EI score was calculated for each team. Team effectiveness was measured using three scores - a project mark, a team performance measure and a team problem-solving measure. The project mark was a report-based assignment applying business communication principles to strategic, financial and production management aspects of a specific organisation. A team score was awarded by faculty out of 100 marks. Team performance was assessed using five items from a Team Checkup instrument available on line (http://www.teamapproach.com) which included items "Good performance is recognised and rewarded" and "Our team's performance gets results" marked on a 5-point scale from "Almost always" (5) to "Never" (1). Students completed the Team Checkup individually in relation to their own team and then the scores were averaged to produce a team score. Team problem solving was measured using three items from the Team Checkup instrument (e.g., "Team members evaluate alternatives before making decisions" and "Solutions to problems are based on facts and data"). Aggregate team scores were calculated.

Statistically significant positive correlations were obtained between EI and problem solving and EI and performance. A positive correlation was obtained between EI and grade but it was not statistically significant. Yost and Tucker (2000) then divided the teams into high and low EI teams determined by a cut score at the mean (5.31). Results suggested that emotionally intelligent teams were more effective in problem solving, performance and obtaining higher grades.

Yost and Tucker (2000) empirically established a link between EI and team effectiveness measured by problem solving, performance and report grade. They did not, however, detail an explicit programme for the development of EI in teams. They also failed to provide any information on the relationship between the various aspects of EI measured by Weisinger's instrument (subscales) and the dependent variables. They concluded that their findings supported Covey's beliefs that organisations required effectiveness at both the personal and interpersonal levels.

Yost and Tucker (2000) proposed the use of Covey's (1996) framework for creating effective work teams by addressing four levels: organisational (supportive structures and systems), managerial (empowerment), societal (superordinate vision and mission), and personal. The personal level is seen as a journey resulting in ever-increasing emotional intelligence and soul energy (integrity and a balance of mental, social and spiritual aspects of the self). According to Yost and Tucker (ibid.), these guidelines can be adapted for building emotionally intelligent business communication teams.

Yost and Tucker (2000) theoretically applied Covey's framework to training business communication teams in the classroom. They highlighted the increase in emotional intelligence through communication and teamwork, but failed to explain the model or measure its success, or otherwise, to produce empirical evidence. Further limitations of their work include the use of undergraduate students in their sample and the use of a project report score as a measure of team effectiveness. The transferability and generalisability of their results is in doubt with the use of such a sample as their mean age was quite young (twenty years) and they had above-average GPA (Grade Point Average) scores of 3.29. Teams in the workplace usually tend to have productivity outcomes other than reports, suggesting that further research using a work-based sample with realistic, measurable work-based deliverables would add weight to further research.

Previous research into EI by the author provided support for the use of team-based learning activities to increase EI (Moriarty & Buckley, 2003). Eighty-two undergraduate business degree students (42 male and 40 female) underwent a 12-week training programme as part of an organisational behaviour module. The students were instructed in team functioning and then placed in teams to gain practical experience. The training

programme used a mixture of short lectures (15 minutes) and facilitated, experiential learning. The teams met twice weekly for two hours in facilitated meetings and then met in their own time once per week for an average of two hours.

The class group was divided into prescribed teams to which participants were assigned for the duration of the course. Teams usually consisted of two males and two females, although exceptions were inevitable. This enforced team membership ensured that there would be heterogeneity of team make-up, so that the teams could draw on all members' different resources (Kaplan and Welker, 2001).

If a team encountered a problem, they were encouraged to solve it for themselves and not approach the lecturer (unless it was really serious and caused undue conflict). The teams in the study were intended to reflect the real world working environment in which teams would have to problem solve on a regular basis. There was some initial opposition, possibly due the participants only having experience of Pedagogical teaching methods, where there is dependence on the teacher to direct learning. Lunky-Child, Crooks, Ellis, Ofosu, O'Meara and Rideout, (2001) found that students in self-led learning situations tend to first experience negative feelings, such as confusion and dissatisfaction, before they develop confidence. The new learning technique was soon accepted enthusiastically in the present study, and the groups began to self-manage.

The formation of self-led, non-directed groups was intended to reflect the team experience in a real-life organisational setting. It was expected, therefore, that any skills developed in such a group, and the findings of the present research, would be transferable to the work place.

Following the introductory lectures (weeks 1-3 of a 15 week semester), the groups were encouraged to continue as independent learning teams and were required to complete a set of tasks that had been set for them. Without a lecturer leading them, the onus was solely on the team to function. The module consisted of 24 contact hours over a 12-week training programme. The teams met twice a week with a facilitator who presented a topic for discussion (such as conflict resolution, communication) and team work tasks. Theory was delivered in a brief 'lecturette' format of approximately 15 minutes. The remainder

of the time was spent in a facilitated, experiential setting. The teams also met independently at least once a week in their own time. The teams looked at the theoretical background to group processes and then examined how their own team performed and functioned, and the processes that occurred in their team during the accomplishment of the prescribed tasks. This format ensured experientially based learning of team processes backed up with the theoretical knowledge. Participants learned about group processes through the direct participation in the group. This observation was then followed up with theoretical information and psychological testing. By observing the group processes and experiencing them in the group, individuals would be in a position to evaluate their own ability, strengths and weaknesses, and have an opportunity to apply what they learned about these processes directly in teamwork situations. In addition, team members became aware of the strengths and allowable weaknesses of both themselves and their fellow team members, which facilitated a sense of tolerance.

The design of the study sought to ensure the team participants policed and encouraged each other to contribute, by giving participants the option of confidentially voting to have a percentage of the team's marks removed from any participant who they believed did not contribute to the team.

The evaluation of the performance of the students in the module was based on a Group Presentation and a Group Project. In the Group Presentation, teams were required to give a presentation illustrating how the team developed, functioned and coped as a team, focusing on all the processes that they had examined and experienced during team work, (e.g., team stage development, conflict resolution, communication, leadership, etc). Teams reported on their actual experience of these processes in their group and backed it up with theory. As the approach was experientially driven and not theoretically driven, emphasis was placed on the team's experience of group processes within the team.

In the Group Project, teams were required to carry out a project in which they examined a relevant modern film and gave an assessment of the group processes occurring in it, based on what they learned about group processes in their own teams. This application of knowledge required theoretical backup. This evaluation, according to Moriarty and

Buckley (2003), ensured that the participants adequately acquired the content and task-related aspects of the programme.

EI was measured using a measure of team EI, developed by Jordan, Ashkanasy, Hartel and Hooper (2000) the Workgroup Emotional Intelligence Profile - version 5 (WEIP-5). The WEIP-5, as outlined earlier, is closely associated with Mayer and Salovey's (1997) ability model of emotional intelligence, including two forms of ability-related measures: the "ability to deal with own emotions" and the "ability to deal with others' emotions". The WEIP-5 differs from Mayer and Salovey's (ibid.) measure in that it is a self-report and peer-report instrument. Students were measured for EI both pre- ($Time_1$ = week 3 of semester) and post-training ($Time_2$ = on completion of the 12-week training programme in week 15 of semester).

Results for self-report EI showed significant changes in three of the four dimensions of the factor "ability to deal with others' emotions" (ability to recognise the emotions of others; ability to read others' false display of emotion; and managing others' emotional states). An increase in "ability to deal with own emotions" was found but the result was not statistically significant. Similarly three of the four dimensions of the factor "ability to deal with own emotions" showed increases from $Time_1$ to $Time_2$, but these differences were not found to be statistically significant (awareness of emotions; ability to discuss emotions; application of own emotions to facilitate thinking. The variable "using emotions to prioritise thinking" was not found to have increased from $Time_1$ to $Time_2$.

At the time no explanation was given by Moriarty and Buckley (2003) for the finding that changes in the emotional dimension associated with managing emotions were not statistically significant. Clarke (2006), however, in his review of EI training programmes, suggested that the result may have occurred due to the fact that changes in the ability to manage emotions occur over a much longer time than a twelve-week study could determine.

Results for peer-report EI showed significant results for both factors "ability to deal with own emotions" and "ability to deal with others' emotions". Within the construct "Ability to deal with own emotions" statistically significant increases were found between $Time_1$

and $Time_2$ for the items "Using emotions to prioritise thinking", and "Application of own emotions to facilitate thinking". The variable "Ability to discuss emotions" was found to have increased although not to a statistically significant degree.

Within the construct "Ability to deal with others' emotions" the results showed a significant increase in "Ability to recognise emotions in others", and "Ability to encourage positive emotions in others". "Ability to read others false display of emotion" did increase between $Time_1$ and $Time_2$ but the difference failed to reach statistical significance.

Moriarty and Buckley (2003) used a comparison group in their study (N = 80) whose learning was based solely on lecture format and covered identical material. The comparison group was selected from the same population as the test group, roughly matched for gender and age, and had the same access to materials and required reading as well as the same lecturer as the test group.

The results of the paired sample t-test for the comparison group's self-evaluation of their emotional intelligence at $Time_1$ and $Time_2$ show no significant increase for "Ability to deal with own emotions" or for "Ability to deal with other's emotions". In summary, it appears that the comparison group did not show any significant increment (or dilution) in their EI scores between $Time_1$ and $Time_2$. This is in contrast to the experimental group who scored significant increases in their ability to deal with other's emotions (as assessed by both themselves and their peers).

No significant increases were observed for the comparison group for the individual items within the construct "Ability to deal with own emotions"; "Awareness of emotions", "Ability to discuss emotions", "Application of own emotions to facilitate thinking", "Using emotions to prioritise thinking".

No significant increase was found in the comparison group between $Time_1$ and $Time_2$ for three of the variables in the construct "Ability to deal with others' emotions"; "Ability to recognise emotions in others", and "Empathy. A significant increase was observed in the comparison groups self-assessed "Ability to read others false display of emotion".

Comparing results for the experimental and comparison groups, Moriarty and Buckley (2003) found few differences between the levels of EI they achieved. The only statistically significant difference in EI between the two was that recorded for "application of emotions to facilitate thinking" which showed the control group scoring higher than the experimental group at $Time_2$. Moriarty and Buckley (ibid.) pointed out that an examination of the means for each variable showed that the control group rated themselves higher than the experimental group on every variable at $Time_1$. By $Time_2$, however, the experimental group means had surpassed the control group on every variable, showing a trend of increasing EI in the experimental group.

Moriarty and Buckley (2003) concluded that as expected, undertaking the programme in developing team-skills, and being taught from the perspective of the process, resulted in increased emotional intelligence. The underlying proposition that facilitation of self-awareness in team-skills resulting in organisationally desirable outcomes was deemed to have been supported. The explanation offered was that findings had shown that simply training from the perspective of intellectual learning is not sufficient to alter behaviour. Training must be at the deeper level of cognitive sense-making, and facilitation of self-awareness achieved this outcome. Emotional intelligence competencies are driven by cognitive reasoning. Goleman (1998) pointed out that emotional competencies touch our emotional circuitry, and as such link into the social and emotional learning that we have done in our past. Moriarty and Buckley (2003) suggested that to alter in any way the learning behaviours that have built up through interaction, we must aim our intervention at the level of the cognitions we have stored. This is the essence of this learning experience for team members. A knowledge of one's own styles of interaction, and ability to handle emotion in the workplace, enhance an individual's self-awareness and self-concept. The outcome of these changes is enhanced performance, both at the level of the individual, and the level of the team (Moriarty and Buckley, 2003).

The limitations with the study included the use of undergraduate students which brings into question the generalisability of results to workplace teams. Secondly, sample sizes were quite small ($N = 82$) in the experimental group and future research would benefit from the use of larger sample sizes.

While not the focus of the current study, research into emotional labour (Hochschild, 1983) has supported the link between social interaction, social learning and emotional intelligence. Clarke (2006), in a qualitative study exploring the significance of workplace learning for healthcare workers, identified workplace learning as the most important factor in learning to manage their emotions. The opportunity to reflect on and share emotion-laden experiences (e.g., dealing with death in hospice work) with colleagues ensured enhanced emotion management and coping strategies. Workplace learning encompasses the type of learning that occurs while the job is being performed in the context of the workplace and includes team learning (Watkins & Marsick, 1993), self-directed learning and a wealth of incidental learning that arises through everyday work experience (Clarke, 2004). Workplace learning has been found to be particularly important in the development of skills necessary for problem-solving, creativity and teamwork through combining learning and working (Enos, Kehrhahan & Bell, 2003; Eraut, 2000). This success has been attributed to the enhanced transfer of tacit and procedural knowledge that workplace interaction facilitates, resulting in enhanced performance (Casey, 1999). Clarke (2006) identified the role of social relationships and social interaction in developing emotional abilities through establishing shared meaning and significance in everyday interaction and through team meetings and activities. He identified emotional abilities as tacit and intuitive, posing a challenge for learning, which is potentially overcome through dialogue and reflection. Findings by Akerdordet and Severinsson (2004) suggest that informal learning through peer interaction (dialogue and reflection) is a key means to develop EI abilities such as emotion management in the self and others in mental health nurses. The context of patient interaction and patient relationship was emphasised as giving rise to a need to manage emotions which was facilitated through workplace supervision. Coping strategies, appropriate emotional display and management of emotions were learned from other people in the workplace. Both Clarke (2006) and Akerdordet and Severinsson (2004) extend Ashkanasy's (2003) findings that emotions play a critical role in developing and maintaining social relationships, by linking social relationships to the development of emotional intelligence abilities in the workplace. Emotions play a critical role in developing and maintaining social relationships (Ashkanasy, 2003) but emotional intelligence is the key ingredient in the process of developing social relationships and working with other people in groups (Lopes & Salovey, 2001).

Research findings by Jordan and Troth (2004), and Offermann, Bailey, Vasilopoulos, Seal and Sass (2004) show that while intellectual intelligence is a predictor of individual work performance, group performance is more a function of emotional than intellectual intelligence.

2.13 Designing the EI training intervention

An analysis of previous training interventions to enhance EI was conducted and ten elements and aspects were selected for inclusion in the current training programme. In addition to these elements, self-awareness facilitating measures were included in the programme. These measures had not been used in conjunction with EI training prior to this study, and represent a novel aspect of the study. In an attempt to imbue a sense of self-awareness in participants, seven key elements of team functioning were selected from Parker's (1990) characteristics of effective teams. These included communication style, decision-making style, conflict-handling style, team role preference, leadership style, team stage development, and personality type.

Choices were made based on the findings in previous studies about which aspects to include and which aspects would transfer successfully to the current situation. The choice of training methods was constrained by the fact that the training took place in an educational institution over a fifteen-week semester, and this also precluded follow-up at a later stage. The use of organisational-based productivity indicators was also precluded in the current study, although they would have greatly enhanced findings if it had been possible to include them. Despite these restrictions in training programme design, most of the methodologies from previous successful studies were included. A list of ten training programme elements follows, with a brief rationale for their inclusion.

2.13.1 Assigning participants to teams

Tucker et al. (2000) advised that all training in emotional intelligence would benefit from the use of teams as teams provided additional support for testing new behaviour, obtaining feedback and supporting behavioural change. The value of working and

learning in teams has been widely accepted and identified as an element of social development, emotional development and enhanced productivity (Cherniss & Adler, 2000; Cracolice & Deming, 2001; Druskat & Wolff, 2001; Jordan, Ashkanasy, Hartel & Hooper, 2000; Kaplan & Welker, 2001; Kremer & McGuinness, 1998; Sala, 2001; Slaski & Cartwright, 2003), and was applied to the participants in the current study.

2.13.2 Creating a need for EI development

The value of enhancing EI and consequently team performance (Druskat & Wolff, 2001; Yost & Tucker, 2000) created a need for EI development in participants prior to training. The importance of self-awareness in social interaction (Langley, 2000) and how individual difference in behavioiur resulted in different behavioural outcomes (e.g., extraversion; avoidant conflict handling styles) was a central component of creating the motivation to develop EI (Cherniss & Adler, 2000; Cherniss & Goleman, 1998; Dweck, 1986; Wong & Law, 2002).

2.13.3 Development of emotionally intelligent team norms

Norms are the rules and patterns of behaviour that team members accept and expect within the team. They prevent a team from descending into chaos by communicating a set of rules by which goals can be achieved (Druskatt & Wolff, 2001). Norms can range from punctual attendance at team meetings to speed of productivity. As the team develops and adopts a set of norms, team members who fail to adopt the team norms are generally sanctioned (i.e., they are exposed to the disapproval of their team members). In order to win back team members' approval, the errant team member must adopt the team norms and respect them. Emotionally intelligent norms for teams outlined by Druskat and Wolff, (2001) were identified as an important element for inclusion in the training intervention.

2.13.4 Development of self-awareness

The importance of self-awareness (in the areas of emotional and social interaction) in EI development has been identified (Cherniss & Adler, 2000; Cherniss & Goleman, 1998; Druskat & Wolff, 2001; Dulewicz & Higgs, 1999; Slaski & Cartwright, 2003; Yost & Tucker, 2000; Weisinger, 1998). Development of self-awareness was included in the design.

Dulewicz and Higgs (1999) demonstrated, in a study of 111 senior and middle managers, positive relationships between the Myers-Briggs Type Indicator (MBTI) (Myers & McCaulley, 1998) feeling pole, and also the thinking pole, with the El component of self-awareness. Completion of the MBTI was included in the training programme.

Tucker et al. (2000) proposed that after trainees completed exercises to enhance emotional intelligence, they reassess their skills and redefine their goals for further improvement. Tucker et al. (ibid.) identified self-awareness as one of the emotional intelligence core competencies. Self-report measures of personality, conflict handling style, decision making style, leadership style, team role preference, team stage development, interaction style and team norms were included in the design of the training intervention.

2.13.5 Lecturette format

Adopting the methodology of Slaski and Cartwright (2003), theoretical aspects of the programme should be delivered in short lecture format (15 minutes) to ensure most learning time was assigned to experiential learning in teams.

2.13.6 Team homework & individual homework

Reinforcement of facilitated learning took place through individual homework (e.g., diary and questionnaire completion) and through team homework completed in the team setting (e.g., role assignment, task achievement, goal setting) in the methodology of Tucker,

Sojka, Barone & McCarthy (2000). These elements were factored into the design of the training programme.

2.13.7 Providing feedback to participants

Ilgen, Fisher and Taylor (1979) found that trainees who most needed to develop their emotional intelligence benefited the most from feedback. The importance of feedback in EI development has been widely accepted (Cherniss & Adler, 2000; Ilgen, Fisher and Taylor (1979); Jordan, Ashkanasy, Hartel & Hooper, 2000; Sala, 2001; Slaski & Cartwright, 2003) and was adopted in the current study.

2.13.8 Keeping a diary

Slaski & Cartwright, (2003) advised participants to keep a diar of their development while undergoing training and to record the team process their team underwent. This methodology was also included as a potential aid to development of self-awareness.

2.13.9 Role play

Role play which was used to facilitate getting in touch with emotions and to gauge behavioural consequences of emotional displays by Tucker, Sojka, Barone & McCarthy (2000) was also included.

2.13.10 Group discussion

Group discussion (Cherniss & Adler, 2000; Druskat & Wolff, 2001; Slaski & Cartwright, 2003) developed an awareness of the process at work in the team as they worked towards task accomplishment. This technique was also adopted in the design of the current training intervention.

2.14 Research Statement

It was the explicit aim of the current study to investigate the proposition that emotional intelligence could be developed through training. A training intervention was designed and implemented based on aspects combined from previous training interventions (Cherniss & Goleman, 1998; Jordan et al 2002; Moriarty & Buckley, 2003; Slaski & Cartwright, 2003; Tucker et al. 2000) and models of EI development (Cherniss & Adler, 2000; Goleman, 1998; Weisinger, 1998). The impact of the training on emotional intelligence levels was evaluated through pre- and post-training EI measurement using the Workgroup Emotional Intelligence Profile - Version 5 (Jordan, Ashkanasy, Härtel and Hooper, 2000) specifically designed to measure work group EI levels and based on the most empirically robust model of EI, Mayer and Salovey's (1990) ability model of EI.

The current study investigates whether emotional intelligence can be increased through training. It is based on the previous research carried out by the author (Moriarty and Buckley, 2003). Taking the recommendations for future research in that publication, the current study uses a larger sample size (N = 231) and conducts research on work based teams who attended postgraduate education on a part-time basis.

Previous research findings support the prediction that there will be a statistically significant increase in emotional intelligence scores as a result of the training intervention in self-report EI. As the EI levels of participants increases, there will be a similar statistically significant increase in peer-report EI scores as a result of the training intervention. Thus, in conclusion, it may be said that the specific hypotheses of the present study were as follows:

H1: The training intervention can increase Self-report emotional intelligence.

H2: The training intervention can increase Peer-report emotional intelligence.

Chapter 3 - Method

3.0 METHOD

3.1 Study Design

This study comprised a before/after, experimental/comparison design, in which self-report measures of emotional intelligence were taken at the beginning ($Time_1$) and at the end ($Time_2$) of a twelve-week period from two groups of postgraduate students. During the course of this twelve week period, the members of the experimental group received a number of training exercises designed to increase emotional intelligence while those of the comparison group were exposed to the material with the same academic content in traditional lecture format.

The study also incorporated a before/after design in which the dependent variable of peer-report emotional intelligence was measured at the beginning and at the end of the same twelve-week training intervention, but only within the experimental group. This design had to be employed as these measures did not apply to the comparison group who were not placed into teams.

3.2 Participants

3.2.1 Experimental Condition

The experimental sample for this research comprised 231 participants, 117 males and 113 females. Age ranged between 22 and 56 years (Mean = 34.06; SD = 6.17). Participants were divided into 52 prescribed teams to which they were assigned for the duration of the training intervention (N = 231). Teams typically consisted of four or five members. Insofar as possible teams were balanced for gender, with equal numbers of males and females. The experimental group consisted of various work groups who were involved in pursuing further education on a part-time basis and the training intervention was delivered as a separate module within their respective courses. For example, one work group consisted of 30 members from a single department in their City Council, and had worked together for a number of years. On commencing the programme, this work group was

divided down into seven smaller teams. Teams consisted only of individuals who had worked together previously and came from the same larger work group. Care was taken to ensure that no team members were added from other organisations. Teams 1-29 (146 respondents) worked in a team-based organisational setting in the Irish public sector. Teams 30-36 (25 respondents) worked as nurses in an Irish hospital and were again team-based. Teams 37-52 (58 respondents) were private sector employees from a service industry.

The names of organisations cannot be disclosed to maintain confidentiality as was agreed with respondents in advance of the survey.

3.2.2 Comparison group

A comparison group was used to measure the main dependent variable of Self-Reported Emotional Intelligence in this research study. A comparison condition existed for the self-report measurement of emotional intelligence only. Since these students did not work together outside of the programme and were not known to each other, they were not considered a reliable comparison group for peer-report emotional intelligence. One hundred post-graduate students (N = 100) who attended lectures on the same topics as the experimental group were measured for emotional intelligence using the Self Report Workgroup Emotional Intelligence Profile Version 5 (WEIP-5) (Jordan, 2000). Of these, 48 were male and 52 were female. Age ranged between 24 and 38 years (Mean = 29.10; SD = 2.70).

The comparison group differed from the experimental group in that they were not assigned to teams, did not work in teams either for this module or in the workplace, and did not participate in action learning. They were passive learners in a lecture theatre format. These post-graduate students were part-time and were similar in profile to the experimental group in that they were also in employment outside of their studies.

3.3 Materials

The EI training programme materials used were:

A flat teaching room with team table layout (i.e., consisting of a table surrounded by 4-5 chairs) for team interaction.

A white board for discussions.

A tiered lecture theatre with data projector, smartscreen and whiteboard for team presentations and film viewing.

A master list of team members per team, complete with identification numbers assigned.

Several copies of DVD of course assignment film (preferably through library access).

Participant diaries for recording results of self-awareness exercises.

Bales' (1953) Interaction Process Analysis Instrument with scoring key and results explanation.

Tuckman and Jensen's (1977) Team Development Questionnaire with an explanation of results.

Decision-Making Styles Questionnaire (Rowe, 1998) with scoring key and results explanation.

Myers-Briggs Type Indicator (MBTI) (Myers & McCaulley, 1998) website address and results explanation.

Leadership Styles Questionnaire (Marcic, 1992) with scoring key and results explanation.

Conflict Resolution Questionnaire (Thomas, 1976) with scoring key and results explanation.

Belbin's (1996) Team Role Inventory with scoring key and explanation of results.

Emotionally Intelligent Team Norms (Druskat & Wolff, 2001) list and explanation.

Self Report Workgroup Emotional Intelligence Profile Version 5 (Self WEIP-5) (Jordan, 2000)

Peer Report Workgroup Emotional Intelligence Profile Version 5 (Self WEIP-5) (Jordan, 2000)

3.3.1 Self-Report Emotional Intelligence Measure

The increase in emotional intelligence as a result of the training intervention in this study was measured using the self-report measure Self Report Workgroup Emotional Intelligence Profile Version 5 (Self WEIP-5) (Jordan, 2000). This instrument consisted of 48 items presented on a 7-point scale (ranging from 1 = Strongly Disagree to 7 = Agree Strongly). Ten items were reverse scored (items 2, 5, 14, 17, 20, 28, 39, 41, 43, and 46) in line with the user instructions supplied with the instrument (Jordan, 2000), to control for positive response bias. The WEIP-5 also provides a situational measure of group emotional intelligence which seeks to specifically measure emotional intelligence displayed when working in groups, as opposed to a more general measure of emotional intelligence (e.g., Bar-On, 2002; Boyatzis, Goleman & Rhee, 2001). The instrument was comprised of the following eight sub-scales outlined in Table 3.1 divided into two factors (Jordan, 2000) - Factor 1: "ability to deal with own emotions" and Factor 2: "ability to deal with others' emotions".

Table 3.1: Sub-scales of Self Report WEIP Version 5 (Jordan, 2000)

Sub-scale	Items	Construct
Factor I: Ability to deal with own emotions		
1: Awareness of emotions	1, 7, 17, 34, 39	Awareness of emotions
2: Ability to discuss emotions	8, 11, 24, 38, 46,	Ability to articulate emotions
3: Using emotions to prioritise thinking	2, 10, 19, 30, 40	Use of first impressions
4: Application of own emotions to facilitate thinking	3, 4, 12, 16, 28, 32, 44, 47	Ability to control emotional states; Perspective taking
Factor 2: Ability to deal with emotions of others		
5: Ability to recognise the emotions of others	13, 21, 22, 23, 27, 42, 48	Reading the emotional displays of others
6: Ability to read false displays of emotion in others	9, 14, 26, 31, 43	Ability to detect false displays
7: Empathy	5, 15, 25, 33, 37	Empathic concern
8: Managing the emotional states of others	6, 18, 20, 29, 35, 36, 41, 45	Ability to encourage positive emotions in others; Assisting others to control emotional states

Emotional intelligence was measured in the comparison group using the WEIP-5 Self-Report measure of emotional intelligence (Jordan, 2000) only, as these participants were not placed in teams.

The WEIP-5 scale is an additive scale and total Self-Report EI is calculated by summing scores for the 48 items contained in the measure. Maximum, minimum and total scores possible are shown in Table 3.2.

Table 3.2: Scoring sub-scales of Self Report WEIP Version 5 (Jordan, 2000)

Sub-scale	**Items**	**Min-Max Scoring**
Factor I: Ability to deal with own emotions		Min 23
		Max 161
1: Awareness of emotions	1, 7, 17, 34, 39	Min 5
		Max 35
2: Ability to discuss emotions	8, 11, 24, 38, 46,	Min 5
		Max 35
3: Using emotions to prioritise	2, 10, 19, 30, 40	Min 5
thinking		Max 35
4: Application of own emotions to	3, 4, 12, 16, 28,	Min 8
facilitate thinking	32, 44, 47	Max 56
Factor 2: Ability to deal with emotions of others		Min 25
		Max 175
5: Ability to recognise the	13, 21, 22, 23, 27,	Min 7
emotions of others	42, 48	Max 49
6: Ability to read false displays of	9, 14, 26, 31, 43	Min 5
emotion in others		Max 35
7: Empathy	5, 15, 25, 33, 37	Min 5
		Max 35
8: Managing the emotional states	6, 18, 20, 29, 35,	Min 8
of others	36, 41, 45	Max 56
Total Self-Report EI		Min 48
		Max 336

Scale reliability analysis was performed by Jordan (2000). Overall scale alpha reliability measured 0.84 (see Table 3.3).

Table 3.3: Scale alpha reliability of Self-Report WEIP Version 5 (Jordan, 2000).

Sub-scale	α
Factor I: Ability to deal with own emotions	0.77
Sub-scale 1: Awareness of emotions	0.80
Sub-scale 2: Ability to discuss emotions	0.80
Sub-scale 3: Using emotions to prioritise thinking	0.66
Sub-scale 4: Application of own emotions to facilitate thinking	0.67
Factor 2: Ability to deal with emotions of others	0.81
Sub-scale 5: Ability to recognise the emotions of others	0.77
Sub-scale 6: Ability to read false displays of emotion in others	0.63
Sub-scale 7: Empathy	0.71
Sub-scale 8: Managing the emotional states of others	0.78
Overall Scale	0.84

3.3.2 Peer Report Emotional Intelligence Measure

Each member of each team was scored on their emotional intelligence by their peers using the Peer-Report Workgroup Emotional Intelligence Profile Version 5 (Peer WEIP-5) (Jordan, 2000). This instrument consisted of 26 items per peer, presented on a 7-point scale (ranging from 1 = Strongly Disagree to 7 = Agree Strongly). Seven items were reverse scored (items 2, 6, 8, 10, 11, 19, and 24) in line with the user instructions supplied with the instrument (Jordan, 2000) to control for positive response score bias.

The instrument was comprised of the six sub-scales outlined in Table 3.4, divided into two factors - ability to deal with own emotions and ability to deal with others' emotions. Sub-scale 1 - "Awareness of Emotions" and sub-scale 7 - "Empathy", outlined in the Self-Report WEIP-5 do not exist in the Peer-report WEIP-5.

Table 3.4: Sub-scales of Peer-Report WEIP Version 5 (Jordan, 2000)

Construct	**Items**	**Construct**
Factor I: Ability to deal with own emotions		
Sub-scale 2*: Ability to discuss emotions	6, 12, 20	Ability to articulate emotions
Sub-scale 3: Using emotions to prioritise thinking	2, 7, 14, 21	Use of first impressions
Sub-scale 4: Application of own emotions to facilitate thinking	3, 8, 13, 15, 22, 26	Ability to control emotional states; Perspective taking
Factor 2: Ability to deal with emotions of others		
Sub-scale 5: Ability to recognise the emotions of others	9, 16, 23	Reading the emotional displays of others
Sub-scale 6: Ability to read false displays of emotion in others	4, 10, 24	Ability to detect false displays
Sub-scale 8*: Influencing emotional states of others to facilitate thinking	1, 5, 11, 17, 18, 19, 25	Ability to encourage positive emotions in others; Assisting others to control emotional states

***Note:** Sub-scale 1 - "Awareness of Emotions" and sub-scale 7 - "Empathy" do not exist in the Peer-report WEIP-5.

The Peer-Report EI score is calculated by averaging scores for each of the 26 items across the number of peers and then summing the averaged items. Maximum, minimum and total scores possible are shown in Table 3.5.

Table 3.5: Scoring sub-scales of Peer Report WEIP Version 5 (Jordan, 2000)

Construct	**Items**	**Min-Max Scoring per peer**
Factor I: Ability to deal with own emotions		Min 13 Max 91
Sub-scale 2*: Ability to discuss emotions	6, 12, 20	Min 3 Max 21
Sub-scale 3: Using emotions to prioritise thinking	2, 7, 14, 21	Min 4 Max 28
Sub-scale 4: Application of own emotions to facilitate thinking	3, 8, 13, 15, 22, 26	Min 6 Max 42
Factor 2: Ability to deal with emotions of others		Min 13 Max 91
Sub-scale 5: Ability to recognise the emotions of others	9, 16, 23	Min 3 Max 21
Sub-scale 6: Ability to read false displays of emotion in others	4, 10, 24	Min 3 Max 21
Sub-scale 8*: Influencing emotional states of others to facilitate thinking	1, 5, 11, 17, 18, 19, 25	Min 7 Max 49
Total Peer-Report EI Score (per peer)		Min 26 Max 182

The overall scale alpha reliability of Peer Report WEIP Version 5 was .82 (Jordan, 2000). No figures were made available by the authors for sub-scale alpha reliability of Peer Report WEIP-5. Scale alpha reliability coefficients previously obtained by the author (N = 82) using the Peer Report WEIP-5 are given below (Moriarty & Buckley, 2003) in Table 3.6.

Table 3.6: Scale alpha reliability of Peer-Report WEIP Version 5 (Moriarty & Buckley, 2003).

Sub-scale	α
Factor I: Ability to deal with own emotions	0.76
Sub-scale 2: Ability to discuss emotions	0.81
Sub-scale 3: Using emotions to prioritise thinking	0.51
Sub-scale 4: Application of own emotions to facilitate thinking	0.62
Factor 2: Ability to deal with emotions of others	0.82
Sub-scale 5: Ability to recognise the emotions of others	0.77
Sub-scale 6: Ability to read false displays of emotion in others	0.63
Sub-scale 8: Managing the emotional states of others	0.70

Biodata was collected at the same time as completion of the Self-Report WEIP-5 questionnaire, and four items on a separate front page requesting Student Identification Number, team number, gender, and age were attached.

3.4 Procedure

Emotional Intelligence questionnaires were administered to participants undertaking the training at different stages during 2003 and 2004.

Prior to participants completing the questionnaires, information sessions outlining the background to the research, its centrality to the training programme, confidentiality issues and how to complete the questionnaire had taken place during the first week of semester (Lectures 1 and 2). It was explained to participants that the results of the research questionnaires would not be reported back due to time constraints, but that their participation was valued and would form an essential part of a larger study. An outline of

the training programme was provided together with assessment details. A reading list of relevant topics for the programme was also circulated to participants together with suggested deadlines for completion. Participants were assigned to teams in week one of semester (Lecture 2) and a written list of team members was circulated to all participants. Participants were invited to voice any concerns or questions they had at this stage.

A sealed pack containing the Self-Report Workgroup Emotional Intelligence Profile Version 5 (Self WEIP-5) (Jordan, 2000) questionnaire and the Peer Report Workgroup Emotional Intelligence Profile Version 5 (Peer WEIP-5) (Jordan, 2000) questionnaire was distributed to each participant in each team in the experimental group on two occasions. The first, ($Time_1$ measurement) occurred in Week 2 of semester (Lectures 3 & 4), and the second ($Time_2$ measurement) occurred in Week 13 of semester (Lectures 23 & 24). Participants were instructed to complete the questionnaires in private and in their own time. They were instructed to complete the questionnaire in one sitting and not to skip any items. Participants returned questionnaires at the next lecture. Records were maintained by the researcher of returned questionnaires, resulting in a response rate of 100 percent.

Weeks 2 - 12 of semester consisted of two one-hour sessions of facilitated teamwork which included lecturettes of 10-15 minutes. The lecturettes introduced new topics in lecture format providing theoretical background and research outcomes from current literature. Sample exercises including role plays were used for some topics (e.g., Bales' (1953) Interaction Process Analysis; Conflict Handling Styles) and participants were encouraged to recognise and understand the impact of their behaviour on the emotions of others. Powerpoint presentations were used by the lecturer and participants were referred to appropriate readings in their reading lists. Each lecturette was followed by distribution of a related questionnaire, which each participant completed, in the presence of their team. Results were then shared with other team members and discussed. Potential behavioural and emotional outcomes for the individual and the team were discussed and facilitated by the lecturer. (Full details of the programme are given in Appendix M)

Team norms were addressed in lecturette in week 2, with participants then completing an exercise on team norm development. The emotionally intelligent team norms of Druskat

and Wolff (2001) were then circulated and discussed. Participants were instructed to adopt these norms insofar as possible within their teams over the 12 weeks. Discussions took place within teams on how they would achieve this.

Intra-team communication was addressed in lecturette in week 3. Following an explanation of Bales' (1953) typology for coding communication styles, the entire group of participants undertook the coding of two samples of team communication. Results were then compiled and discussed. Bales' (1953) Interaction Process Analysis questionnaire (IPA) was then distributed for completion by participants at their next team meeting. Completed EI questionnaire packs were returned by participants and recorded by the lecturer.

Team development stages were addressed in lecturette in week 4. Each participant then completed the Team Development Stages Questionnaire (Tuckman & Jensen, 1977). Results were shared and discussed in a facilitated discussion within teams. Results of the IPA were shared and discussed also, with an emphasis placed on the socio-emotional outcomes of intra-team communication within discussions.

In week 5, the film prescribed for assessment was shown in class to all participants and copies were made available in the library for participants to borrow. A brief discussion of the film and examples of how to apply theory learned in the programme to date took place.

In week 6, decision-making was introduced briefly to participants in lecturette. Participants then completed the Decision-Making Styles Questionnaire (Rowe, 1998) and results were shared within teams and discussed. The impact of each style was discussed with emphasis given to the emotional impact of styles for fellow team members.

Leadership styles were addressed in lecturette in week 7. Each participant then completed the Leadership Styles Questionnaire (Marcic, 1992). Results were shared within teams and discussed. The discussion was linked back to the Decision-Making Styles Questionnaire results from week 6 and comparisons and contrasts in styles discussed. The emotional impact on fellow team members was discussed by participants. An

electronic link to an on-line Myers-Briggs Type Indicator questionnaire (Myers & McCaulley, 1998) was provided for participants to complete and record the result prior to attending the next lecturette.

Personality type was the subject of the lecturette in week 8. Using the results obtained online, participants interpreted, shared and discussed their personality types. Teams compiled a list of all personality types contained within the teams and discussed the implications for the functioning of the team.

The lecturette in week 8 addressed the topic of conflict in teams. Each participants then completed the Conflict Handling Styles Questionnaire (Thomas, 1976), shared their results within their teams and discussed the implications. The emotional consequences of each handling style were also discussed.

Belbin's (1996) Team Role Inventory was completed by each participant following a lecturette on team role theory in week 10. Results were then shared and discussed within teams. A list of each role contained within each team was compiled by the lecturer to facilitate identification of potential strengths and weaknesses faced by teams in week 11. Participants then discussed the action steps their team would need to take in order to avoid their weaknesses and to harness their strengths.

Team development was revisited in week 12. Participants again completed the Team Development Stages Questionnaire (Tuckman & Jensen, 1977) and compared their results to the first set of results obtained in week 4. Any differences were discussed. Reasons for growth and development (or lack thereof) were discussed in teams.

A second pack of EI questionnaires were distributed for completion in week 13.

Weeks 14 and 15 constituted assessment weeks for the programme when group presentations were made to staff and in front of peers. Team scores were awarded. Group reports were handed in and a team score awarded. Completed EI packs were also returned and recorded.

Participants were advised to record their questionnaire results in their diaries at all stages. They were also advised to record the results of their team members for discussion at team meetings and for use in their team presentations.

Chapter 4 - Results

4.0 RESULTS

4.1 Introduction

This chapter is presented in a number of sections as an examination of results progressed. The first section deals with descriptive statistics to provide a general view. The results for Self-Report emotional intelligence are presented initially in each section, with results for Peer-Report emotional intelligence following. Gender differences are explored in addition to any relationship between increased emotional intelligence and age.

Examinations of the adequacy of the data and its appropriateness for statistical examination by means of various techniques were undertaken. The data were found to be adequate and fall within acceptable parameters for the type of examination performed and details are given throughout the chapter.

Paired-samples t-tests were then conducted to evaluate the impact of the EI training intervention on scores of Self-Report and Peer-Report emotional intelligence and results are presented in the second section. A comparison group existed for comparison of Self-Report EI scores and results are included.

The reliability of the Self-Report and Peer-Report WEIP-5 measures (Jordan, 2000) used are then assessed with high levels of reliability reported for each of the measures used and results are reported in section three.

Finally, in section four, factor analyses were conducted for both the Self-Report and Peer-Report WEIP-5 measures (Jordan, 2000) to assess their underlying factor structure. Results showed that a much reduced Self-Report measure was a better fit for the data, while a slightly reduced Peer-Report measure was more suited to the Peer-Report data. Any similarities between the two measures were highlighted and the structure of the measures in relation to their subscales examined.

Data preparation was undertaken by coding raw data in line with established criteria for each of the scales and entered into and analysed using Statistical Package for the Social Sciences (SPSS 14).

4.2 Descriptive statistics and preliminary analyses

4.2.1. Normality of distribution of Self-Report Emotional Intelligence scores

Preliminary analyses were performed to ensure no violation of the assumption of normality in the distribution of Self-Report Emotional Intelligence total scores in the sample at both $Time_1$ and $Time_2$. Histograms depicting the distribution of Self-Report Emotional Intelligence total scores can be seen in Figures 4.1 ($Time_1$) and 4.2 ($Time_2$). The Kolmogorov-Smirnov statistic was non-significant for each data set ($Z = .04$, $p = .20$ for $Time_1$ and $Z = .06$, $p = .07$ for $Time_2$), indicating normality. Boxplots indicated the absence of outliers in both data sets (see Figure 4.3), and tests of kurtosis and skew showed that distribution of scores fell within acceptable limits of plus or minus two for skew (a skewness statistic of -.10, standard error of .16 for $Time_1$ and a skewness statistic of -.18, standard error of .16 for $Time_2$), and plus or minus three for kurtosis (a kurtosis statistic of -.36, standard error of .32 for $Time_1$ and a kurtosis statistic of -.59, standard error of .32 for $Time_2$) (Bryman & Cramer, 2001). It was concluded from these analyses that the data were distributed in a sufficiently normal way as to permit subsequent parametric analyses.

Figure 4.1: Frequency distribution of Self-Report EI total scores at $Time_1$

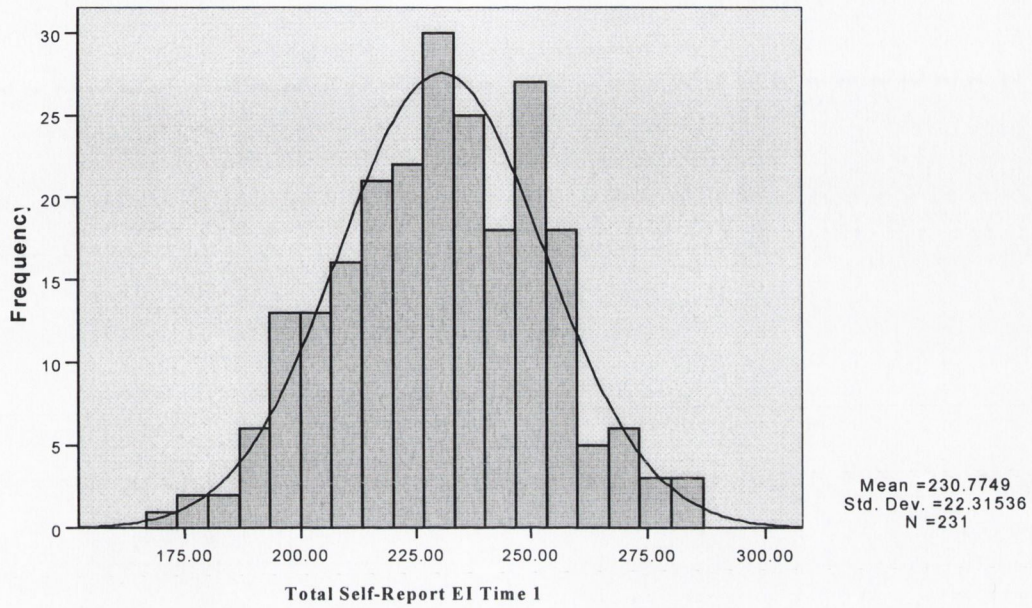


Figure 4.2: Frequency distribution of Self-Report EI total scores at $Time_2$

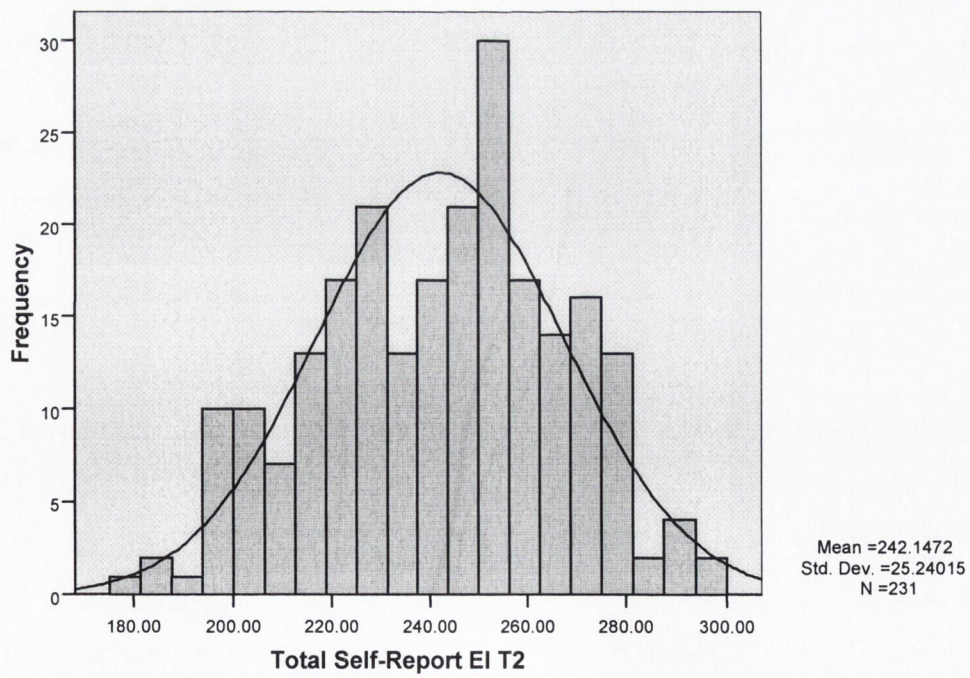
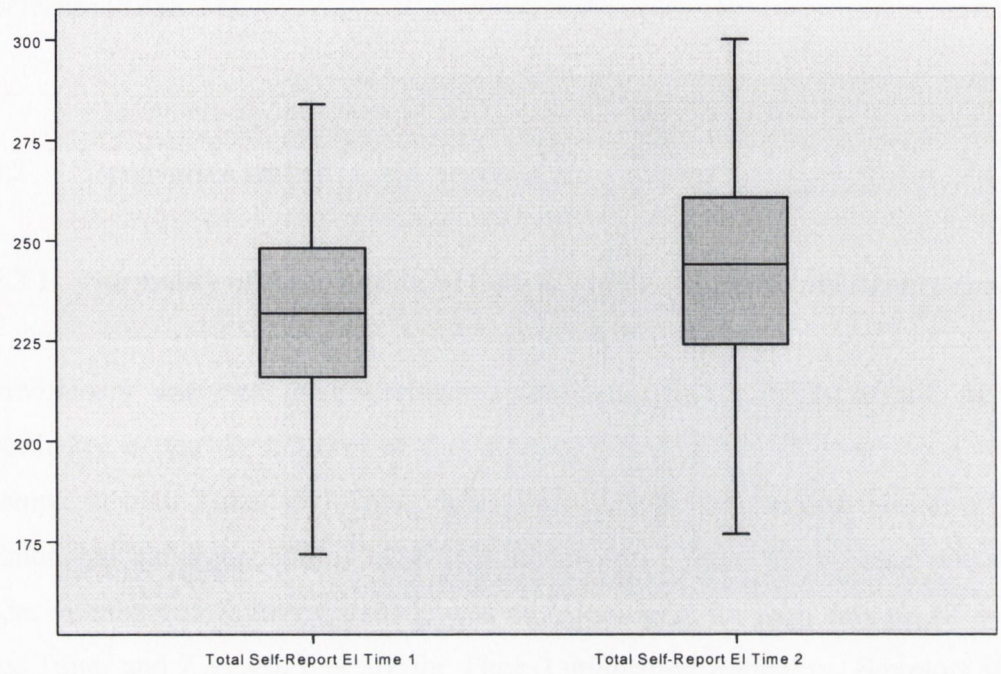


Figure 4.3: Boxplots of Self-Report Emotional Intelligence total scores at $Time_1$ and $Time_2$



The mean scores, range and standard deviations for Self-Report Emotional Intelligence are shown in Table 4.1.

Table 4.1: Mean, range and standard deviations of Total Self-Report Emotional Intelligence total scores at $Time_1$ and $Time_2$.

Variable	Time	N	Range	Mean	S.D.
Total Self-Report emotional intelligence	$Time_1$	231	172-284	230.77	22.32
Total Self-Report emotional intelligence	$Time_2$	231	177-300	242.15	25.24

The Self-Report WEIP-5 (Jordan, 2000) measured participants' self-evaluation EI levels on eight variables, which were then sub-divided into two constructs. Jordan (ibid) labelled them Factor 1: "ability to deal with own emotions" and Factor 2: "ability to deal with others' emotions". Descriptive statistics by factor and subscale are given in Table 4.2. All of the subscales and both factors were acceptably normally distributed facilitating the use of parametric statistics in their analysis.

Table 4.2: Means, ranges, standard deviations, skewness and kurtosis of Self-Report EI sub-scales and factors at $Time_1$ and $Time_2$ (N = 231).

Sub-scale	Time	Range	Mean	S.D.	Skew	Kurt.
Factor I: Ability to deal with own emotions	$Time_1$	80-135	108.78	11.70	-.25	.18
	$Time_2$	85-143	113.15	12.65	-.01	-.47
Sub-scale 1: Awareness of emotions	$Time_1$	13-35	25.29	4.29	-.29	-.35
	$Time_2$	12-35	26.61	4.49	-.38	-.10
Sub-scale 2: Ability to discuss emotions	$Time_1$	5-33	20.03	5.73	-.10	-.74
	$Time_2$	5-35	22.10	6.07	-.42	-.22
Sub-scale 3: Using emotions to prioritise thinking	$Time_1$	12-34	23.32	3.82	-.04	.10
	$Time_2$	11-34	23.23	4.37	.28	-.08
Sub-scale 4: Application of own emotions to facilitate thinking	$Time_1$	26-49	40.14	4.65	-.56	.07
	$Time_2$	29-53	41.21	4.63	-.37	.003
Factor 2: Ability to deal with emotions of others	$Time_1$	82-160	121.99	13.27	-.24	.66
	$Time_2$	83-162	129.00	14.93	-.15	-.13
Sub-scale 5: Ability to recognise the emotions of others	$Time_1$	21-48	35.09	4.72	-.35	.22
	$Time_2$	21-48	37.29	4.59	-.38	.23
Sub-scale 6: Ability to read false displays of emotion in others	$Time_1$	10-34	22.10	3.87	.11	.39
	$Time_2$	9-35	23.82	4.29	.24	.55
Sub-scale 7: Empathy	$Time_1$	15-35	28.09	3.65	-.73	.55
	$Time_2$	11-35	28.26	4.37	-.87	.84
Sub-scale 8: Managing the emotional states of others	$Time_1$	14-52	36.71	5.81	-.19	.37
	$Time_2$	24-53	39.62	5.40	-.18	-.22

4.2.2. Normality of distribution of Peer-Report Emotional Intelligence scores

Preliminary analyses were also performed to ensure no violation of the assumption of normality in the distribution of Peer-Report Emotional Intelligence total scores in the sample at both $Time_1$ and $Time_2$. Histograms depicting the distribution of Peer-Report Emotional Intelligence total scores can be seen in Figures 4.4 ($Time_1$) and 4.5 ($Time_2$). The Kolmogorov-Smirnov statistic was non-significant for each data set ($Z = .04$, $p = .20$ for $Time_1$ and $Z = .04$, $p = .20$ for $Time_2$), indicating normality. Boxplots indicated the absence of outliers in both data sets (see Figure 4.6), and tests of kurtosis and skew showed that distribution of scores fell within acceptable limits of plus or minus two for skew (a skewness statistic of .08, standard error of .16 for $Time_1$ and a skewness statistic of .05, standard error of .16 for $Time_2$), and plus or minus three for kurtosis (a kurtosis statistic of -.54, standard error of .32 for $Time_1$ and a kurtosis statistic of -.26, standard error of .32 for $Time_2$) (Bryman & Cramer, 2001). It was concluded from these analyses that the data were distributed in a sufficiently normal way as to permit subsequent parametric analyses.

Figure 4.4: Frequency distribution of Peer-Report Emotional Intelligence total scores at $Time_1$

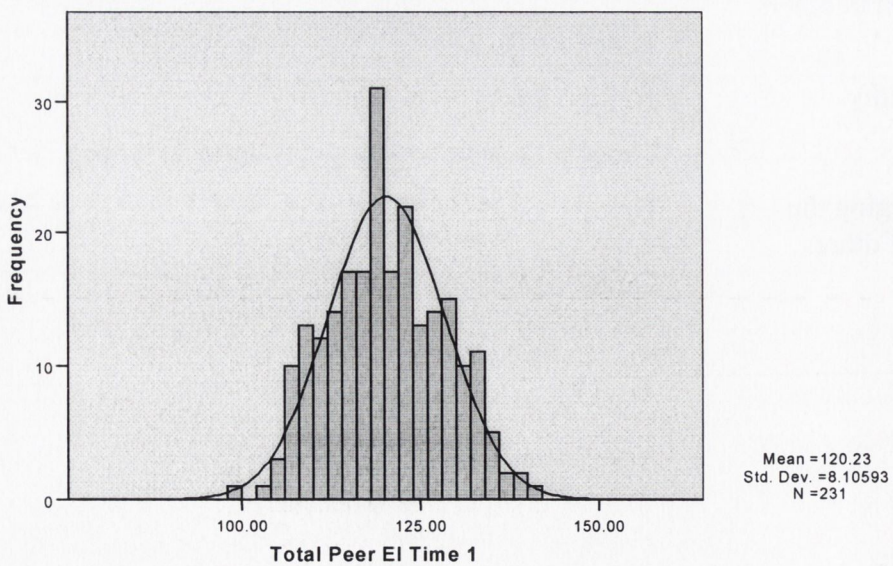


Figure 4.5: Frequency distribution of Peer-Report Emotional Intelligence total scores at Time $_2$

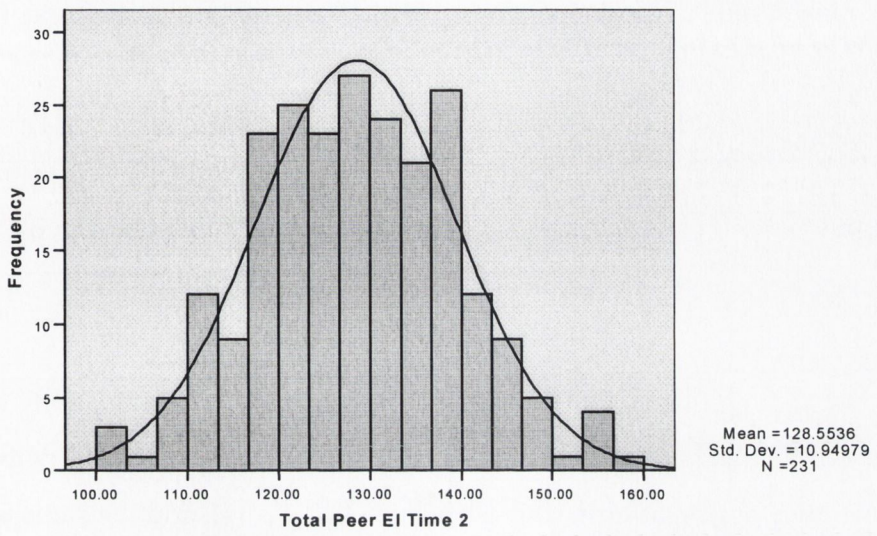
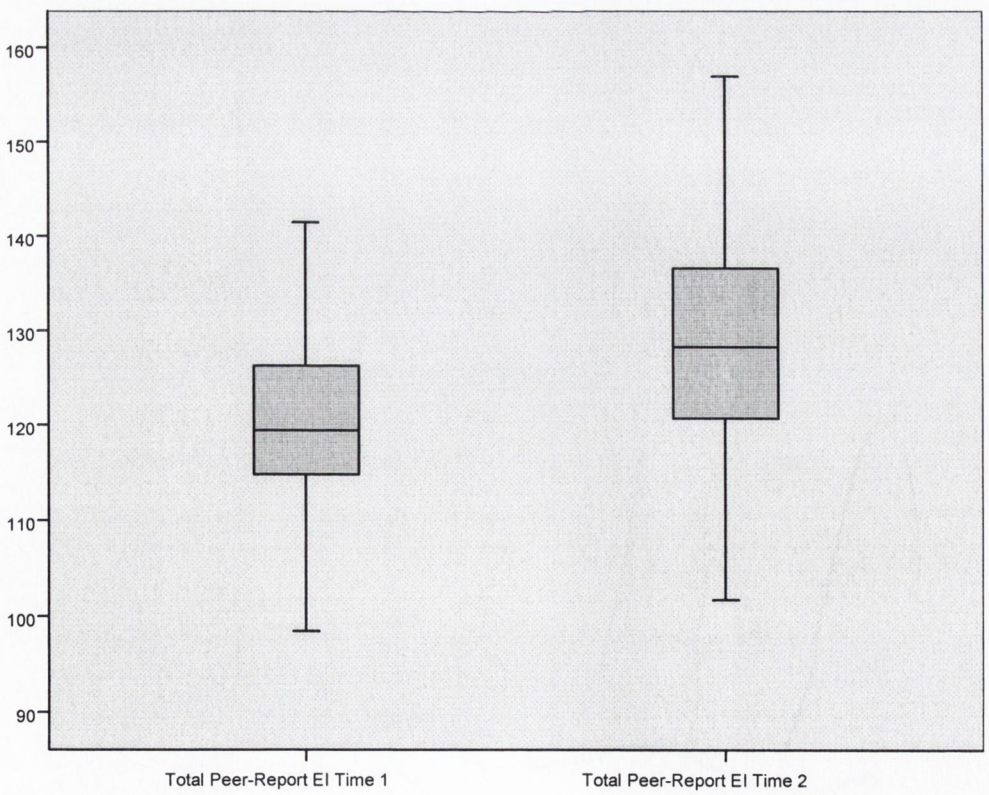


Figure 4.6: Boxplots of Peer-Report Emotional Intelligence total scores at Time$_1$ and Time$_2$



The mean scores, ranges standard deviations for Peer-Report Emotional Intelligence at $Time_1$ and $Time_2$ are shown in Table 4.3.

Table 4.3: Means, ranges and standard deviations of Total Peer-Report EI scores at $Time_1$ and $Time_2$.

Variable	Time	N	Range	Mean	S. D.
Total Peer-Report EI	$Time_1$	231	98.5 - 141.5	120.23	8.11
Total Peer-Report EI	$Time_2$	231	101.8 - 157.0	128.55	10.95

The Peer-Report WEIP-5 (Jordan, 2000) measured participants' peer-evaluations of EI levels across six variables, again subdivided into the same two constructs: "ability to deal with own emotions" and "ability to deal with others' emotions". Descriptive statistics by factor and subscale are given in Table 4.4. All of the subscales and both factors were acceptably normally distributed facilitating the use of parametric statistics in their analysis.

Table 4.4: Means, ranges standard deviations, skewness and kurtosis of Peer-Report emotional intelligence sub-scales and factors at $Time_1$ and $Time_2$ (N = 231).

Sub-scale	Time	Range	Mean	S.D.	Skew	Kurt.
Factor I: Ability to deal with own emotions	$Time_1$	49.8 - 71.0	60.62	4.38	-.08	-.51
	$Time_2$	49.5 - 78.0	64.39	5.19	.08	-.10
Sub-scale 2: Ability to discuss emotions	$Time_1$	6.8 - 17.0	13.44	1.67	-.32	.63
	$Time_2$	8.8 - 20.0	14.30	2.21	.11	.03
Sub-scale 3: Using emotions to prioritise thinking	Time1	13.3 - 22.7	17.40	1.64	.21	.35
	$Time_2$	10.7 - 24.5	17.94	2.22	-.25	.45
Sub-scale 4: Application of own emotions to facilitate thinking	$Time_1$	23.5 - 37.0	29.77	2.85	-.13	-.60
	$Time_2$	18.0 - 39.0	32.14	3.04	-.54	1.18
Factor 2: Ability to deal with emotions of others	$Time_1$	48.8 - 73.0	59.61	4.47	.25	-.51
	$Time_2$	45.5 79.0	64.17	6.41	-.18	.03
Sub-scale 5: Ability to recognise the emotions of others	$Time_1$	9.8 - 18.0	13.93	1.43	.01	.05
	$Time_2$	10.0 - 20.0	15.30	1.84	-.22	.09
Sub-scale 6: Ability to read false displays of emotion in others	$Time_1$	10.0 - 16.3	12.70	1.26	.50	-.14
	$Time_2$	8.7 - 17.3	13.03	1.59	.24	-.18
Sub-scale 8: Managing the emotional states of others	$Time_1$	23.5 - 40.5	32.98	3.11	.01	-.01
	$Time_2$	20.0 - 47.0	35.84	4.17	-.30	.68

4.3 Gender differences in Self-Report Emotional Intelligence total scores

A mixed model, 2 x 2 analysis of variance was conducted to examine any potential differences between male and female participants in Self-Reported Emotional Intelligence total scores at $Time_1$ and $Time_2$. Levene's test revealed that there was no violation of the assumption of homogeneity of variance between the two groups (genders) at $Time_1$, but

did indicate violation of the assumption at $Time_2$. To compensate for this finding, it was decided to adopt a tighter significance level in the interpretation of significance for the F value. Descriptive statistics are shown in Table 4.5, and Figure 4.7 visually depicts the mean Self-Report EI total scores at $Time_1$ to $Time_2$ for males and females.

Table 4.5: Descriptive statistics for Self-Report Emotional Intelligence scores for Males and Females at $Time_1$ and $Time_2$.

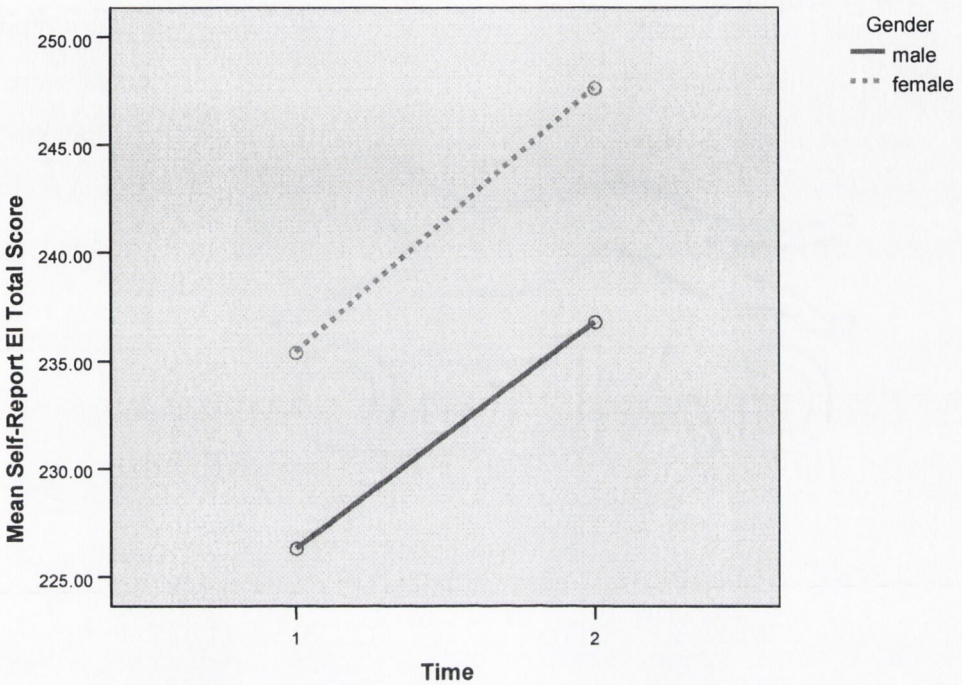
Group	Variable	Time	N	Mean	S. D.
Males	Self-Report EI	$Time_1$	117	226.28	22.02
	Self-Report EI	$Time_2$	117	236.82	26.73
Females	Self-Report EI	$Time_1$	114	235.39	21.76
	Self-Report EI	$Time_2$	114	247.61	25.24

The strength of association or effect size for paired-samples t-tests has been calculated where relevant. Effect size describes "the amount of the total variance in the dependent variable that is predictable from knowledge of the levels of the independent variable" (Tabachnick & Fidell, 1996, p. 53). The statistic eta squared was used in this case to calculate effect size, and it indicated the relative magnitude of the differences between means before and after the intervention. Cohen (1988) assigned the following guidelines for interpretation of eta squared: 0.01 denotes a small effect; 0.06 denotes a moderate effect; and 0.14 denotes a large effect.

Eta squared was calculated using the following formula:

$$\text{Eta squared} = \frac{t^2}{t^2 + N - 1}$$

Figure 4.7: Mean Self-Report Emotional Intelligence total scores for Males and Females at $Time_1$ and $Time_2$.



The analysis revealed a statistically significant main effect for time, Wilk's Lambda = .81, F(1, 229) = 54.83, p <.0005, multivariate eta squared = .19, indicating a large effect size (Cohen, 1988), with the mean score at $Time_2$ being higher than at $Time_1$. The main effect of the between-subjects variable of Gender showed a statistically significant result [F(1, 229) = 13.99, p <.0005], eta squared = .06, indicating a moderate effect size (Cohen, 1988), with female participants having a higher mean score than male participants. However, the interaction between Time and Gender was not statistically significant, Wilk's Lambda = .99, F(1, 229) = .30, p = .583. Adopting a tighter significance level (e.g., .01 instead of .05) did not alter the results, as they were very significant (p < .0005).

4.4 Gender differences in Peer-Report Emotional Intelligence total scores

A mixed model, 2 x 2 analysis of variance was conducted to examine any potential differences between male and female participants in Peer-Report emotional intelligence

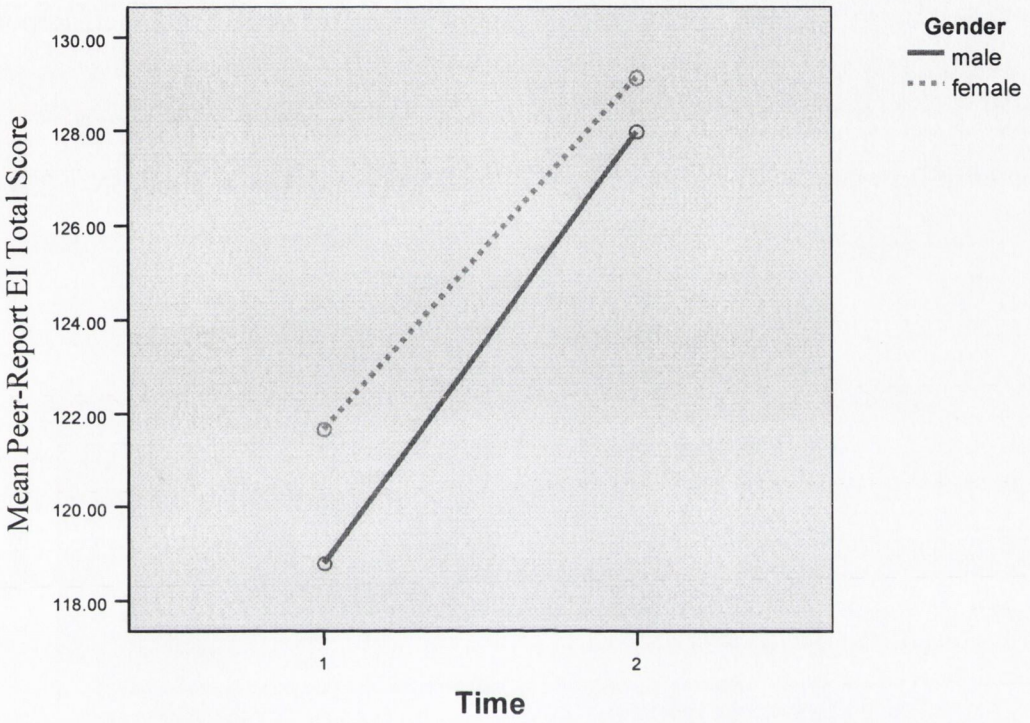
scores at $Time_1$ and $Time_2$. Levene's test revealed that there was no violation of the assumption of homogeneity of variance between the two groups (genders) at either $Time_1$ or $Time_2$.

Total Peer-Report emotional intelligence scores were calculated for each participant at both $Time_1$ and $Time_2$. Item scores were averaged across the number of peers reporting per team for each of the twenty-six items in the measure, and these scores were then summed to give a total Peer-Report EI score. Participants were coded and assigned according to gender. Descriptive statistics are shown in Table 4.6, and Figure 4.8 visually depicts the mean Peer-Report EI total scores at $Time_1$ and $Time_2$ for males and females.

Table 4.6: Descriptive statistics for Peer-Report EI scores for Males and Females at $Time_1$ and $Time_2$.

Group	**Variable**	**Time**	**N**	**Mean**	**S. D.**
Males	Peer-Report EI	$Time_1$	117	118.81	7.56
	Peer -Report EI	$Time_2$	117	127.99	11.14
Females	Peer -Report EI	$Time_1$	114	121.69	8.42
	Peer -Report EI	$Time_2$	114	129.13	10.77

Figure 4.8: Mean Peer-Report Emotional Intelligence total scores for Males and Females at $Time_1$ and $Time_2$.



The analysis revealed a statistically significant main effect for time, Wilk's Lambda = .70, F(1, 229) = 96.77, p <.0005, multivariate eta squared = .30, indicating a large effect size (Cohen, 1988), with the mean score at $Time_2$ being higher than at $Time_1$. The main effect of the between-subjects variable of Gender showed a statistically significant result [F(1, 229) = 4.58, p <.05], eta squared = .02, indicating a small effect size (Cohen, 1988), with female participants having a higher mean score than male participants in Peer-Report EI score. However, the interaction between Time and Gender was not statistically significant, Wilk's Lambda = .99, F(1, 229) = 1.06, p = .305.

4.5 Relationship between Age and Self-Report Emotional Intelligence total scores

Figure 4.9 shows the scatterplot of Self-Report EI total score and age at $Time_1$, and appears to indicate no relationship. The relationship between Total Self-Report EI $Time_1$ and age was investigated further using the Pearson product-moment correlation coefficient. There was no significant correlation found between Total Self-Report EI $Time_1$ and age ($r = .09$, $n = 231$, n.s.).

Figure 4.9: Scatterplot of Total Self-Report EI total score and Age at $Time_1$ (N = 231)

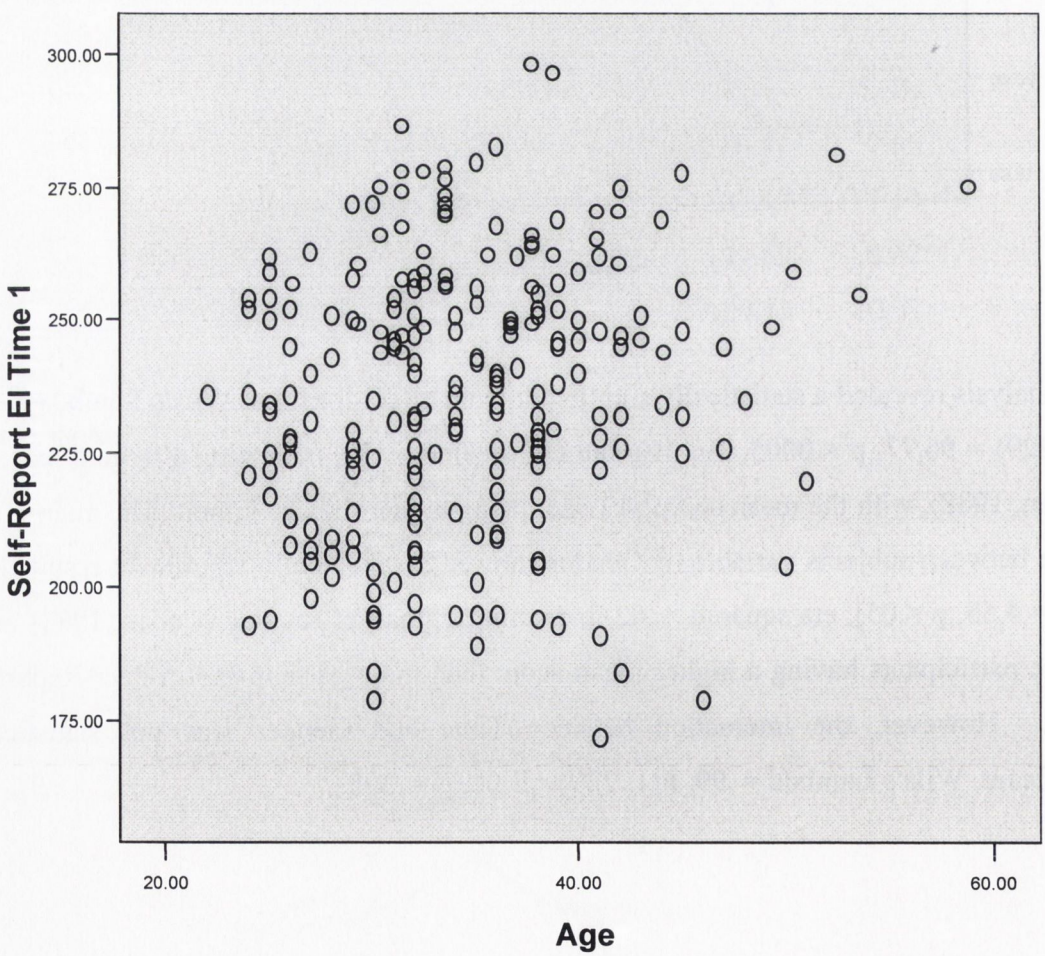


Figure 4.10 shows the scatterplot of Self-Report EI total score and age at $Time_2$, and again, appears to indicate no relationship. The relationship between Total Self-Report EI $Time_2$ and age was investigated further using the Pearson product-moment correlation coefficient. There was no significant correlation found between Total Self-Report EI $Time_2$ and age ($r = .09$, $n = 231$, n.s.).

Figure 4.10: Scatterplot of Self-Report EI total score and Age at $Time_2$ (N=231)



4.6 Relationship between Age and Peer-Report Emotional Intelligence total scores

The relationship between Total Peer-Report EI $Time_1$ and age was investigated using the Pearson product-moment correlation coefficient. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity and homoscedasticity (see Figure 4.11). There was no significant relationship found between Total Peer-Report EI $Time_1$ and age ($r_s = .13$, $n = 231$, n.s.).

Figure 4.11: Scatterplot of Peer-Report EI total scores and age at $Time_1$ (N=231)

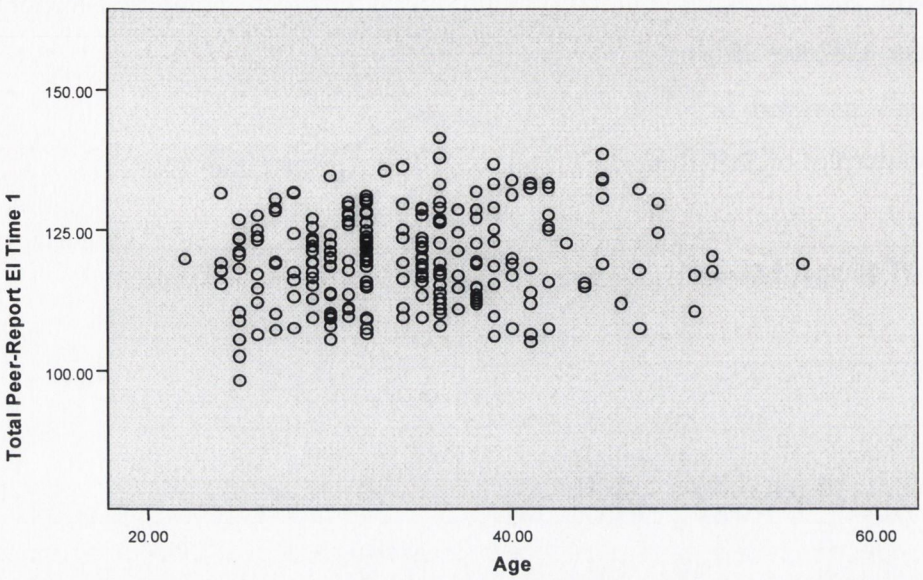
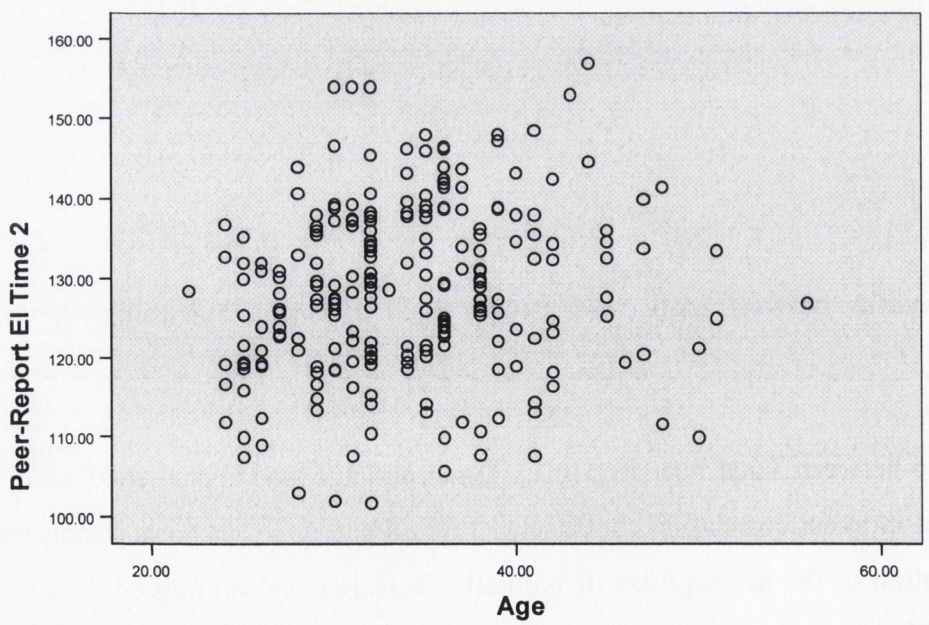


Figure 4.12: Scatterplot of Peer-Report EI total scores and age at $Time_2$ (N=231)



The relationship between Total Peer-Report EI $Time_2$ and age was investigated using Pearson product-moment correlation coefficient. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity and homoscedasticity (see Figure 4.12). There was no significant relationship found between Total Peer-Report EI $Time_2$ and age ($r_s = .13$, $n = 231$, n.s.).

4.7 Effects of the Emotional Intelligence Training Intervention

4.7.1 Self-Report Emotional Intelligence

An examination of individual Self-Report EI total scores showed that 158 participants reported an increase in EI from $Time_1$ to $Time_2$, representing 68.40% of the total sample. Sixty-nine participants, representing 29.87% of the sample, reported an actual decrease in EI from $Time_1$ to $Time_2$, and these participants were spread across 41 teams (78.85% of the total 52 teams). Team 20 was the only team to report a decrease in Self-Report EI scores in all five team members from $Time_1$ to $Time_2$. All other decreases were mixed with increases in Self-Report EI scores in the remaining 51 teams. Four participants (1.73%) reported neither an increase nor a decrease in EI from $Time_1$ to $Time_2$, and again, these participants were mixed with team members reporting increases.

Paired-samples t-tests were conducted to evaluate the impact of the EI training intervention on scores of Self-Report and Peer-Report emotional intelligence.

There was a statistically significant increase in Self-Report emotional intelligence total scores from $Time_1$ ($M = 230.79$; $SD = 23.28$) to $Time_2$ ($M = 242.36$; $SD = 25.32$), $t(230) = 7.41$, $p<.0005$, supporting hypothesis 1. The eta squared statistic (.18) indicated a large effect size (Cohen, 1988).

In order to examine the effects of the intervention at the level of the factors of EI and of the subscales, paired-samples t-tests were also conducted to compare scores at $Time_1$ and $Time_2$ on the relevant data. Results are shown in Table 4.7. There was a statistically

significant increase in Self-Report emotional intelligence sub-scales from $Time_1$ to $Time_2$ for six of the eight sub-scales and for both factors.

Table 4.7: Means and standard deviations of Self-Report EI factors and sub-scales at $Time_1$ and $Time_2$ (N = 231) and results of paired-samples t-tests, (df = 230).

Factor & sub-scale	Time	Mean	S.D.	t	Sig 2-tailed
Factor I: Ability to deal with own emotions	$Time_1$	108.78	11.70	5.11	p<.0005
	$Time_2$	113.15	12.65		
Sub-scale 1: Awareness of emotions	$Time_1$	25.29	4.29	4.17	p<.0005
	$Time_2$	26.61	4.49		
Sub-scale 2: Ability to discuss emotions	$Time_1$	20.03	5.73	4.83	p<.0005
	$Time_2$	22.10	6.07		
Sub-scale 3: Using emotions to prioritise thinking	Time1	23.32	3.82	0.31	p=.759
	$Time_2$	23.23	4.37		n.s.
Sub-scale 4: Application of own emotions to facilitate thinking	$Time_1$	40.14	4.65	3.16	p<.002
	$Time_2$	41.21	4.63		
Factor 2: Ability to deal with emotions of others	$Time_1$	121.99	13.27	7.90	p<.0005
	$Time_2$	129.00	14.93		
Sub-scale 5: Ability to recognise the emotions of others	$Time_1$	35.09	4.72	6.80	p<.0005
	$Time_2$	37.29	4.59		
Sub-scale 6: Ability to read false displays of emotion in others	$Time_1$	22.10	3.87	5.69	p<.0005
	$Time_2$	23.82	4.29		
Sub-scale 7: Empathy	$Time_1$	28.09	3.65	0.642	p=.521 n.s.
	$Time_2$	28.26	4.37		
Sub-scale 8: Managing the emotional states of others	$Time_1$	36.71	5.81	7.39	p<.0005
	$Time_2$	39.62	5.40		

4.7.2 Peer-Report Emotional Intelligence

An examination of individual Peer-Report EI scores showed that 167 participants were judged by their peers to have increased in EI from $Time_1$ to $Time_2$, representing 72.29% of the total sample. Sixty-three participants, representing 27.27% of the sample, were judged to have decreased in EI from $Time_1$ to $Time_2$, and these participants were spread across 25 teams (48.08%) of the total 52 teams. In total, 8 teams reported a decrease in Peer-Report EI scores in all team members from $Time_1$ to $Time_2$ (teams 1, 2, 3, 4, 9, 12, 24, and 30). All other decreases were mixed with increases in Peer-Report EI scores in the remaining 44 teams. One participant (0.43%) was judged to have neither increased or decreased in EI from $Time_1$ to $Time_2$, and again, this participant was mixed with team members who were judged to have increased in EI in team 41.

There was also a statistically significant increase in Peer-Report emotional intelligence from $Time_1$ ($M = 120.23$; $SD = 8.11$) to $Time_2$ ($M = 128.47$; $SD = 11.17$), $t(230) = -9.58$, $p<.0005$, supporting hypothesis 2. The eta squared statistic (.29) indicated a large effect size (Cohen, 1988).

In order to examine the effects of the training intervention at the level of factors of EI and of the subscales, paired-sample t-tests were also conducted to compare scores at $Time_1$ and $Time_2$ on the relevant data. The results are shown in Table 4.8. There was a statistically significant increase in Peer-Report emotional intelligence sub-scales from $Time_1$ to $Time_2$ for all six of the sub-scales and for both factors.

Table 4.8: T-test, means and standard deviations of Peer-Report emotional intelligence sub-scales at $Time_1$ and $Time_2$ (N = 231) (df = 230).

Sub-scale	Time	Mean	S. D.	t	Sig 2-tailed
Factor I: Ability to deal with own emotions	$Time_1$	60.62	4.38	8.60	p<.0005
	$Time_2$	64.39	5.19		
Sub-scale 2: Ability to discuss emotions	$Time_1$	13.44	1.67	5.39	p<.0005
	$Time_2$	14.30	2.21		
Sub-scale 3: Using emotions to prioritise thinking	$Time_1$	17.40	1.64	3.35	p<.001
	$Time_2$	17.94	2.22		
Sub-scale 4: Application of own emotions to facilitate thinking	$Time_1$	29.77	2.85	9.05	p<.0005
	$Time_2$	32.14	3.05		
Factor 2: Ability to deal with emotions of others	$Time_1$	59.61	4.47	9.71	p<.0005
	$Time_2$	64.17	6.41		
Sub-scale 5: Ability to recognise the emotions of others	$Time_1$	13.93	1.43	9.812	p<.0005
	$Time_2$	15.30	1.84		
Sub-scale 6: Ability to read false displays of emotion in others	$Time_1$	12.70	1.26	2.60	P<.01
	$Time_2$	13.03	1.59		
Sub-scale 8: Influencing emotional states of others to facilitate thinking	$Time_1$	32.98	3.11	9.53	p<.0005
	$Time_2$	35.84	4.17		
Total Peer-Report EI	$Time_1$	120.23	8.11	9.85	p<.0005
	$Time_2$	128.55	10.95		

4.7.3 Intercorrelations between Self-Report and Peer-Report EI total scores at $Time_1$ and $Time_2$

The relationship between the dependent variables was investigated using Pearson product-moment correlation coefficient. Self-Report EI and Peer-Report EI showed small, positive intercorrelations at both $Time_1$ and $Time_2$, indicating a relationship between participants Self-Report EI and the reports given on them by their peers (see Table 4.9). In large samples, small correlations can result in significance. Calculating the coefficient of determination to evaluate the amount of variance, a result of 3.24% is obtained for $Time_1$ and a result of 5.76% for $Time_2$. Both figures indicate very small overlap and show a lack of major congruence between Self-Report and Peer-Report EI which was surprising given that both measures were expected to measure participants' EI.

Table 4.9: Intercorrelations between Self-Report and Peer-Report emotional intelligence totals at $Time_1$ and $Time_2$

	Time 1 Self-Report EI	Time 2 Self-Report EI
Peer-Report EI	.18**	.24**

**p <0.01 denotes correlation is significant at .01 level (2-tailed)

4.8 Comparison Group Emotional Intelligence

A Comparison Group existed in which it was possible to measure Self-Report emotional intelligence using the Self-Report WEIP-5 scale (Jordan, 2000) at both $Time_1$ to $Time_2$. This group experienced similar course content through passive lecture format, but were not exposed to experiential team learning or the specifically designed training intervention to increase EI.

Preliminary analyses were performed to ensure no violation of the assumption of normality in the distribution of Self-Report Emotional Intelligence total scores in the Comparison Group at both $Time_1$ and $Time_2$. Histograms depicting the distribution of

Self-Report Emotional Intelligence total scores can be seen in Figures 4.13 ($Time_1$) and 4.14 ($Time_2$). The Kolmogorov-Smirnov statistic was non-significant for each data set (Z = .06, p = .20 for $Time_1$ and Z = .04, p = .20 for $Time_2$), indicating normality. Boxplots indicated the absence of outliers in both data sets (see Figure 3.15), and tests of kurtosis and skew showed that distribution of scores fell within acceptable limits of plus or minus two for skew (a skewness statistic of .03, standard error of .24 for $Time_1$ and a skewness statistic of .18, standard error of .24 for $Time_2$), and plus or minus three for kurtosis (a kurtosis statistic of -.47, standard error of .48 for $Time_1$ and a kurtosis statistic of -.03, standard error of -.48 for $Time_2$) (Bryman & Cramer, 2001). It was concluded from these analyses that the data were distributed in a sufficiently normal way as to permit subsequent parametric analyses.

Figure 4.13: Frequency distribution of Comparison Group Self-Report EI total scores $Time_1$

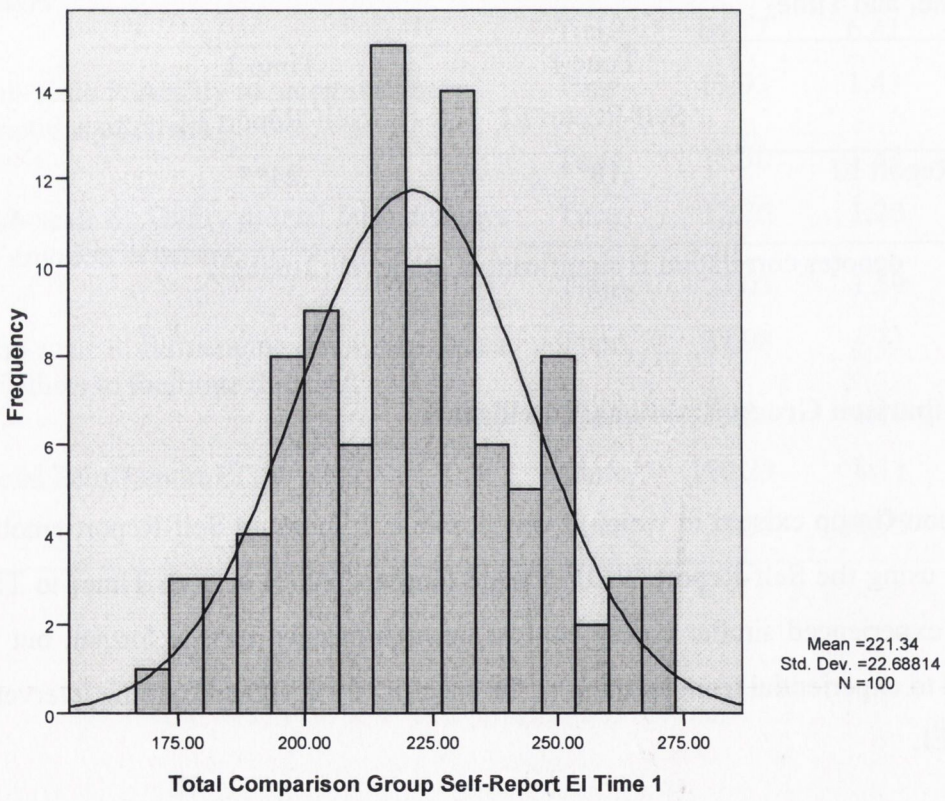


Figure 4.14: Frequency distribution of Comparison Group Self-Report EI total scores $Time_2$

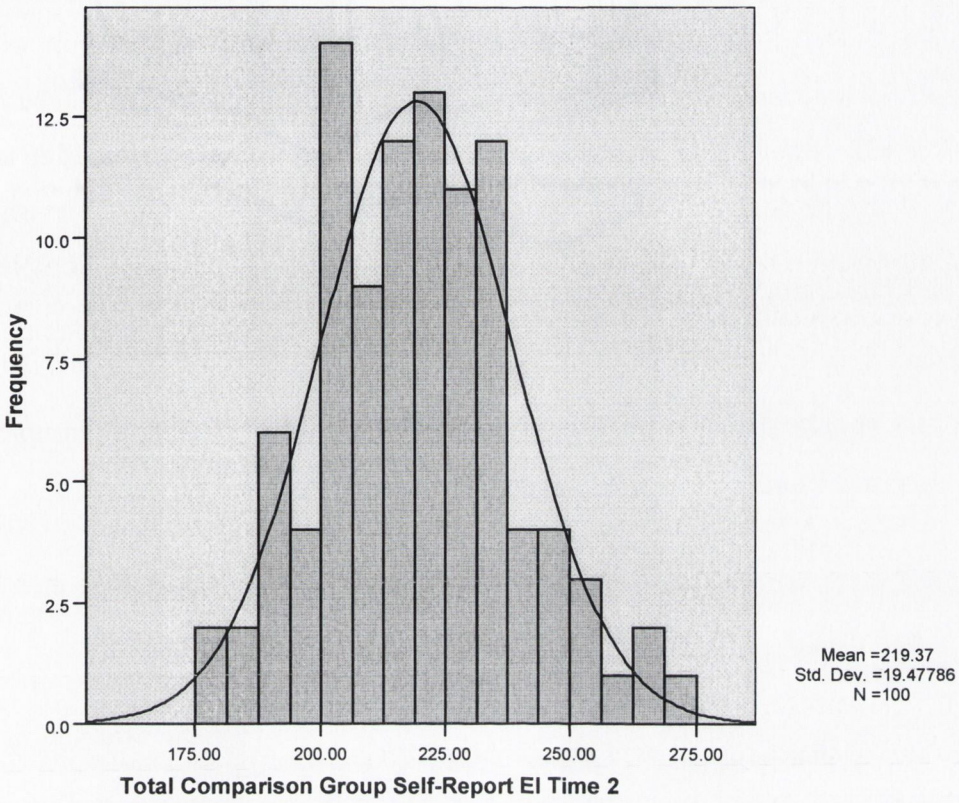
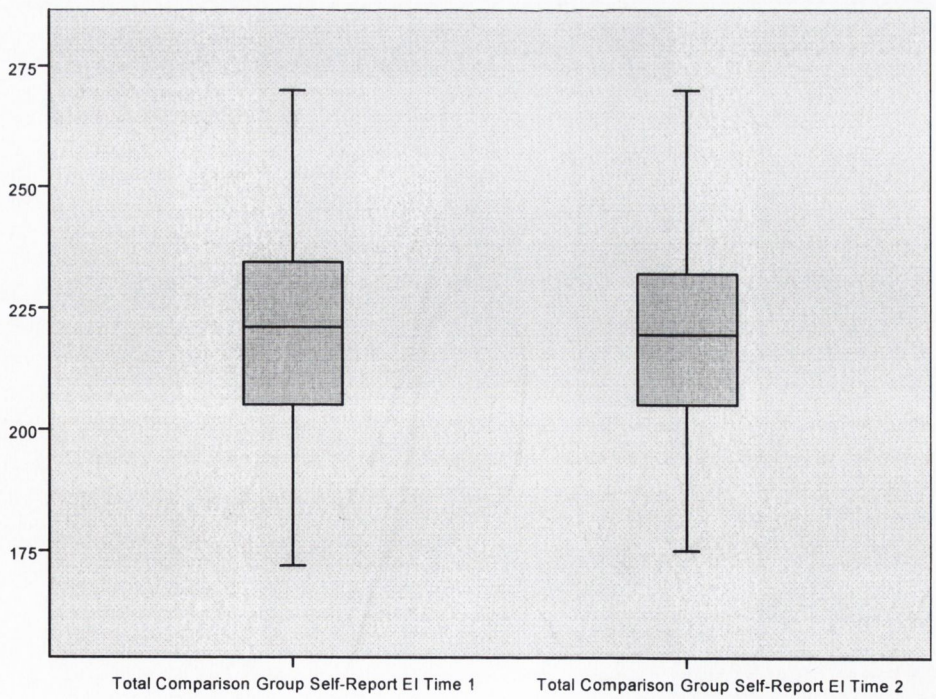


Figure 4.15: Boxplots of Comparison Group Self-Report EI total scores at $Time_1$ and $Time_2$

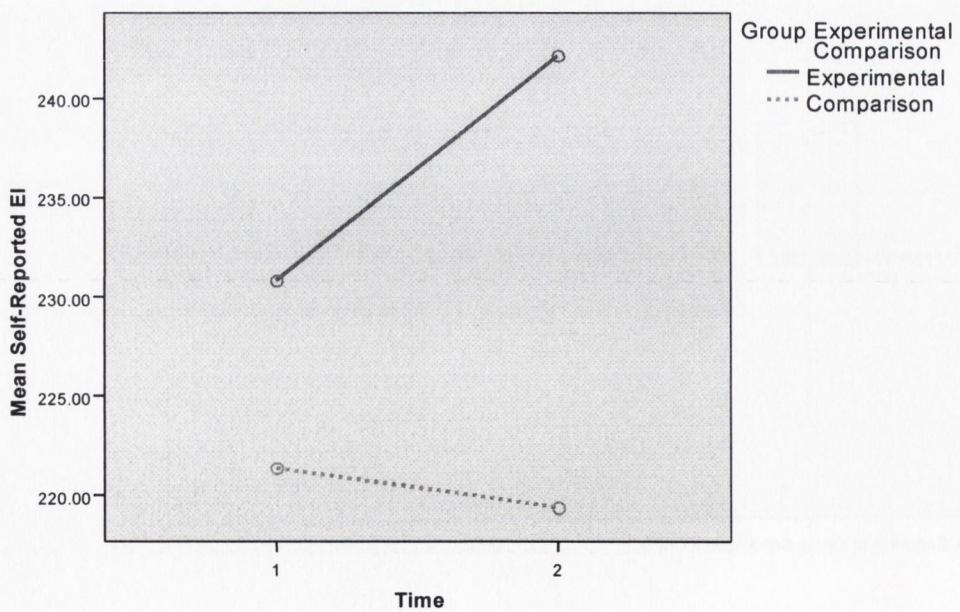


A mixed model 2 x 2 analysis of variance was conducted to examine the change in emotional intelligence scores for the Comparison Group from $Time_1$ to $Time_2$ relative to the Experimental Group. Levene's test revealed that there was no violation of the assumption of homogeneity of variance between the two groups at $Time_1$, but this assumption was violated at $Time_2$. To compensate for this finding, it was decided to adopt a tighter significance level in the interpretation of significance for the F value. Descriptive statistics are shown in Table 4.10, and Figure 4.16 visually depicts the mean Self-Report EI total scores at $Time_1$ and $Time_2$ for each group.

Table 4.10: Descriptive statistics for Experimental Group and Comparison Group Self-Report EI total scores at $Time_1$ and $Time_2$.

Group	Variable	Time	N	Mean	S. D.
Comparison	Self-Report EI	$Time_1$	100	221.34	22.69
	Self-Report EI	$Time_2$	100	219.37	19.48
Experimental	Self-Report EI	$Time_1$	231	230.77	22.32
	Self-Report EI	$Time_2$	231	242.15	25.24

Figure 4.16: Mean Self-Report EI total scores for Experimental Group and Comparison Group at $Time_1$ and $Time_2$.



The analysis revealed a statistically significant main effect for time, Wilk's Lambda = .96, F(1, 329) = 13.62, p <.0005, multivariate eta squared = .04, indicating a small effect size (Cohen, 1988), with a higher mean at $Time_2$ than at $Time_1$. The main effect of the between-subjects variable of Group (Comparison group versus Experimental group) also showed a statistically significant result [F(1, 329) = 43.31, p <.0005], eta squared = .12, indicating a moderate to large effect size (Cohen, 1988), with the Experimental Group displaying the higher mean. However, the interaction between Group and Time was also statistically significant, Wilk's Lambda = .92, F(1, 329) = 27.42, p <.0005, multivariate eta squared = .08, indicating a moderate effect size (Cohen, 1988). The nature of the interaction can be seen in Figure 3.16, while the mean of the Experimental Group increased quite considerably from $Time_1$ to $Time_2$, that of the Comparison Group fell slightly. Adopting a tighter significance level (e.g., .01 instead of .05) did not alter the results as they were very significant (p < .0005).

A paired samples t-test was conducted to further examine the difference in total Self-Report EI scores from $Time_1$ to $Time_2$ in each group (Comparison and Experimental). Results are shown in Table 4.11. As previously outlined, the Experimental Group showed a statistically significant increase in mean scores of total Self-Report EI from $Time_1$ to $Time_2$. No significant decrease occurred in the comparison group and this is borne out by the non-significant result obtained.

Table 4.11: Means and standard deviations for Self-Report emotional intelligence in Experimental (N=231) and Comparison (N=100) groups at $Time_1$ and $Time_2$ and results of paired-samples t-tests.

Group	**Time**	**Mean**	**S. D.**	**df**	**t**	**Sig 2-tailed**
Comparison Group	$Time_1$	221.34	2.27	99	1.27	p=.21
	$Time_2$	219.37	1.95			
Experimental Group	$Time_1$	230.77	22.32	230	-7.41	p<.0005
	$Time_2$	242.15	25.24			

An independent samples t-test was conducted to examine the differences between Self-Report EI total scores for the Comparison and Experimental Groups at both $Time_1$ and $Time_2$. A statistically significant result was obtained for the difference in scores between the Experimental Group ($M = 230.77$, $SD = 22.32$) and the Comparison Group at $Time_1$ ($M = 221.34$, $SD = 22.69$; $t = 3.51$, $p = .001$). A similar statistically significant result was obtained for the difference between the Experimental Group ($M = 242.15$, $SD = 25.24$) and the Comparison Group at $Time_2$ ($M = 219.37$, $SD = 19.48$; $t = 8.90$, $p < .0005$). The findings indicate that both groups self-reported different levels of EI both pre- and post-training (see Figure 4.16).

In order to compare findings at subscale level with previous research findings, paired-samples t-tests were conducted on the factors and subscales of Self-Report EI in the comparison group and findings are shown in Table 4.12.

Table 4.12: Means and standard deviations of Self-Report EI factors and sub-scales in Comparison group (N=100) at $Time_1$ and $Time_2$ and results of paired-samples t-tests, (df = 99).

Factor & sub-scale	Time	Mean	S.D.	t	Sig 2-tailed
Factor I: Ability to deal with own emotions	$Time_1$	103.65	10.50	.29	p=.77
	$Time_2$	103.42	9.46		n.s.
Sub-scale 1: Awareness of emotions	$Time_1$	23.89	4.00	.44	p=.66
	$Time_2$	23.80	3.49		n.s.
Sub-scale 2: Ability to discuss emotions	$Time_1$	19.52	4.81	-1.54	p=.13
	$Time_2$	20.03	4.51		n.s.
Sub-scale 3: Using emotions to prioritise thinking	Time1	23.57	3.14	-.26	p=.80
	$Time_2$	23.64	3.57		n.s.
Sub-scale 4: Application of own emotions to facilitate thinking	$Time_1$	36.67	4.70	1.53	p=.13
	$Time_2$	35.95	4.64		n.s.
Factor 2: Ability to deal with emotions of others	$Time_1$	117.69	14.07	1.79	p=.08
	$Time_2$	115.95	12.60		n.s.
Sub-scale 5: Ability to recognise the emotions of others	$Time_1$	33.28	4.76	-.50	p=.62
	$Time_2$	33.41	4.54		n.s.
Sub-scale 6: Ability to read false displays of emotion in others	$Time_1$	22.16	3.60	.52	p=.60
	$Time_2$	22.03	3.31		n.s.
Sub-scale 7: Empathy	$Time_1$	26.25	3.37	3.89	p<.0005
	$Time_2$	25.15	3.04		
Sub-scale 8: Managing the emotional states of others	$Time_1$	36.00	6.15	1.46	p=.15
	$Time_2$	35.36	5.59		n.s.

4.9 Reliability Analyses of Measures

In order to examine the internal consistency of both measures used (Self-Report and Peer-Report WEIP-5 (Jordan, 2000)), reliability analyses were performed by the calculation of Cronbach's Alpha co-efficients for the total, factor and subscale scores of each of the measures.

4.9.1 Reliability of Self-Report Emotional Intelligence Measure

Scale alpha reliability of Self-Report WEIP Version 5 (Jordan, 2000) overall scale for $Time_1$ and $Time_2$ was 0.87 and 0.90 respectively. This measured the internal consistency of the scale and as the scale's overall Cronbach's alpha coefficient was above 0.70, it can be judged to have been a reliable scale when used with the current sample (Nunnally, 1978). These values are higher than those reported by Jordan (2000) who obtained an overall Cronbach alpha coefficient of 0.84 for the scale.

Analysis of factors and subscales are shown in Table 4.13. Lower alpha coefficients were found for subscales 3, 4, 6, 7 and 8 with the current sample than were reported by Jordan (2000). Internal consistency was lower than 0.70 on subscales 3, 4, 6, and 7 ($Time_1$) representing almost half of the items contained in the scale. Factor 1, "ability to deal with own emotions" (Jordan, 2000) produced alpha coefficients similar to those reported by Jordan (2000), while Factor 2, "ability to deal with others' emotions" produced higher alpha coefficients than reported by Jordan (2000). In the latter case, alpha coefficients of 0.83 and 0.88 at $Time_1$ and $Time_2$ respectively were found in the current study in comparison with 0.81 reported by Jordan (2000).

Table 4.13: Reliability analyses of Self-Report WEIP-5 measure, factors & sub-scales at $Time_1$ and $Time_2$

Factor & sub-scale	Time	Alpha Co-efficient	Jordan (2000)
Total Self-Report EI	$Time_1$	.87	.84
	$Time_2$	.90	
Factor I: Ability to deal with own emotions	$Time_1$	.73	.77
	$Time_2$	.77	
Sub-scale 1: Awareness of emotions	$Time_1$	.70	.80
	$Time_2$	.78	
Sub-scale 2: Ability to discuss emotions	$Time_1$	.81	.80
	$Time_2$	.84	
Sub-scale 3: Using emotions to prioritise thinking	$Time_1$	.47	.66
	$Time_2$	.59	
Sub-scale 4: Application of own emotions to facilitate thinking	$Time_1$	.48	.67
	$Time_2$	.49	
Factor 2: Ability to deal with emotions of others	$Time_1$	.83	.81
	$Time_2$	.88	
Sub-scale 5: Ability to recognise the emotions of others	$Time_1$	.70	.77
	$Time_2$	.74	
Sub-scale 6: Ability to read false displays of emotion in others	$Time_1$	.57	.63
	$Time_2$	.67	
Sub-scale 7: Empathy	$Time_1$	.66	.71
	$Time_2$	.79	
Sub-scale 8: Managing the emotional states of others	$Time_1$	.74	.78
	$Time_2$	.70	

4.9.2. Reliability of Peer-Report Emotional Intelligence Measure

Scale alpha reliability of Peer-Report WEIP Version 5 (Jordan, 2000) overall scale for $Time_1$ and $Time_2$ was 0.83 and 0.89 respectively. This measured the internal consistency

of the scale and as the scale's overall Cronbach's alpha coefficient was above 0.70, it can also be judged to have been a reliable scale with the current sample (Nunnally, 1978). This result is higher than the reported findings of Jordan (2000) who reported an overall Cronbach alpha coefficient of 0.82 for the scale. Analysis of factors and subscales are shown in Table 4.14 and as no figures for subscale reliability were provided by Jordan (2000), the results of Moriarty and Buckley, (2003) are used for comparison. Lower alpha coefficients were found for subscales 3, 4, 6, 7 and 8 showing differences to the findings of Jordan (2000).

Table 4.14: Reliability analyses of Peer-Report WEIP-5 measure, factors & sub-scales at $Time_1$ and $Time_2$

Factor & sub-scale	**Time**	**Alpha Co-efficient**	**Moriarty & Buckley (2003)**
Total Peer-Report EI	$Time_1$	.83	.82*
	$Time_2$	.89	
Factor I: Ability to deal with own emotions	$Time_1$	.68	.76
	$Time_2$	.73	
Sub-scale 2: Ability to discuss emotions	$Time_1$	.53	.81
	$Time_2$	.71	
Sub-scale 3: Using emotions to prioritise thinking	$Time_1$	.22	.51
	$Time_2$	.54	
Sub-scale 4: Application of own emotions to facilitate thinking	$Time_1$	.75	.62
	$Time_2$	.79	
Factor 2: Ability to deal with emotions of others	$Time_1$	.75	.82
	$Time_2$	.85	
Sub-scale 5: Ability to recognise the emotions of others	$Time_1$	.51	.77
	$Time_2$	.62	
Sub-scale 6: Ability to read false displays of emotion in others	$Time_1$	.15	.63
	$Time_2$	.23	
Sub-scale 8: Managing the emotional states of others	$Time_1$	.75	.70
* Jordan, 2000	$Time_2$	.84	

4.10 Factor Analysis - Self-Report EI Measure

The current study applied the Self-Report WEIP-5 scale (Jordan, 2000) (see Appendix E) to the experimental group (N = 231) at both $Time_1$ and $Time_2$, in addition to the comparison group (N = 100) at both $Time_1$ and $Time_2$. Data were collected, therefore, on a sample of 331 participants on two occasions. An examination of the underlying factor structure of the Self-Report WEIP-5 scale (Jordan, 2000) on both occasions was undertaken.

Jordan (2000) proposed a model of EI which he divided into "ability to deal with own emotions" and "ability to deal with others' emotions" and tested with the WEIP-5. Four subscales were contained within each ability, resulting in a total of 8 subscales. It was, therefore, expected that an 8-factor solution would fit the data and an exploratory factor analysis was undertaken on the data from $Time_1$ and $Time_2$.

4.10.1 Preliminary Analyses

The 48 items of the Self-Report WEIP-5 scale (Jordan, 2000) $Time_1$ were subjected to principal components analysis (PCA) using SPSS. Prior to performing PCA, the suitability of data for factor analysis was assessed. Boxplots indicated an absence of outliers in the data (see Figure 4.6). Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Oklin value was .82, exceeding the recommended value of .6 (Kaiser, 1974) and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance (p= .000), supporting the factorability of the correlation matrix.

The 48 items of the Self-Report WEIP-5 scale (Jordan, 2000) $Time_2$ were similarly subjected to exploratory factor analysis and principal components analysis (PCA) using SPSS. Prior to performing PCA, the suitability of data for factor analysis was assessed. Boxplots indicated an absence of outliers in the data. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Oklin value was .88, exceeding the recommended value of .6 (Kaiser, 1974) and Bartlett's Test

of Sphericity (Bartlett, 1954) reached statistical significance ($p < .0005$), supporting the factorability of the correlation matrix.

In an attempt to replicate the factor structure outlined by Jordan (2000), an exploratory factor analysis with varimax rotation was performed using eight components to match the eight subscales in his model of EI on both sets of data ($Time_1$ and $Time_2$). An orthogonal approach, which assumed that the factors were not related was taken (Jordan, 2000). The rotated solution (presented in Table 4.15) accounted for 46.42 per cent of the variance at $Time_1$. Components 1 - 8 individually explained 9.86 per cent, 7.58 per cent, 6.51 per cent, 5.90 per cent, 4.48 per cent, 4.19 per cent, 4.04 per cent, and 3.85 per cent of the variance respectively.

Table 4.15: Varimax Rotation of Eight-Factor Solution Self-Report WEIP-5 $Time_1$ (N=331)

Item	Subscale	Component							
		1	2	3	4	5	6	7	8
38	2	.72							
24	2	.67							
46	2	.66							
11	2	.64							
36	8	.61							
45	8	.57							
35	8	.54							
18	8	.48							
13	5	.45							
47	4	.39							
29	8	.38							
30	3	.37							
37	7		.64						
15	7		.58						
27	5		.56						
25	7		.54						
48	5		.52						
33	7		.51						
44	4		.51						
16	4		.49						
4	4		.47						
42	5		.38						
23	5			.71					
22	5			.68					

Item	Subscale	Component							
		1	2	3	4	5	6	7	8
21	5			.61					
31	6			.58					
26	6			.54					
9	6			.49					
7	1				.69				
17	1				.66				
1	1				.62				
34	1				.58				
39	1				.56				
8	2				.51				
41	8					.64			
32	4					.56			
28	4					.52			
43	6					.50			
3	4						.69		
12	4						.63		
6	8						.42		
19	3							.720	
10	3							.70	
40	3							.68	
2	3								.61
14	6								.54
20	8								.48
5	7								.45

Note: Only loadings above .3 are displayed.

Results showed some support for the subscale structure of Jordan's (2000) EI model at $Time_1$. Many items were, however, mixed across components (subscales) which did not support a model of EI with discreet factors. It was decided to examine the $Time_2$ data before drawing any conclusions.

An exploratory factor analysis with varimax rotation was also conducted on $Time_2$ data. The rotated solution (presented in Table 4.16) accounted for 51.47 per cent of the variance at $Time_2$. Components 1 - 8 individually explained 8.76 per cent, 7.79 per cent, 7.53 per cent, 6.84 per cent, 5.59 per cent, 5.35 per cent, 5.25 per cent, and 4.37 per cent of the variance respectively. Excluding loadings below .3 resulted in the exclusion of item 2 (subscale 3) which loaded onto component 5 at .27 and consequently the loadings cutoff was reduced to .25 for this analysis.

Table 4.16: Varimax Rotation of Eight-Factor Solution Self-Report WEIP-5 $Time_2$ (N=331)

Item	Subscale	Component							
		1	2	3	4	5	6	7	8
25	7	.64							
15	7	.62							
33	7	.60							
16	4	.57							
5	7	.55							
28	4	.53							
37	7	.50							
1	1	.47							
42	5	.42							
44	4	.42							
45	8		.68						
36	8		.63						
18	8		.61						
29	8		.57						
35	8		.55						
6	8		.46						
30	3		.44						
47	4		.41						
48	5		.40						
8	2			.78					
11	2			.74					
38	2			.73					
24	2			.68					
46	2			.39					
21	5				.66				
23	5				.65				
22	5				.62				
26	6				.61				
9	6				.52				
27	5				.50				
31	6				.47				
13	5				.41				
17	1					.65			
39	1					.61			
7	1					.58			
34	1					.53			
2	3					.27			
12	4						.78		
3	4						.78		
4	4						.60		
43	6							.62	
14	6							.61	
20	8							.60	

Item	Subscale	Component							
		1	2	3	4	5	6	7	8
41	8							.47	
32	4							.39	
19	3								.77
40	3								.71
10	3								.70

The underlying factor structure revealed in the $Time_2$ data did not fully support Jordan's (2000) model of EI either. There was, however, some support for the factor/subscale structure. Subscales 1-4 existed as discreet factors, although with reduced item numbers. Subscale 7 also existed as a discreet factor, but was joined by items from subscales 1, 4 and 5. Subscale 8 was spread over two factors (components 2 and 7 in Table 4.15), and joined by items from subscales 3, 4, 5 and 6.

When comparing these findings to the results from $Time_1$ data, a similar pattern emerges, with even less support for the factor structure. Subscales 1 and 3 existed as discreet factors, although with reduced item numbers. Subscales 2, 4, 6, 7 and 8 were mixed across factors (see Table 4.15).

A total of 32 questionnaire items were common to the 8 factors at both $Time_1$ and $Time_2$. Factor 1 $Time_1$ and Factor 2 $Time_2$ shared seven items: 18, 29, 30, 35, 36, 45, and 47, largely representing subscale 8 - managing others' emotional states. Factor 2 $Time_1$ and Factor 1 $Time_2$ shared seven items: 15, 16, 25, 33, 37, 42 and 44 representing a mix of items from subscales 4 (application of own emotions to facilitate thinking), 5 (ability to recognise the emotions of others) and 7 (empathy). Factor 3 $Time_1$ and Factor 4 $Time_2$ shared six items: 9, 21, 22, 23, 26 and 31, representing three items from subscale 5 (ability to recognise the emotions of others) and three from subscale 6 (ability to read others' false displays of emotion). Factor 4 $Time_1$ and factor 5 $Time_2$ shared four items: 7, 17, 34 and 39 representing subscale 1 (awareness of emotions). Factor 5 $Time_1$ and factor 7 $Time_2$ shared three items: 32, 41 and 43 representing a single item from each of subscales 4, 6 and 8. Factor 6 $Time_1$ and factor 6 $Time_2$ shared two items: 3 and 12 representing two items from subscale 4. Factor 7 $Time_1$ and factor 8 $Time_2$ shared three items: 10, 19 and 40 representing subscale 3 (using emotions to prioritise thinking).

Finally, factor 8 $Time_1$ (items 2, 5, 14,and 20) had no items in common with a single factor at $Time_2$.

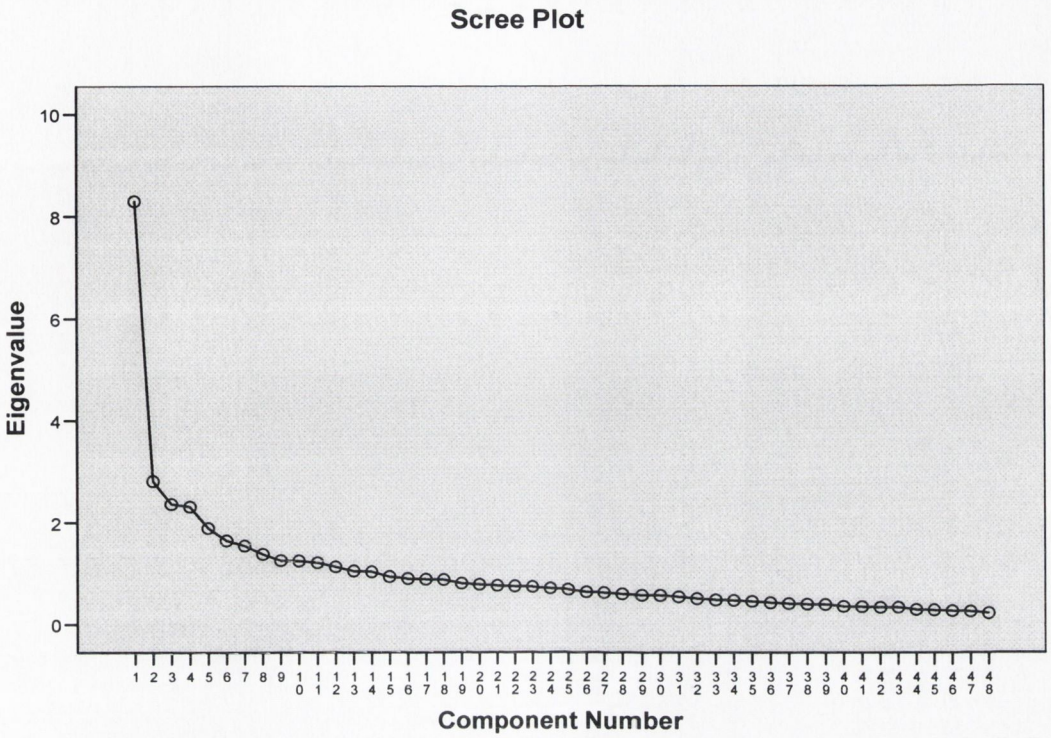
4.11 Exploratory Factor Analyses findings - Self-Report EI measure

While a 32-item measure provided a better fit to the data using 8 factors, the exploratory factor analyses did not confirm Jordan's (2000) model of EI for the 8 factor/subscale structure of the WEIP-5. It was, therefore, decided to conduct further exploratory factor analyses on the data sets.

Performing an exploratory factor analysis, principal components analysis revealed the presence of 14 components with eigenvalues exceeding 1 in $Time_1$ data, explaining 60.93 per cent of the variance.

An inspection of the screeplot (see Figure 4.17) from the exploratory factor analysis revealed a clear break after the first component, with a smaller break after the fourth component. It was, therefore, decided to examine the data using a four-factor solution. The four components accounted for 32.91 per cent of the variance cumulatively. Components one to four individually explained 17.28 per cent, 5.87 per cent, 4.93 per cent and 4.83 per cent of the variance respectively.

Figure 4.17: Factor analysis Self-Report WEIP-5 $Time_1$



Taking an orthogonal approach, which assumed that the factors were not related (Jordan, 2000), a varimax rotation was performed using the four components. The rotated solution consisted of 44 items (presented in Table 4.17) and excluded items 2, 19 and 30 (subscale 3), and item 14 (subscale 6) at $Time_1$ as only loadings above 0.3 were included. As Table 4.12 shows, there was some support for Jordan's (2000) original subscale structure, but with a reduction to four components, many subscales were mixed across components.

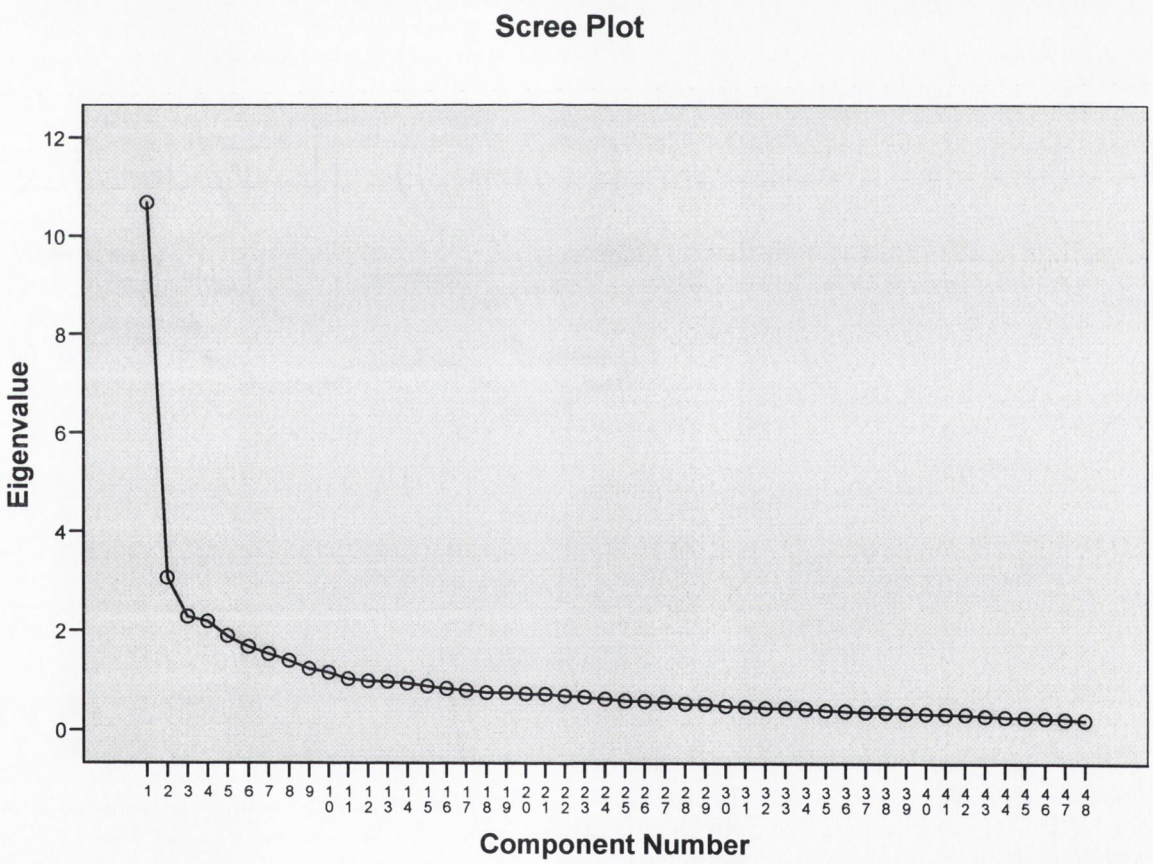
Table 4.17: Varimax Rotation of 4-Factor Solution Self-Report WEIP-5 $Time_1$ (N=331)

Item	Subscale	Component			
		1	2	3	4
38	2	.65			
11	2	.65			
36	8	.65			
46	2	.64			
24	2	.64			
45	8	.59			
35	8	.59			
18	8	.52			
13	5	.48			
47	4	.45			
6	8	.45			
9	6	.40			
29	8	.40			
3	4	.35			
42	5	.34			
41	8	.33			
12	4	.33			
16	4		.57		
28	4		.56		
37	7		.54		
5	7		.54		
4	4		.53		
27	5		.51		
15	7		.51		
25	7		.50		
33	7		.44		
44	4		.43		
32	4		.38		
20	8		.32		
23	5			.66	
22	5			.65	
21	5			.62	
31	6			.53	
26	6			.52	
48	5			.42	
40	3			.34	
43	6			.33	
7	1				.65
1	1				.64
17	1				.53
34	1				.50
8	2				.47
39	1				.47
10	3				.40

Note: Only loadings above .3 are displayed.

The entire process was repeated for the $Time_2$ data. Principal components analysis of $Time_2$ data revealed the presence of 11 components with eigenvalues exceeding 1, explaining 58.59 per cent of the variance. An inspection of the screeplot (see Figure 4.18) revealed a clear break after the first component, with a smaller break after the fourth component, similar to $Time_1$ results. It was again decided to proceed with a four-factor solution. Four components accounted for 28.88 per cent of the variance cumulatively. Components one to four individually accounted for 8.24 per cent, 8.16 per cent, 6.82 per cent and 5.66 per cent of the variance respectively.

Figure 4.18: Factor analysis Self-Report WEIP-5 $Time_2$



Taking an orthogonal approach, which assumed that the factors were not related, a varimax rotation was performed using the four components. The rotated solution (presented in Table 4.18) revealed the presence of all scale items at $Time_2$ despite the inclusion of loadings above 0.3 only.

Table 4.18: Varimax Rotation of 4-Factor Solution Self-Report WEIP-5 Time$_2$ (N=331)

Item	Subscale	Component			
		1	2	3	4
26	6	.66			
48	5	.56			
35	8	.56			
27	5	.55			
3	4	.55			
12	4	.54			
22	5	.54			
16	4	.53			
25	7	.52			
47	4	.52			
23	5	.51			
45	8	.50			
44	4	49			
33	7	.49			
36	8	.49			
21	5	.47			
6	8	.47			
15	7	.47			
31	6	.46			
4	4	.44			
30	3	.43			
13	5	.40			
29	8	.39			
42	5	.38			
18	8	.37			
8	2		.77		
38	2		.76		
11	2		.74		
24	2		.58		
46	2		.55		
34	1		.51		
9	6		.42		
28	4			.60	
5	7			.59	
17	1			.58	
39	1			.57	
1	1			.51	
2	3			.49	
37	7			.43	
7	1			.41	
32	4			.40	
10	3				-.67
40	3				-.65
19	3				-.61
41	8				.44

Item	Subscale	Component			
		1	2	3	4
20	8				.37
43	6				.36
14	6				.30

Note: Only loadings above .3 are displayed.

Overall results showed different loadings of items onto factors at $Time_1$ and $Time_2$. Jordan (2007) attributed this to the large number of items in version 5 of the WEIP measure (48 items), and has subsequently reduced the number of items to 36 in the WEIP-version 6. Furthermore, he is currently reducing the scale to 16 items in the WEIP-version 7, which is unpublished at present.

4.11.1 Reliability of 44-item Self-Report EI Measure

The 44-item scale produced Cronbach's alpha coefficients of .88 at $Time_1$ and .91 at $Time_2$ which represented an increase on the original 48-item scale which produced alpha coefficients of .87 for $Time_1$ and .90 for $Time_2$. Individual factor reliability coefficients are given in Table 4.19.

Table 4.19: Reliability analyses of 4-factor Self-Report EI measure derived from $Time_1$ data

Factor	No. of items	Cronbach's Alpha	
		Time 1	Time 2
1	17	.85	.84
2	12	.70	.75
3	8	.67	.69
4	7	.68	.67

The 44-item scale derived from the $Time_2$ data produced Cronbach's alpha coefficients of .88 at $Time_1$ and .91 at $Time_2$ which represented an increase on the original 48-item scale which produced alpha coefficients of .87 for $Time_1$ and .90 for $Time_2$. Individual factor reliability coefficients are given in Table 4.20.

Table 4.20: Reliability analyses of 4-factor Self-Report EI measure derived from $Time_2$ data

Factor	No. of items	Cronbach's Alpha	
		Time 1	Time 2
1	25	.86	.90
2	7	.78	.82
3	9	.53	.59
4	7	.43	.37

The ability of this reduced measure to identify increases in EI from $Time_1$ to $Time_2$ was examined using paired-samples t-tests (See Table 4.21). The factor structure from $Time_1$ data was used as it had produced higher internal consistency results for all four factors.

Table 4.21: Means and standard deviations of 44-item Self-Report total EI scores and factors (N = 331) at $Time_1$ and $Time_2$ and results of paired-samples t-test, (df = 330).

Total EI & Factors	Time	Mean	S.D.	t	Sig 2-tailed
Total EI	$Time_1$	209.66	21.93	6.24	p<.0005
	$Time_2$	216.87	24.75		
Factor 1: "Awareness of other's emotions"	$Time_1$	74.99	12.00	7.21	p<.0005
	$Time_2$	79.58	11.79		
Factor 2: "Recognising and controlling own emotional states"	$Time_1$	61.85	6.98	1.21	p=.228
	$Time_2$	62.30	7.69		n.s.
Factor 3: "Recognising and controlling others' emotional states"	$Time_1$	39.40	5.08	3.35	p<.05
	$Time_2$	40.35	5.25		
Factor 4: "Awareness of own emotions"	$Time_1$	33.42	5.30	4.27	p<.0005
	$Time_2$	34.64	5.33		

The 44-item measure was capable of identifying increases in total Self-Report EI and significant increases in three of the four factors (subscales). A 44-item measure may still contain too many items in view of Jordan's (2007) most recent work and it was decided to try and reduce the measure further.

It was decided to examine the suitability of reducing the number of items to 16 in the current study. The data did lend itself to such a reduction. Findings showed that eleven items were consistent within component 1 at both $Time_1$ and $Time_2$ (although the total number of items included differed from seventeen to twenty-five respectively). Component 4 at $Time_1$ and component 3 at $Time_2$ showed five items in common (although they differed in content from seven to nine items respectively). The remaining two components at both $Time_1$ and $Time_2$ consisted of different items each time. Support was shown for subscale 2 items 8, 11, 24, 38 and 46 together with items 34 (subscale 1) and 9 (subscale 6) included in component 2 at $Time_2$ but this was not the case at $Time_1$, when the subscale 2 items were mixed within component 1. It was decided to omit subscale 2 items from the resultant measure, as they were not stable within factors across time. Examination of the findings in the context of Jordan's (2000) 48-item measure yielded the following 16-item measure as a better fit to the data (See Table 4.22).

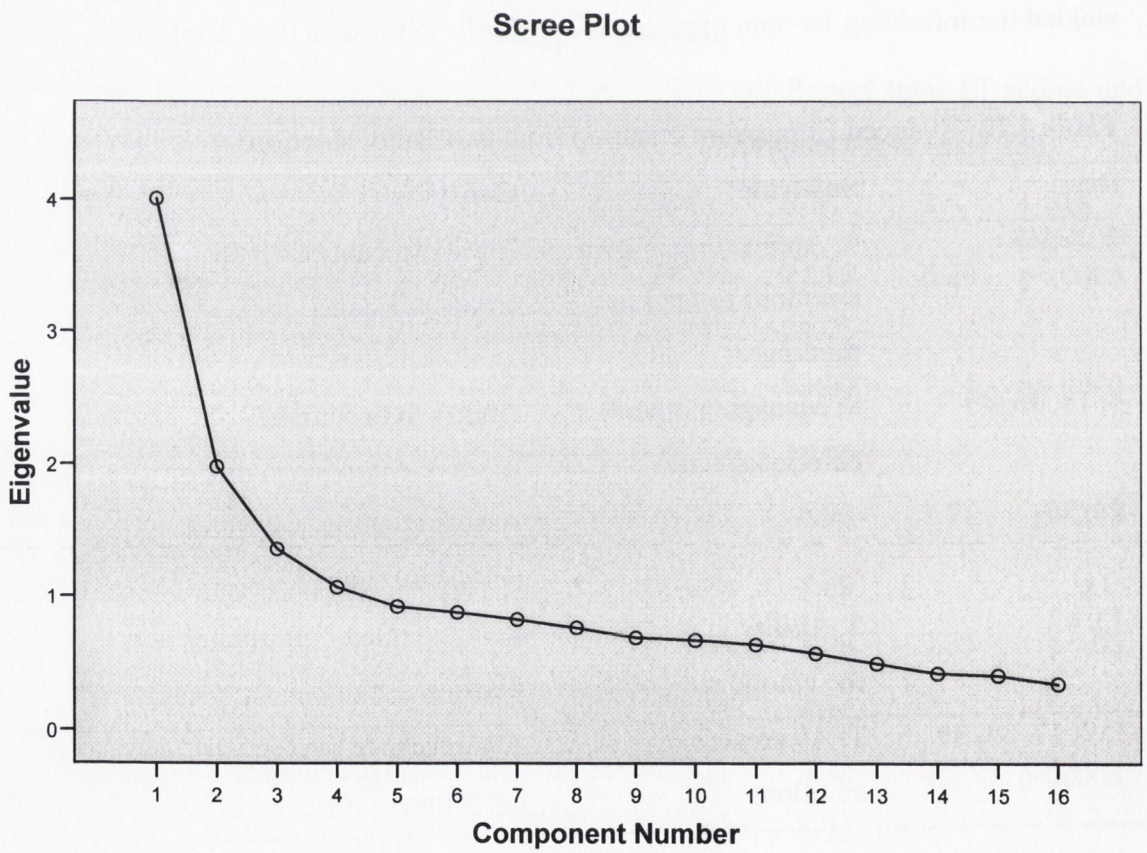
Table 4.22: Reduced EI measure resulting from two-factor solution

Item	Subscale	Construct	Factor
3, 12, 47	4: Application of own emotions to facilitate thinking	Ability to control emotional states	1
6, 18, 36, 45	8: Managing others' emotional states	Ability to encourage positive emotions in others	
29, 35		Assisting others to control emotional states	
13, 42	5: Ability to recognise the emotions of others	Reading others' emotional displays	
1, 7, 17, 34, 39	1: Awareness of emotions	Awareness of (own) emotions	2

The sixteen items of the Self-Report WEIP-5 scale (Jordan, 2000) $Time_1$ were subjected to principal components analysis (PCA) using SPSS. Prior to performing PCA, the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Oklin value was .79, exceeding the recommended value of .6 (Kaiser, 1974) and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance ($p < .0005$), supporting the factorability of the correlation matrix.

Principal components analysis revealed the presence of 4 components with eigenvalues exceeding 1, explaining 52.57 per cent of the variance. An inspection of the screeplot (see Figure 4.19) revealed a clear break after fourth component. Components one to four individually accounted for 25.04 per cent, 12.38 per cent, 8.48 per cent and 6.67 per cent of the variance respectively.

Figure 4.19: Factor Analysis of 16-item Self-Report EI $Time_1$



Taking an orthogonal approach again, which assumed that the factors were not related, a varimax rotation was performed using two components which the earlier analysis suggested. The rotated solution (presented in Table 4.23) revealed the presence of two factors with each of the sixteen items loading.

Table 4.23: Varimax Rotation of Two Factor Solution Self-Report WEIP-5 $Time_1$ (N=331)

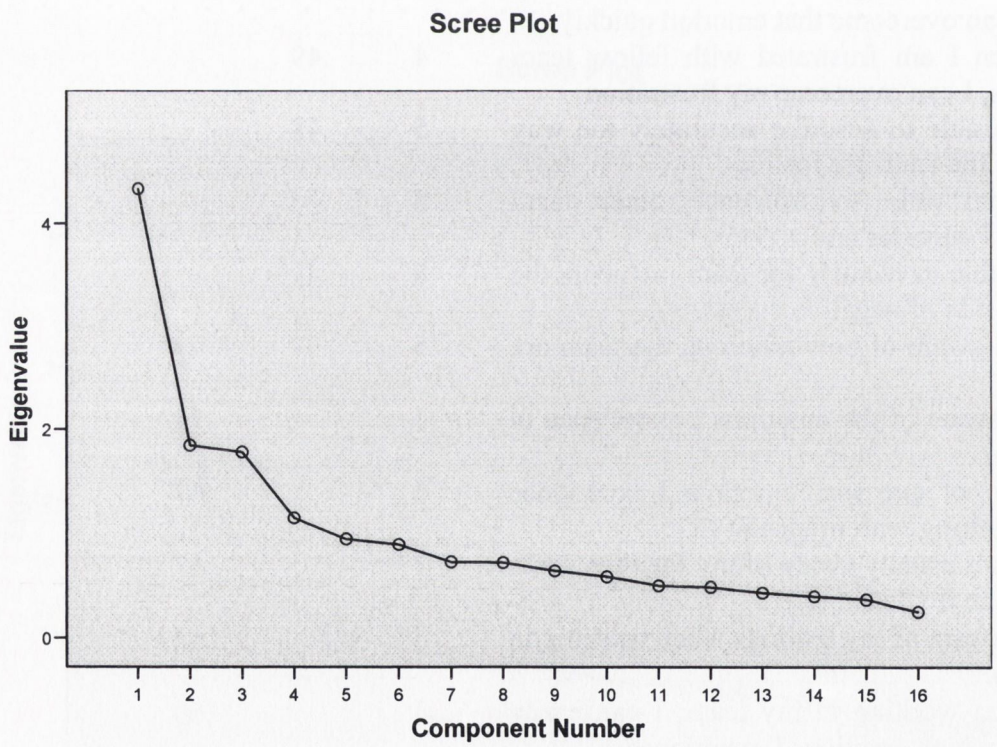
Item	Subscale	Component	
		1	2
36. I am able to cheer team members up when they are feeling down.	8	.68	
45. I can provide the "spark" to get fellow team members enthusiastic.	8	.68	
35. If a team member becomes frustrated, I can usually help them overcome this feeling.	8	.65	
18. My enthusiasm can be contagious for members of my team.	8	.61	
47. I am able to "bounce back" from an awkward situation with my team members.	4	.59	
3. When I am angry with a member of my team, I can overcome that emotion quickly.	4	.53	
12. When I am frustrated with fellow team members, I can overcome my frustration.	4	.49	
13. I am able to describe accurately the way others in the team are feeling.	5	.48	
29. I am able to influence other team member's attitudes and actions.	8	.45	
6. I am able to identify for team members the positive side of negative events.	8	.41	
42. I am aware of how others in the team are feeling.	5	.37	
7. I am aware of the emotions I experience in my team.	1		.75
17. I am not sure what emotions I experience when working with my team. (R)*	1		.67
39. I'm not usually aware of my feelings when working in my team. (R)*	1		.67
1. I am aware of my feelings when working in my team.	1		.62
34. When working in my team, I can easily identify which emotions I experience.	1		.60

*(R) = reverse scored

The sixteen items of the Self-Report WEIP-5 scale (Jordan, 2000) $Time_2$ were also subjected to principal components analysis (PCA) using SPSS. Prior to performing PCA, the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Oklin value was .78, exceeding the recommended value of .6 (Kaiser, 1974) and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance ($p < .0005$), supporting the factorability of the correlation matrix.

Principal components analysis revealed the presence of 4 components with eigenvalues exceeding 1, explaining 56.85 per cent of the variance. An inspection of the screeplot (see Figure 4.20) revealed a clear break after the fourth component. Components one to four individually accounted for 17.8 per cent, 17.7 per cent, 12.7 per cent and 8.5 per cent of the variance respectively.

Figure 4.20: Factor Analysis of 16-item Self-Report EI $Time_2$



Similar to $Time_1$, a varimax rotation was performed using two components. The rotated solution (presented in Table 4.24) revealed similar findings to $Time_1$ with sixteen items loading.

Table 4.24: Varimax Rotation of Two Factor Solution Self-Report WEIP-5 $Time_2$ (N=331)

Item	Subscale	Component	
		1	2
35. If a team member becomes frustrated, I can usually help them overcome this feeling.	8	.67	
36. I am able to cheer team members up when they are feeling down.	8	.66	
45. I can provide the "spark" to get fellow team members enthusiastic.	8	.65	
47. I am able to "bounce back" from an awkward situation with my team members.	4	.60	
29. I am able to influence other team member's attitudes and actions.	8	.54	
18. My enthusiasm can be contagious for members of my team.	8	.53	
6. I am able to identify for team members the positive side of negative events.	8	.51	
3. When I am angry with a member of my team, I can overcome that emotion quickly.	4	.42	
12. When I am frustrated with fellow team members, I can overcome my frustration.	4	.35	
17. I am not sure what emotions I experience when working with my team. (R)*	1		.74
34. When working in my team, I can easily identify which emotions I experience.	1		.73
7. I am aware of the emotions I experience in my team.	1		.71
39. I'm not usually aware of my feelings when working in my team. (R)*	1		.69
1. I am aware of my feelings when working in my team.	1		.68
42. I am aware of how others in the team are feeling.	5		.51
13. I am able to describe accurately the way others in the team are feeling.	5		.29

*(R) = reverse scored

The results from $Time_1$ and $Time_2$ data yielded slightly different structures to the 16-item Self-Report EI measure. Two items (13 and 42) have moved into factor 2 in the $Time_2$ rotation.

4.11.2 Reliability of 16-item Self-Report EI Measure

Both 16-item versions of the Self-Report EI measure were tested for internal consistency. Scale alpha reliability for the total 16-item Self-Report EI measure was .80 for $Time_1$ and .83 for $Time_2$. As the scale's overall Cronbach's alpha coefficient was above 0.70, it can be judged to have been a reliable scale when used with the current sample (Nunnally, 1978). These results were, however, lower than the alpha coefficients obtained for the original 48-item measure of 0.87 for $Time_1$ and 0.90 for $Time_2$, and lower than the findings of Jordan (2000) who obtained an overall Cronbach's alpha coefficient of 0.84 for the 48-item scale.

Table 4.25: Reliability analyses of 2-factor Self-Report EI measure derived from $Time_1$ data

Factor	No. of items	Cronbach's Alpha	
		Time 1	Time 2
1	11	.79	.80
2	5	.71	.76

Cronbach's alpha coefficients varied depending on which 2-factor scale was subjected to testing. The 2-factor scale derived from the $Time_1$ data produced higher coefficients, suggesting higher internal consistency (see Table 4.25). The 2-factor scale derived from the $Time_2$ data produced lower coefficients (see Table 3.26) and was not subjected to paired-samples t-tests in the evaluation of the reduced 16-item scale.

Table 4.26: Reliability analyses of 2-factor Self-Report EI measure derived from $Time_2$ data

Factor	No. of items	Cronbach's Alpha	
		Time 1	Time 2
1	9	.77	.78
2	7	.68	.75

In order to assess the ability of this measure to predict increases in EI, paired samples t-tests were conducted using the total scores and factor scores from the 16-item measure on data sets from $Time_1$ and $Time_2$. Statistically significant results were obtained for all three tests indicating that the much-reduced measure could identify changes in EI (See Table 4.27).

Table 4.27: Means and standard deviations of 16-item Self-Report total EI scores and factors (N = 331) at $Time_1$ and $Time_2$ and results of paired-samples t-test, (df = 330).

Total EI & Factors	Time	Mean	S.D.	t	Sig 2-tailed
Total EI	$Time_1$	75.64	9.85	7.01	p<.0005
	$Time_2$	79.16	10.36		
Factor 1: "Recognising and controlling others' emotional states"	$Time_1$	50.62	7.79	6.74	p<.0005
	$Time_2$	53.40	7.68		
Factor 2: "Awareness of own emotions"	$Time_1$	24.87	4.25	3.85	p<.0005
	$Time_2$	25.76	4.40		

4.12 Factor Analysis - Peer-Report EI Measure

Jordan's (2000) Peer-Report WEIP-5 measure consists of six factors (subscales), which correspond to six of the eight subscales of the Self-Report measure. The two subscales omitted from the Peer-Report measure by Jordan (2000) are subscale 1, "awareness of emotions" and subscale 7, "empathy". In order to examine this six factor underlying structure, the Peer-Report data were subjected to an exploratory factor analysis.

The 26 items of the Peer-Report WEIP-5 scale (Jordan, 2000) $Time_1$ were subjected to principal components analysis (PCA) using SPSS. Prior to performing PCA, the suitability of data for factor analysis was assessed. Boxplots indicated an absence of outliers in the data. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Oklin value was .80, exceeding the recommended value of .6 (Kaiser, 1974) and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance ($p < .0005$), supporting the factorability of the correlation matrix.

Six factors/components accounted for 54.78 per cent of the variance cumulatively. Components one to six individually accounted for 12.08 per cent, 10.92 per cent, 8.92 per cent, 8.01 per cent, 7.53 per cent and 7.32 per cent of the variance respectively.

Taking an orthogonal approach, which assumed that the factors were not related, a varimax rotation was performed using the six components (see Table 4.28). Loadings above 0.3 were included and no items were excluded in the six component solution at $Time_1$.

Results of the six-factor exploratory factor analysis for $Time_1$ data showed little support for a six-factor model with six discreet factors containing the items identified by Jordan (2000). Twenty items were mixed together across five of the six factors, with subscale 4 items ("application of own emotions to facilitate thinking") the only items to appear as a distinct factor. It was decided to examine the $Time_2$ data before drawing further conclusions.

Table 4.28: Varimax Rotation of Six-Factor Solution Peer-Report WEIP-5 $Time_1$ (N=231)

Item	Subscale	Component					
		1	2	3	4	5	6
26	4	.74					
22	4	.69					
15	4	.65					
3	4	.56					
8	4	.52					
13	4	.50					
5	8		.77				
1	8		.67				
17	8		.59				
7	3		.53				
12	2			.73			
20	2			.69			
25	8			.58			
18	8			.48			
24	6				.64		
2	3				.62		
6	2				.56		
10	6				.48		
11	8				.44		
4	6					.65	
16	5					.56	
23	5					.55	
9	5					.46	
21	3						.77
14	3						.74
19	8						.51

Note: Only loadings above .3 are displayed.

The 26 items of the Peer-Report WEIP-5 scale (Jordan, 2000) $Time_2$ were similarly subjected to principal components analysis (PCA) using SPSS. Prior to performing PCA, the suitability of data for factor analysis was assessed. Boxplots indicated an absence of outliers in the data. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Oklin value was .86, exceeding the recommended value of .6 (Kaiser, 1974) and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance ($p < .0005$), supporting the factorability of the correlation matrix.

Six factors/components accounted for 62.45 per cent of the variance cumulatively. Components one to six individually accounted for 20.30 per cent, 15.62 per cent, 7.35 per cent, 7.30 per cent, 6.71 per cent and 5.17 per cent of the variance respectively.

Taking an orthogonal approach, which assumed that the factors were not related, a varimax rotation was performed using the six components (see Table 4.29). Loadings above 0.3 were included and no items were excluded in the six component solution at $Time_2$.

Results of the exploratory factor analysis of the six-factor model on the $Time_2$ data were dissimilar to the results from the $Time_1$ data. Findings did not reflect the distribution of items as defined by Jordan (2000). No support was found for any of the six discreet factors proposed, as items from different subscales mixed together to form factors. However, five of the six items in subscale 4 did cluster together in Factor (Component) 2, similar to the $Time_1$ data (Component 1). Component 1 in the $Time_2$ data contains the entire 8 items that were components 2 and 3 in the $Time_1$ data, in addition to 3 other items. These 11 items were drawn from subscales 2, 3, and 8. In the remaining components, items moved between components in analyses of the two data sets.

Table 4.29: Varimax Rotation of Six-Factor Solution Peer-Report WEIP-5 $Time_2$ (N=231)

Item	Subscale	Component					
		1	2	3	4	5	6
5	8	.80					
12	2	.73					
1	8	.73					
25	8	.72					
20	2	.68					
17	8	.67					
9	5	.55					
18	8	.54					
16	5	.48					
4	6	.48					
7	3	.47					
3	4		.75				
26	4		.71				
13	4		.69				
22	4		.69				
15	4		.65				
11	8			.71			
6	2			.63			
19	8			.61			
8	4			.46			
21	3				.84		
14	3				.82		
10	6					.78	
2	3					.77	
23	5					.43	
24	6						.85

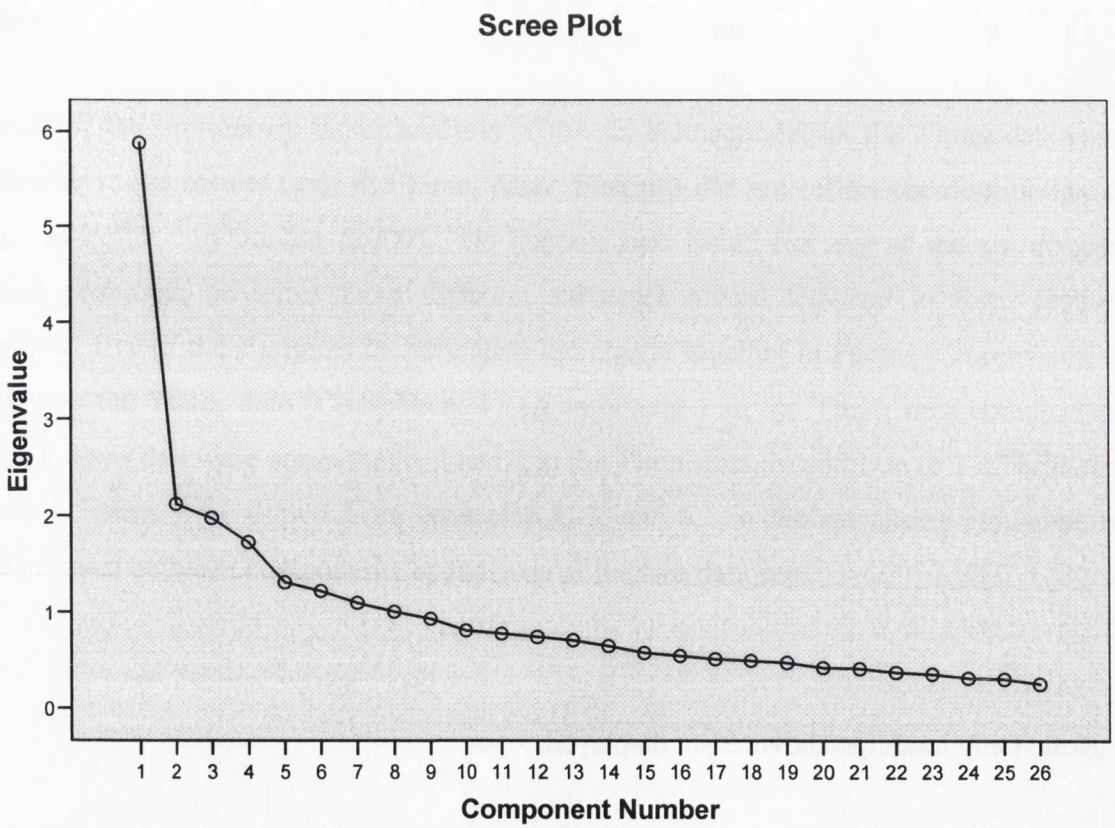
Note: Only loadings above .3 are displayed.

4.13 Exploratory Factor Analyses - Peer-Report WEIP-5 Measure

Due to the fact that the initial exploratory factor analyses failed to support the six-factor EI model purportedly measured by the Peer-Report WEIP-5 (Jordan, 2000), it was decided to conduct further exploratory factor analyses on the data sets from $Time_1$ and $Time_2$.

Principal components analysis revealed the presence of 8 components with eigenvalues exceeding 1, explaining 62.87 per cent of the variance. An inspection of the screeplot (See Figure 4.21) revealed a clear break after the first component, with a smaller break after the fourth component. Four components accounted for 45.01 per cent of the variance cumulatively. Components one to four individually accounted for 22.62 per cent, 8.16 per cent, 7.61 per cent and 6.62 per cent of the variance respectively.

Figure 4.21: Factor analysis Peer-Report WEIP-5 $Time_1$



Taking an orthogonal approach, which assumed that the factors were not related, a varimax rotation was performed using the four components (see Table 4.30). Loadings above 0.3 were included and no items were excluded in the four component solution at $Time_1$. Four components accounted for 45.04 per cent of the variance cumulatively. Components one to four individually accounted for 14.92 per cent, 14.70 per cent, 8.03 per cent and 7.39 per cent of the variance respectively.

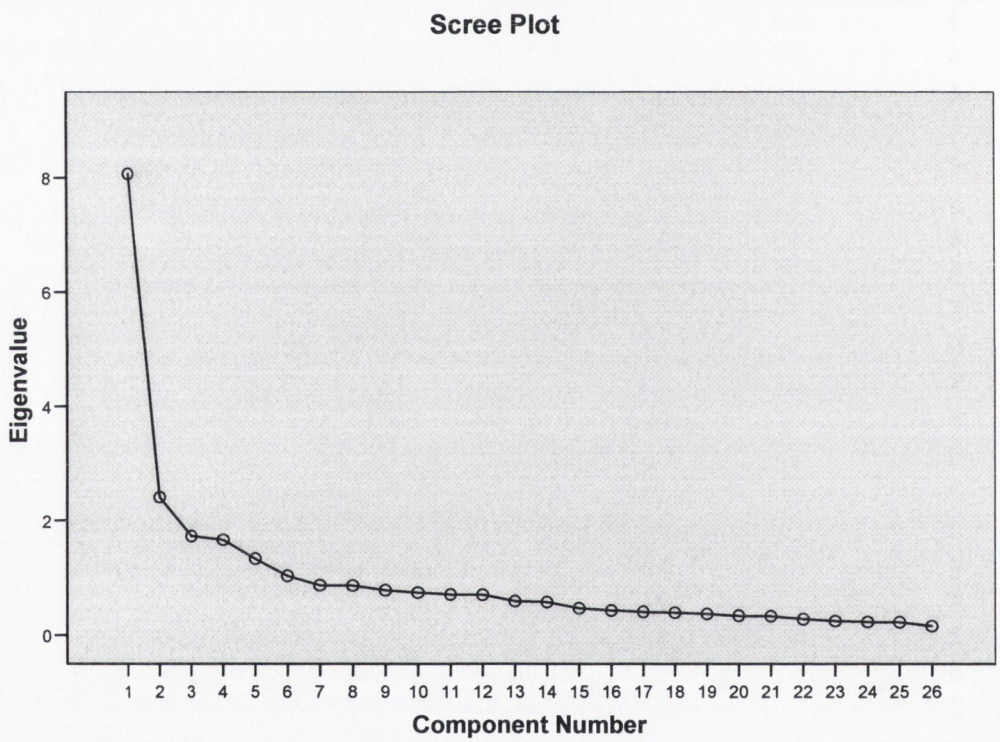
Table 4.30: Varimax Rotation of 4-Factor Solution Peer-Report WEIP-5 $Time_1$ (N=231)

Item	Subscale	Component			
		1	2	3	4
26	4	.69			
15	4	.67			
3	4	.67			
22	4	.64			
13	4	.62			
9	5	.51			
8	4	.45			
23	5	.44			
16	5	.39			
4	6	.37			
5	8		.72		
17	8		.68		
25	8		.66		
7	3		.55		
12	2		.54		
1	8		.52		
18	8		.51		
20	2		.50		
24	6			.70	
6	2			.56	
2	3			.53	
10	6			.47	
11	8			.43	
21	3				.76
14	3				.74
19	8				-.51

Note: Only loadings above .3 are displayed.

The 26 items of the Peer-Report WEIP-5 scale (Jordan, 2000) $Time_2$ were similarly subjected to principal components analysis (PCA) using SPSS. Principal components analysis revealed the presence of 6 components with eigenvalues exceeding 1, explaining 62.45 per cent of the variance. An inspection of the screeplot (see Figure 4.22) revealed a clear break after the first component, with a smaller break after the fourth component, similar to $Time_1$ results. Four components accounted for 53.35 per cent of the variance cumulatively. Components one to four individually accounted for 31.03 per cent, 9.27 per cent, 6.65 per cent and 6.40 per cent of the variance respectively.

Figure 4.22: Factor analysis Peer-Report WEIP-5 $Time_2$



Taking an orthogonal approach, which assumed that the factors were not related, a varimax rotation was performed using the four components (see Table 4.31). Loadings above 0.3 were included and no items were excluded in the four component solution at $Time_2$. Four components accounted for 53.35 per cent of the variance cumulatively.

Components one to four individually accounted for 20.37 per cent, 17.10 per cent, 7.96 per cent and 7.91 per cent of the variance respectively.

Table 4.31: Varimax Rotation of 4-Factor Solution Peer-Report WEIP-5 $Time_2$ (N=231)

Item	Subscale	Component			
		1	2	3	4
5	8	.76			
20	2	.73			
25	8	.71			
12	2	.70			
17	8	.66			
1	8	.66			
6	2	.66			
4	6	.54			
18	8	.53			
7	3	.46			
3	4		.75		
26	4		.72		
13	4		.71		
15	4		.69		
22	4		.69		
9	5		.55		
16	5		.48		
23	5		.42		
14	3			.81	
21	3			.76	
8	4			-.52	
11	8			-.38	
10	6				.74
2	3				.70
24	6				.44
19	8				.41

Note: Only loadings above .3 are displayed.

Overall results showed different loadings of variables onto factors at $Time_1$ and $Time_2$, similar to the Self-Report WEIP-5. In the current study, findings showed that eight items were consistent within component 1 and component 2 at both $Time_1$ and $Time_2$, although the total number of items included differed from ten to eight respectively. Component 2 at $Time_1$ and component 1 at $Time_2$ showed a further eight items in common although they differed in content from eight to ten items respectively. Component 3 at $Time_1$ and component 4 at $Time_2$ showed a further three items in common although they differed in content from five to four items respectively. Component 4 at $Time_1$ and component 3 at $Time_2$ showed two items in common but differed in content from three to four items respectively.

Examination of the findings in the context of Jordan's (2000) 26-item measure yielded the following 21-item measure as a better fit to the data (see Table 4.32). Items 4, 6, 8, 11, and 19 were removed from the original 26-item measure.

Table 4.32: Reduced Peer-Report EI measure resulting from four-factor solution

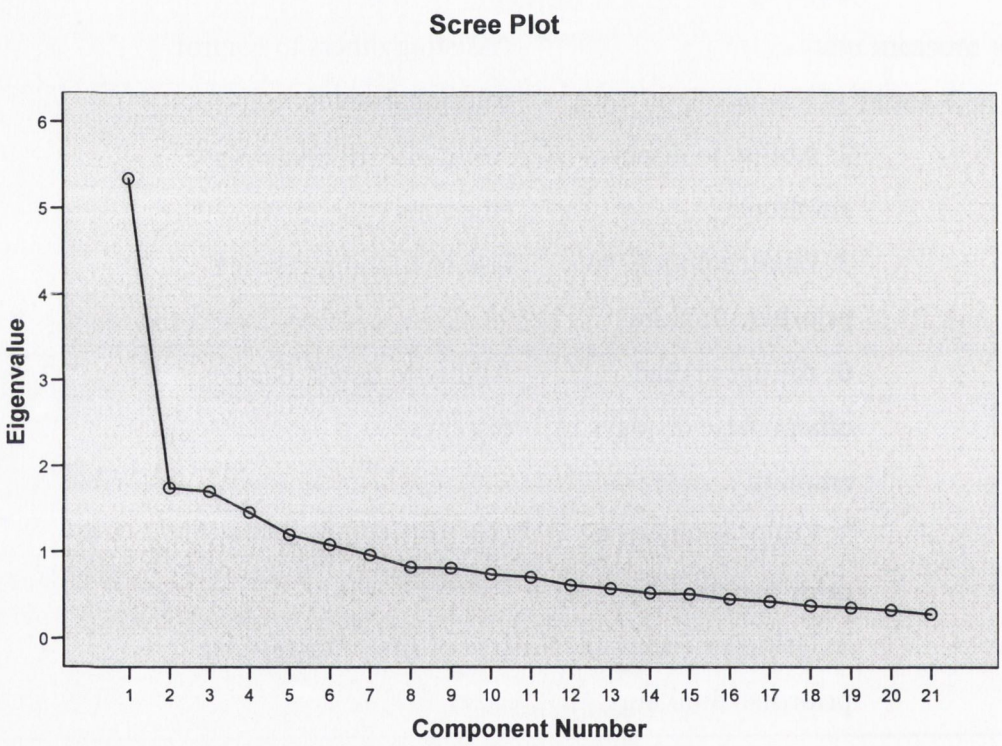
Item	Subscale	Construct	Component
3, 22, 26	4: Application of own emotions to facilitate thinking	Ability to control emotional states	1
13, 15		Perspective taking	
9, 16, 23	5: Ability to recognise the emotions of others	Reading others' emotional displays	
5, 18, 25	8: Influencing others' emotions to facilitate thinking	Ability to encourage positive emotions in others	2
1, 17		Assisting others to control emotional states	
12, 20	2: Ability to discuss emotions	Ability to articulate emotions	
7	3: Using emotions to prioritise thinking	Use of first impressions	
10, 24	6: Ability to read others' false displays of emotion	Ability to detect false displays	3
2	3: Using emotions to prioritise thinking	Use of first impressions	
14, 21	3: Using emotions to prioritise thinking	Use of first impressions	4

The twenty-one items of the Peer-Report WEIP-5 scale (Jordan, 2000) $Time_1$ were subjected to principal components analysis (PCA) using SPSS. Prior to performing PCA, the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Oklin value was .81, exceeding the recommended value of .6 (Kaiser, 1974) and Bartlett's

Test of Sphericity (Bartlett, 1954) reached statistical significance ($p < .0005$), supporting the factorability of the correlation matrix.

Principal components analysis revealed the presence of 4 components with eigenvalues exceeding 1, explaining 48.77 per cent of the variance. An inspection of the screeplot (see Figure 4.23) revealed a clear break after the first component, with a smaller break after the fourth component. Components one to four individually accounted for 16.73 per cent, 16.05 per cent, 8.19 per cent and 7.81 per cent of the variance respectively.

Figure 4.23: Factor Analysis of 21-item Peer-Report EI measure $Time_1$



Taking an orthogonal approach again, which assumed that the factors were not related, a varimax rotation was performed using four components which the earlier analysis suggested. The rotated solution (presented in Table 4.33) revealed the presence of four factors with each of the twenty-one items loading.

Table 4.33: Varimax Rotation of 4-Factor Solution Peer-Report WEIP-5 $Time_1$ (N=231)

Item	Subscale	Component			
		1	2	3	4
5. This person can provide the "spark" to get fellow team members enthusiastic	8	.72			
17. This person is able to influence other team members' attitudes and actions.	8	.70			
25. This person's enthusiasm can be contagious for members of my team.	8	.67			
7. This person draws on intuition and instinct when discussing issues with the team.	3	.57			
12. This person can discuss the emotions she/he feels with other team members.	2	.54			
20. This person can talk to other members of the team about the emotions he/she experiences.	2	.53			
1. If a team member becomes frustrated, this person can usually help them overcome this feeling.	8	.53			
18. This person is able to cheer team members up when they are feeling down.	8	.51			
26. This person is good at controlling his/her emotions when working in our team.	4		.74		
22. When this person is frustrated with fellow team members, he/she can overcome their experiences.	4		.69		
15. When deciding a dispute between team members, this person tries to see all sides of a disagreement before coming to a conclusion.	4		.67		
3. When this person is angry, he/she can overcome that emotion quickly.	4		.65		
13. If a team member comes to this person with a problem, she/he can listen to them without judging.	4		.63		
9. This person is aware of how others in the team are feeling.	5		.48		
14. First impressions form part of this person's opinion when discussing issues in the team.	3			.81	

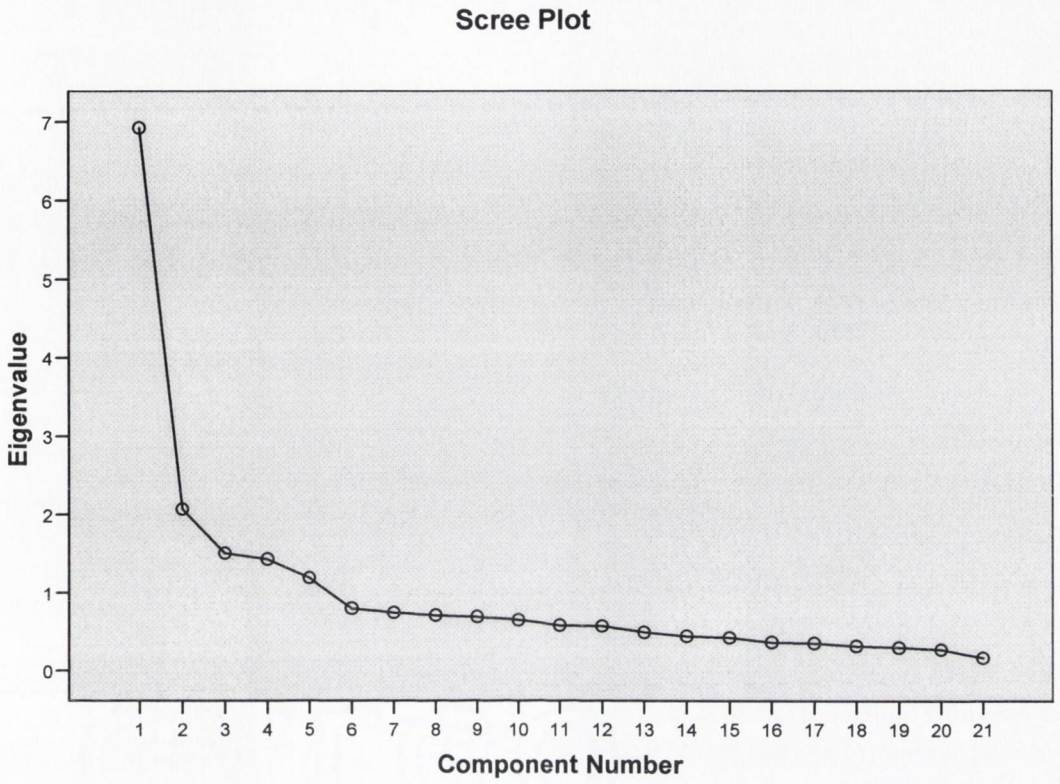
Item	Subscale	Component			
		1	2	3	4
21. When discussing issues this team member usually draws on his/her first impressions.	3			.80	
16. This person is able to describe accurately the way others are feeling.	5			.39	
24. This person finds it difficult to tell team members are not being sincere about how they feel	6				.72
10. Fellow team members are able to conceal how they feel about issues from this person	6				.60
2. This person seldom mentions that she/he have an initial feeling that something is right or wrong when working with our team.	3				.50
23. This person takes notice of the mood I am in.	5				.41

Items 16 and 23 moved from component 1 into components 3 and 4 respectively.

The twenty-one items of the Peer-Report WEIP-5 scale (Jordan, 2000) $Time_2$ were also subjected to principal components analysis (PCA) using SPSS. Prior to performing PCA, the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Oklin value was .86, exceeding the recommended value of .6 (Kaiser, 1974) and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance ($p < .0005$), supporting the factorability of the correlation matrix.

Principal components analysis revealed the presence of 4 components with eigenvalues exceeding 1, explaining 56.81 per cent of the variance. An inspection of the screeplot (see Figure 4.24) revealed a clear break after the first component, with a smaller break after the fourth component. Components one to four individually accounted for 22.43 per cent, 17.83 per cent, 8.59 per cent and 7.96 per cent of the variance respectively.

Figure 4.24: Factor Analysis of 21-item Peer-Report EI measure $Time_2$



Taking an orthogonal approach again, which assumed that the factors were not related, a varimax rotation was performed using four components which the earlier analysis suggested. The rotated solution (presented in Table 4.34) revealed the presence of four factors with each of the twenty-one items loading.

Table 4.34: Varimax Rotation of Four Factor Solution Peer-Report WEIP-5 $Time_2$ (N=231)

Item	Subscale	Component			
		1	2	3	4
5. This person can provide the "spark" to get fellow team members enthusiastic	8	.82			
25. This person's enthusiasm can be contagious for members of my team.	8	.73			
1. If a team member becomes frustrated, this person can usually help them overcome this feeling.	8	.72			
12. This person can discuss the emotions she/he feels with other team members.	2	.71			
20. This person can talk to other members of the team about the emotions he/she experiences.	2	.71			
17. This person is able to influence other team members' attitudes and actions.	8	.70			
18. This person is able to cheer team members up when they are feeling down.	8	.58			
9. This person is aware of how others in the team are feeling.	5	.55			
7. This person draws on intuition and instinct when discussing issues with the team.	3	.48			
3. When this person is angry, he/she can overcome that emotion quickly.	4		.73		
26. This person is good at controlling his/her emotions when working in our team.	4		.72		
22. When this person is frustrated with fellow team members, he/she can overcome their experiences.	4		.72		
13. If a team member comes to this person with a problem, she/he can listen to them without judging.	4		.71		
15. When deciding a dispute between team members, this person tries to see all sides of a disagreement before coming to a conclusion.	4		.71		
16. This person is able to describe accurately the way others are feeling.	5		.45		

Item	Subscale	Component			
		1	2	3	4
23. This person takes notice of the mood I am in.	5		.34		
14. First impressions form part of this person's opinion when discussing issues in the team.	3			.84	
21. When discussing issues this team member usually draws on his/her first impressions.	3			.83	
10. Fellow team members are able to conceal how they feel about issues from this person	6				.83
2. This person seldom mentions that she/he have an initial feeling that something is right or wrong when working with our team.	3				.77
24. This person finds it difficult to tell team members are not being sincere about how they feel	6				.27

Item 9 moved into component 1 at $Time_2$, and items 16 and 23 moved from components 3 and 4 respectively into component 2. Item 24 displayed a very low loading.

4.13.1 Reliability analyses of the 21-item Peer-Report EI Measure

The 21-item version of the Peer-Report EI measure was tested for internal consistency. Scale alpha reliability for the total 21-item Peer-Report EI measure was .81 for $Time_1$ and .87 for $Time_2$. As the scale's overall Cronbach's alpha coefficient was above 0.70, it can be judged to have been a reliable scale when used with the current sample (Nunnally, 1978). These results were, however, lower than the alpha coefficients obtained for the original 26-item measure of 0.83 for $Time_1$ and 0.89 for $Time_2$, and lower than the findings of Moriarty and Buckley (2003) who obtained an overall Cronbach's alpha coefficient of 0.82 for the 26-item scale.

The four factors of the 21-item Peer-Report EI measure were also tested for internal consistency and Cronbach's alpha coefficients are shown in Table 4.35. Factor 3 showed low internal consistency, as did Factor 4 at Time2 which is common with subscales containing very few items.

Table 4.35: Reliability of 21-item Peer-Report EI measure

Factor	No. of items	Cronbach's Alpha	
		Time 1	Time 2
1	8	.78	.84
2	8	.80	.88
3	3	.40	.48
4	2	.62	.70

4.13.2 T-tests using 21 item Peer-Report EI Measure

In order to assess the ability of this measure to predict increases in EI, paired samples t-tests were conducted using the total scores and factor scores from the 21-item Peer-Report measure on data sets from $Time_1$ and $Time_2$ and results are shown in Table 4.36. Statistically significant results were obtained for all total Peer-Report EI scores and for two of the four subscales, indicating that the reduced measure could not identify changes in Peer-Report EI to the same extent as the original 26-item Peer-Report WEIP-5 (Jordan, 2000).

Table 4.36: Means and standard deviations of 21-item Peer-Report total EI scores and factors (N = 331) at $Time_1$ and $Time_2$ and results of paired-samples t-test, (df = 230).

Total EI & Factors	Time	Mean	S.D.	t	Sig 2-tailed
Total EI	$Time_1$	97.87	6.85	9.92	p<.0005
	$Time_2$	105.02	8.86		
Factor 1: "Recognising and controlling others' emotional states"	$Time_1$	38.90	3.48	10.71	p<.0005
	$Time_2$	42.50	3.92		
Factor 2: "Awareness of own emotions"	$Time_1$	38.06	3.65	9.78	p<.0005
	$Time_2$	41.49	4.76		
Factor 3: "Awareness of own emotions"	$Time_1$	12.45	1.50	.24	p=.81
	$Time_2$	12.42	1.91		n.s.
Factor 4: "Awareness of own emotions"	$Time_1$	8.46	1.25	1.29	p=.20
	$Time_2$	8.61	1.51		n.s.

4.14 Comparing Self-Report and Peer-Report Factor Analyses findings

The items in the Peer-Report EI measure are numbered differently from the Self-Report measure and a further step was undertaken to compare the findings. The sixteen items identified in the Self-Report factor analysis were numbered for both Self and Peer-Report measures to identify any overlap. Results are shown in Tables 4.37 and 4.38.

Nine items of the Self-Report WEIP-5 were shared with the Peer-Report WEIP-5 (items 3, 12, 13 18, 29 35, 36, 42, 45), with five of those items loading onto one factor in both measures (items 18, 29, 35, 36, 45). It was not possible to test the remaining items as subscales one and seven do not exist in the Peer-Report measure. The remaining items formed another factor in the Peer-Report WEIP-5. Clustering of items in both factor analyses supported the sub-scale structure. Five items of subscale eight (influencing others' emotions to facilitate thinking) were common to both measures. Five items of subscale 4 (application of own emotions to facilitate thinking) existed as a separate factor in the Peer-Report results, while two of these items were included in factor one of the Self-Report results.

Table 4.37: Varimax Rotation of Two Factor Solution of 16-item Self-Report WEIP-5 (N=331)

Item Self-Report	Subscale Self	Corresponding Item Peer-Report	Subscale Peer	Component	
				1	2
35. If a team member becomes frustrated, I can usually help them overcome this feeling.	8	1. If a team member becomes frustrated, this person can usually help them overcome this feeling.	8	.67	
36. I am able to cheer team members up when they are feeling down.	8	18. This person is able to cheer team members up when they are feeling down.	8	.66	
45. I can provide the "spark" to get fellow team members enthusiastic.	8	5. This person can provide the "spark" to get fellow team members enthusiastic	8	.65	
47. I am able to "bounce back" from an awkward situation with my team members.	4	-N/A	-	.60	
29. I am able to influence other team member's attitudes and actions.	8	17. This person is able to influence other team members' attitudes and actions.	8	.54	
18. My enthusiasm can be contagious for members of my team.	8	25. This person's enthusiasm can be contagious for members of my team.	8	.53	
6. I am able to identify for team members the positive side of negative events.	8	- N/A	-	.51	
3. When I am angry with a member of my team, I can overcome that emotion quickly.	4	3. When this person is angry, he/she can overcome that emotion quickly.	4	.42	
12. When I am frustrated with fellow team members, I can overcome my frustration.	4	22. When this person is frustrated with fellow team members, he/she can overcome their experiences.	4	.35	
17. I am not sure what emotions I experience	1	- N/A	-		.74

when working with my team. (R)*					
34. When working in my team, I can easily identify which emotions I experience.	1	- N/A	-		.73
7. I am aware of the emotions I experience in my team.	1	- N/A	-		.71
39. I'm not usually aware of my feelings when working in my team. (R)*	1	- N/A	-		.69
1. I am aware of my feelings when working in my team.	1	- N/A	-	.38	.68
42. I am aware of how others in the team are feeling.	1	9. This person is aware of how others in the team are feeling.	5		.51
13. I am able to describe accurately the way others in the team are feeling.	5	16. This person is able to describe accurately the way others are feeling.	5		.29

-N/A = Item not available in Peer-Report WEIP-5 (Jordan, 2000).

Table 4.38: Varimax Rotation of 21-item Four Factor Solution Peer-Report WEIP-5 $Time_2$ (N=231)

Item Peer-Report	Subscale Peer	Corresponding Item Self-Report	Subscale Self	Component			
				1	2	3	4
5. This person can provide the "spark" to get fellow team members enthusiastic	8	45. I can provide the "spark" to get fellow team members enthusiastic.	8	.82			
25. This person's enthusiasm can be contagious for members of my team.	8	18. My enthusiasm can be contagious for members of my team.	8	.73			
1. If a team member becomes frustrated, this person can usually help them overcome this feeling.	8	35. If a team member becomes frustrated, I can usually help them overcome this feeling.	8	.72			
12. This person can discuss the emotions she/he feels with other team members.	2	11. I can discuss the emotions I feel with other team members	2	.71			
20. This person can talk to other members of the team about the emotions he/she experiences.	2	38. I can talk to other members of the team about the emotions I experience.	2	.71			
17. This person is able to influence other team members' attitudes and actions.	8	29. I am able to influence other team member's attitudes and actions.	8	.70			
18. This person is able to cheer team members up when they are feeling down.	8	36. I am able to cheer team members up when they are feeling down.	8	.58			
9. This person is aware of how others in the team are feeling.	5	42. I am aware of how others in the team are feeling.	5	.55			
7. This person draws on intuition and instinct when discussing issues with the team.	3	30. I draw on intuition and instinct when discussing issues within my team.	3	.48			
3. When this person is angry, he/she can	4	3. When I am angry with a member of my	4		.73		

overcome that emotion quickly.		team, I can overcome that emotion quickly.					
26. This person is good at controlling his/her emotions when working in our team.	4	32. I am not very good at controlling my emotions when working with my team.	4		.72		
22. When this person is frustrated with fellow team members, he/she can overcome their experiences.	4	12. When I am frustrated with fellow team members, I can overcome my frustration.	4		.72		
13. If a team member comes to this person with a problem, she/he can listen to them without judging.	4	44. If a team member comes to me with a problem, I can listen to them without judging.	4		.71		
15. When deciding a dispute between team members, this person tries to see all sides of a disagreement before coming to a conclusion.	4	16. When deciding on a dispute, I try to see all sides of a disagreement before I come to a conclusion.	4		.71		
16. This person is able to describe accurately the way others are feeling.	5	13. I am able to describe accurately the way others in the team are feeling.	5		.45		
23. This person takes notice of the mood I am in.	5	27. I take notice of the mood my fellow team members are in.	5		.34		
14. First impressions form part of this person's opinion when discussing issues in the team.	3	19. First impressions form part of my opinion when discussing issues with team members.	3			.84	
21. When discussing issues this team member usually draws on his/her first impressions.	3	10. When discussing issues in my team I usually draw on my first impressions.	3			.83	
10. Fellow team members are able to conceal how they feel about issues from this person	6	14. Fellow team members are able to conceal how they feel about issues from me (R).	6				.83
2. This person seldom mentions that she/he have an initial feeling that something is right	3	2. I seldom have an initial feeling that something is right or wrong when working in	3				.77

24. This person finds it difficult to tell team members are not being sincere about how they feel	6	43. I find it difficult to tell when team members are not being sincere about how they feel (R).	6				.27

*(R) = reverse scored

Chapter 5 - Discussion

5.0 Discussion

5.1 Introduction

This chapter summarises the results obtained in this study and continues with a discussion of them in the context of previous research and theory. Self-Report emotional intelligence results are discussed initially, both at total scale level and at subscale level. Similarities and differences are then discussed with the comparison group for Self-Report emotional intelligence. Peer-report emotional intelligence results are then discussed, followed by the relationship between Self-Report and Peer-Report emotional intelligence. The reliability and factor analyses results of the measures used are then discussed. The relationships between emotional intelligence and gender, and emotional intelligence and age are then discussed in view of the findings.

The results are placed in the context of the Ability Model of EI (Mayer & Salovey, 1997) and discussed. The overall design of the training programme is discussed and comparisons made with previous training interventions. These results are then placed in the context of previous research in the area of emotional intelligence training, and theoretical and practical implications are outlined.

Limitations are then highlighted and discussed, issues for future research are outlined and followed by concluding comments.

5.2 Summary of Findings

The current study examined available research conducted into emotional intelligence and distilled elements of EI training to form a 12-week training programme aimed at increasing EI in teams. Having selected a definition of EI, and an appropriate way to measure EI, the training programme was implemented and two measures of EI (Self-Report and Peer-Report) were administered to the experimental group at $Time_1$ (week 2) and $Time_2$ (week 13). The effect of the training intervention on the experimental group was measured in the context of a comparison group.

5.2.1 Self Report Emotional Intelligence

There was a statistically significant increase in Self-Report emotional intelligence from $Time_1$ to $Time_2$ for the experimental group, supporting Hypothesis 1 which stated: The training intervention can increase Self-report emotional intelligence. Team members self-reported increases in EI as a result of the training intervention. The eta squared statistic (.18) indicated a large effect size (Cohen, 1988) showing that the proportion of variance of the increase in EI scores as a result of the training programme was large at 18%. An increase in mean scores of 11.6 points occurred from $Time_1$ ($M = 230.79$; $SD = 23.28$) to $Time_2$ ($M = 242.36$; $SD = 25.32$).

5.2.2 Subscales of Self-Report Emotional Intelligence

Jordan (2000) divided his model of EI into 8 subscales which divide equally between what he terms "factor 1, ability to deal with own emotions" and "factor 2, ability to deal with others' emotions" (see Appendix A). Both factors increased significantly as a result of the training intervention (although one subscale in each factor did not show a statistically significant increase). Participants increased their ability to deal with emotions - both their own and those of their peers. Each subscale is discussed to highlight the enhanced ability associated with each of these increases.

There was a statistically significant increase in Self-Report emotional intelligence sub-scales from $Time_1$ to $Time_2$ for six of the eight sub-scales. Participants increased their awareness of their own emotions (Sub-scale 1). This was an intrinsic aspect of the programme and was encouraged throughout every team meeting and self-awareness exercise. If a participant disagreed with another team member, for example, they possibly felt angry and impatient to get their own point across. This anger could lead to frustration and behaviour that could damage the team. As participants learned that conflict was a natural part of teamworking, they learned strategies to cope with the emotions the conflict aroused in them. Individual differences and styles of working were identified and participants understood the source of their frustration in that it was merely diversity between peers in how they preferred to achieve goals or to interact.

The next step involved participants' ability to discuss emotions (Sub-scale 2), which again increased as a result of the training programme. After becoming aware that they felt a certain emotion, participants learned to communicate the emotion in the context of their team. A participant who was extremely introverted, for example, may enjoy working alone on complex problems and prefer not to verbally present their findings in front of the whole group. Thoughts of presentations probably produced fear. Discussing emotions and learning to communicate this fear could result in their team members suggesting a written page in lieu of an oral presentation, or suggesting practice presentations to ease their fears.

When emotions had been identified and discussed between peers, it then became possible to apply that knowledge to facilitate thinking (subscale 4), a skill that increased as a result of the training intervention. Jordan (2000) identified two constructs underlying subscale 4. They are "ability to control emotional states" and "perspective taking". The ability to control emotional states included items which referred to controlling anger and frustration, and bouncing back in the face of awkward situations with peers. This ability became possible when participants learned to take the perspectives of their peers. This construct contained items which referred to seeing the other side of arguments, non-judgemental listening and respecting the opinions of others, even when not in agreement. These skills induced an understanding and tolerance of peers which would have been absent, or less well developed, prior to the training intervention. It is very possible that vociferous team members overshadowed quieter team members or cut across their opinions when they were not in agreement with them. Some workplace environments engender this behaviour in employees when supervision and appraisals determine merit. A tendency to be heard above peers and to possess strong, decisive opinions can bring an employee to the attention of supervisors and managers, which may, in turn, support an organisational climate of ignoring the inputs of quieter employees. This tendency by participants was removed or reduced by the training programme as the adoption of team norms respecting the input of each team member were put in place. Taking the perspective of peers in the making of decisions ensured that thought and discussion went into team interaction. This resulted in less emotional conflict as a new awareness of one's own emotional responses to the inputs of peers developed. Team norms again ensured that emotionally inappropriate behaviours were not tolerated by peers, and reactions had

to be carefully considered before displays were made. The team provided a safe environment to test out new behaviours and to receive feedback on that behaviour.

As participants learned to identify and control their own emotions, they then began to recognise those emotions in others (subscale 5). This ability referred to gauging reactions from voice tone, facial expressions, and from body language. Attention to these cues provided information on how peers were feeling and what mood they were in. This attention also provided information on false displays of emotion (subscale 6). As peers studied each other more and became more familiar with their emotional responses to issues and behaviour exhibited within the team, they were able to detect when their fellow team members were not being honest. Suppressing anger and disappointment, not meaning what they say, feigning happiness, or concealing resentment towards another team member were all socio-emotional negative behaviours that would upset team functioning. Identifying these emotions, addressing them, and calling team members on their true feelings ensured that underlying issues were dealt with openly. Managing the emotional states of others (subscale 8) then became possible. Subscale 8 consists of two constructs according to Jordan (2000). They include the "ability to encourage positive emotions in others" and "assisting others to control emotional states". Identifying emotions in peers, and knowing whether they are genuine resulted in an increased ability to influence other team members' actions and attitudes. This included helping them to overcome frustration and anger, and calming them by identifying the positive side of negative events, by cheering them up when they were feeling down, and by providing the spark to engender enthusiasm in fellow team members when required. Managing others' emotional states results in a better team atmosphere as negative thoughts and feelings are worked through and removed, leaving participants free to work constructively in a positive team atmosphere.

Two sub-scales failed to show statistically significant increases (Sub-scale 3: Using emotions to prioritise thinking; and Sub-scale 7: Empathy), with Sub-scale 3: Using emotions to prioritise thinking showing a slight, but not significant, decrease in mean scores from $Time_1$ ($M = 23.32$) to $Time_2$ ($M = 23.23$).

Subscale 3 contains 5 items, 3 of which refer to the use of first impressions in team discussions, forming opinions and commencing work in the team. The fourth item refers to the use of intuition and instinct, and the final item refers to initial feelings. Jordan (2000) based his model of EI on the Ability Model (Mayer & Salovey, 1997) and subscale 3 (in addition to subscale 8: managing others' emotional states) equated with Mayer and Salovey's (ibid) Branch 4, which pertains to the ability to access and/or generate feelings when they facilitate thought. Meeting people for the first time, particularly new team members, will result in the formation of first impressions. These impressions are usually based on flimsy evidence in the case of strangers meeting. Issues and attributes such as appearance and voice tone and pitch form part of initial perceptions. Decisions are made immediately about whether or not it will be desirable to have this person in the team. Such first impressions are notoriously flawed and as we get to know each team member, we discover new strengths and weaknesses in them. Goleman (1988) cautions that increasing EI involves recognising and disarming flawed thinking such as disabling stereotypes. It is interesting, therefore, that the "use of first impressions" construct is given 5 items in an additive scale of 48 items to measure Self-Report EI by Jordan (2000). The use of emotional recognition and understanding is important in emotionally intelligent thinking (Jordan, 2000; Mayer & Salovey, 1997). Another aspect to consider in the context of this result is the fact that members of the experimental group were known to each other prior to the training programme. First impressions, were therefore, atypical first impressions when strangers meet. Participants would have worked together in a larger team environment (e.g. nurses in the paediatrics department) and would have had some prior working and social experience of each other. This knowledge would have informed responses to the items in subscale 3. Over the 12-week training programme, it could be proposed that team members behaved and reacted in the ways typical of them in past team interactions. This would have negated the need for participants to draw on first impressions, initial feelings, intuition and instinct. It would also potentially account for the failure of the subscale to show an increase from $Time_1$ to $Time_2$. The slight decrease is negligible and could possibly be explained by the fact that, in general, as participants were already known to each other, they scored approximately the same at both $Time_1$ and $Time_2$. Based on this, it could be argued that this subscale be omitted in future studies where the participants have prior working experience of each other.

Subscale 7, "empathy" is a measure of empathetic concern within teams. In the current study the subscale failed to show a statistically significant increase from $Time_1$ to $Time_2$, although mean scores did increase slightly from 28.09 to 28.26 respectively. The maximum possible score for subscale 7 was 35 points. An initial mean score of 28.07 at $Time_1$ indicates a high level of empathetic concern within the team from the outset. Again, this finding may be accounted for by the fact that the participants were known to each other prior to the training intervention. It could follow that more empathetic concern would be shown between people that are known to each other (Goleman, 1998). They have had the opportunity to build relationships with each other through prior social interaction. Jordan (2000), in his model of EI, placed empathetic concern in factor 2, "ability to deal with others' emotions". He matched the subscale to Branch 3 of the Ability Model of EI (Mayer & Salovey, 1997). In the development of the WEIP-5, Jordan (2000) dropped this subscale following a principle axis factor analysis with varimax rotation, which yielded a six-factor solution. He concluded that empathetic concern was a shadow construct of EI, in line with earlier research by Mayer et al. (2000). Consequently, the subscale is absent from the Peer-Report measure of the WEIP-5 (Jordan, 2000). Factor analyses findings are discussed later, but it was found in the current study that subscale 7 only existed as a discreet factor in the $Time_1$ data, while subscale 3 proved problematic in both data sets, with its constituent items mixed between factors. If the underlying factors of the EI model tested by the WEIP-5 (Jordan, 2000) were not supported by the current data, strict adherence to subscale analysis may not have been as appropriate as the model suggested.

In the development of the precursor to the WEIP-5, the WEIP-3, Jordan et al. (2002) established concurrent validity by testing the scale against five existing scales. One of the comparison measures was the Interpersonal Reactivity Index (IRI) (Davis, 1994) which included the four dimensions - perspective taking, empathetic concern, fantasy and personal distress. Only the "ability to deal with others' emotions" factor of the WEIP-3 correlated weakly with "empathetic concern" at the .05 significance level. This finding suggests that the items measuring empathy in the WEIP-3 failed to do so fully. It would have been expected that a stronger positive correlation would have been obtained. Subscale 7, therefore, may not have been a true measure of empathy within team

members, which would require an alternative explanation. That explanation would only be possible when the construct underlying the subscale was clarified.

Moriarty and Buckley (2003) measured emotional intelligence using the WEIP-5 (Jordan, 2000) in a similar training programme conducted on undergraduate students. Findings in the current study generally provide stronger support for the training intervention and provide more statistically significant results in both Self-Report and Peer-Report EI total scales, subscales and factors. Moriarty and Buckley (2003) found statistically significant increases in three of the eight subscales of Self-Report EI (subscale 5 "ability to recognise the emotions of others", subscale 6 "ability to read others' false displays of emotion" and subscale 8 "managing others' emotional states"). They also found increases in mean scores from $Time_1$ to $Time_2$ for 3 further subscales, although these increases were not statistically significant (subscale 1 "awareness of emotions", subscale 2 "ability to discuss emotions" and subscale 4 "application of own emotions to facilitate thinking"). Similar to the results in the current study, subscale 3 "using emotions to prioritise thinking" and subscale 7 "empathy" did not provide statistically significant increases in scores for Moriarty and Buckley (2003). While they offered no explanation for the finding, Clarke (2006) proposed the lack of increase in scores could be attributed to the length of time taken to change one's ability to manage emotions. He suggested it would take considerably longer than the 12-week training intervention undertaken by Moriarty and Buckley (2003). This point is salient in that team members were strangers to each other prior to the training intervention.

The training intervention in the current study was of the same duration. The main difference was that the experimental group participants had worked together prior to the training. They existed in larger work-based teams. This finding may still support Clarke's (2006) argument, in that participants were not specifically aware of emotionally intelligent behaviour prior to the programme. They were, therefore, exposed to the change process for a similar time of 12 weeks. However, initial (and final) mean EI scores for the experimental group (230.77) when compared with the comparison group (221.34) showed a statistically significant higher level of EI existed in the experimental group. This has been attributed to the fact that they existed in larger work-based teams prior to the training intervention and this may have facilitated aspects of emotional

intelligence development (e.g., comfort and familiarity between team members in interaction). Subscale 3, "using emotions to prioritise thinking", as explained, represents the construct "use of first impressions" and as participants had prior knowledge of each other, scores would not necessarily be expected to increase from $Time_1$ to $Time_2$. Support for this argument is not found when the subscale 3 results for the comparison group are examined. The comparison group results, while not showing a statistically significant increase in the subscale, show a very small mean score increase from $Time_1$ (23.57) to $Time_2$ (23.64). The comparison group members had no prior knowledge of each other, had not worked together previously and had not worked in teams. This brings the argument back to the explanation offered by Clarke (2006) that the training intervention is not sufficiently long to result in changes in the use of emotions to prioritise thinking.

Subscale 7, empathy, did not show statistically significant increases from $Time_1$ to $Time_2$ for Moriarty and Buckley (2003). Mean scores increased by 0.17 points. Similar results were found in the current study, with mean scores increasing by 0.17 points. Empathy has proved problematic for Jordan (2000) in the development of the WEIP-5 and resulted in his removal of the construct from the Peer-Report measure. Scale development aside, empathetic concern was the only subscale to show a statistically significant reduction in mean scores from $Time_1$ (26.25) to $Time_2$ (25.15) in the comparison group. This could be accounted for by the erosion of any initial optimism that group members felt, due to a belief that they would get to interact at lectures. As the weeks passed and members failed to get to know and care about one another, a sense of self preservation may have replaced initial empathetic concern for group members. Assignments were individually marked which again facilitated lone working and removed the need for students to work collectively.

A lack of increase in empathetic concern in the experimental group could have been explained by participants' prior experience of working together. A sense of caring had already been established and team norms of empathy accepted and adhered to. This would reflect a high initial score for the empathy subscale in the experimental group (28.09) and a small increase over the 12-week training intervention to $Time_2$ (28.26). This logic does not explain the findings of Moriarty and Buckley (2003) who did not find a statistically significant result for the subscale in their experimental group. Their

participants were not known to each other prior to the training intervention and had not worked together previously. Mean scores increased by 0.14 in the experimental group used by Moriarty and Buckley (2003), and by 0.17 in the control group. This suggests the training intervention, which included the adoption of team norms designed to increase empathy, failed to increase empathy in the experimental group.

Sala (2001) reported an increase in empathy scores over a one-year training programme to increase EI in groups. He measured EI using the Emotional Intelligence Inventory (ECI) (Cherniss & Goleman, 2001) which was a limitation as it represents a Stream 3 measure of EI. An additional limitation was the sample size of 19 participants. Despite these limitations, Sala (2001) found a statistically significant increase in empathy which Goleman (1998) defined as accurately reading people's moods or non-verbal cues, respecting and relating well to people of diverse backgrounds and listening attentively to others. Empathy represented an element of social awareness in the ECI. While Sala (ibid) provided no detail on the content of the training programme, the result raises the issue that this competence can be increased through training. Leaving aside the argument of whether or not empathy is a construct within emotional intelligence, it would be expected that the skills associated with empathy in interaction would increase. A possible explanation is that the ECI takes account of self-ratings, peer-ratings and supervisor ratings. The WEIP-5, in contrast, only uses self-reports for empathy, as the subscale is omitted from the Peer-Report WEIP-5. It is possible that empathetic concern, and empathetic behaviour are more obvious to observers than to the self. To critically evaluate one's own empathy would possibly take skills beyond those imbued by the training intervention. This argument suggests that the WEIP-5 is not the best measure of empathy and that the inclusion of scores from peers and supervisors enhanced the overall scores of empathy in the ECI.

5.2.3 Comparison Group

The use of a control group strengthens the case that any increases in EI were due to the training intervention and not other unknown factors (e.g., time). Control groups generally contain matched participants for age, gender and other attributes considered important

(e.g. educational background). Such a fundamental control has been neglected in some published accounts of EI training programmes (e.g., Sala, 2001). It cannot, therefore, be safely concluded that the increase in EI scores were completely as a result of the training intervention in those studies.

In order to assess the development of emotional intelligence over time as a result of the training intervention, a comparison group was used to establish base-line scores in the current study. It was not possible to match the experimental group participants precisely due to the nature of the programme and the participants available. One hundred part-time, post-graduate students were selected for the comparison group. The group consisted of approximately half females and half males, similar to the experimental group. The comparison group mean age was slightly lower at 29 years than the experimental group whose mean age was 34 years. Participants in the comparison group were subjected to similar training material in lecture format but did not undertake teamwork or self-awareness exercises.

A statistically significant difference was found between the comparison group Self-Report EI at $Time_1$ and the experimental group Self-Report EI at $Time_1$. Mean scores for the two groups differed by 9.4 points. A possible explanation for this difference was the fact that the comparison group participants were not known to each other, and did not work together, outside of the training programme. In contrast, members of the experimental group worked together in larger groups in their workplaces, and had done so for some time prior to the training intervention. This familiarity within the experimental group would have resulted in greater knowledge of peers and social interaction patterns would have been established over time (Bandura, 1977). While no measure was taken of the length of time the experimental group participants had been working together prior to training, a sense of ease and familiarity was evident within teams. It could, therefore, be expected that team development through stages (Tuckman & Jensen, 1977) of forming, storming, norming, and ultimately, performing, would be more assured in teams who had functioned and performed together previously. A greater sense of self would have developed in team members due to the fact that issues such as team norms (Druskat & Wolff, 2001), team roles (Belbin, 1996), team conflict, leadership and task focus were confronted in the day-to-day functioning of the wider team prior to training. Within the

Self-Report WEIP-5 (Jordan, 2000), items include "I can tell when team members don't mean what they say", "I can discuss the emotions I feel with other team members", and "When I talk to a team member I can gauge their reaction from their body language". Taking a sample of these three items, it becomes apparent that prior knowledge of your team members would be influential in your scoring. If a team member has lied in the past, then it would be easier to tell if they were being untruthful on a subsequent occasion because there would be experience to draw upon (Kaplan & Welker, 2001; Kremer & McGuinness, 1998; Knowles, 1990). It would not, generally, be accepted that people unknown to each other would discuss their emotions and feelings at initial meetings. Nor would it be as easy to gauge the body language of strangers initially, in comparison with the body language of those already known. Consequently, it would be expected that the total Self-Report EI scores for the experimental group would be higher at $Time_1$ than those of the comparison group, and this result was obtained.

A similar statistically significant result was obtained for the difference between the experimental group and the comparison group at $Time_2$, with a large difference of 22.8 points between the groups. The experimental group, as expected, increased in Self-Report EI as a result of the training intervention. The comparison group was not subject to this training and did not increase Self-Report EI, as expected. Surprisingly, mean Self-Report EI scores for the comparison group from $Time_1$ to $Time_2$ showed an actual decrease (from $M = 221.34$ at $Time_1$ to $M = 219.37$ at $Time_2$). The effect of time could have produced a slight increase in EI within the comparison group as the class group met twice per week for lectures over the 12-week period. These meetings could have occasioned social interaction and afforded opportunities for the group to get to know each other better. Additionally, the subject material covered in the lectures could have resulted in an increased sense of self-awareness. For example, the lecture covering conflict in teamworking dealt with alternative methods of dealing with conflict. Examples were given of behavioural outcomes of the different conflict handling styles in work teams. Participants could have identified their own style preference and discussed the implications of this with other members of the class group. Finally, a testing confound may have occurred due to the fact that participants completed the same questionnaire twelve weeks apart. Participants may have felt the need to express an increase in EI scores simply because they were repeating the test and several weeks of lectures had

occurred in between. The findings were, therefore, quite surprising. It was anticipated that the experimental group would increase their EI scores far beyond the comparison group as a result of the training methodologies employed, but that there would be some small increase in EI within the comparison group.

The findings echo the findings reported by Slaski and Cartwright (2003). In their study, the control group mean score decreased slightly (by 1.4 points) over a six-month training intervention for the 60 participants in contrast to the experimental group who increased by 11.4 points. Slaski and Cartwright (ibid) offer no explanation for their findings.

In an attempt to explain the decrease in EI scores in the comparison group in the context of the current study, a number of possible explanations arise. A readiness to learn was created within the experimental group (Cherniss & Adler, 2000). This was achieved through extolling the benefits of EI to participants in relation to their career development, their social interaction, their ability to influence others, and their ability to tolerate individual difference. The central importance of self-awareness as a vehicle to achieve increased EI was explained and repeatedly emphasised throughout the training programme. Participants in the comparison group learned about EI in the same way as they learned about other team process theories. No greater emphasis was given to EI than the other topics. No role was given to self-awareness in the comparison group and they were not afforded the opportunity to complete self-awareness questionnaires or to discuss the findings of these questionnaires in team settings. This may have resulted in a reduced readiness to learn which, in turn, did not facilitate an increase in EI.

The comparison group did not get the opportunity to work in teams, to interact socially, to learn about their peers or, indeed, to learn about themselves. They sat in a tiered lecture hall as one large group for lectures. It could be presumed, therefore, that these participants emerged at the end of the 12-week lecture programme failing to have met or interacted with any other member of their group beyond those they might have known at the outset. As such, no opportunities were created for the development of EI. It would, therefore, be expected that no increase in EI would occur over the 12-week period. A decrease in EI could be accounted by participants realising that the 12-week period had ended without any opportunity afforded to develop EI, to become more self-aware, to

learn about the emotions of others, and, to influence those emotions. A sense of disappointment could have pervaded.

Comparison group participants were in a better position to reflect on their class group in week 12 than at the beginning of the semester. This could have been another factor in the reduction in EI reported. After 12 weeks of meeting for lectures, participants would have been very familiar with the format of the lecture and quite definitive in their responses to the items in the WEIP-5 questionnaire (Jordan, 2000). For example, the item "I am able to influence other team member's attitudes and actions" may have resulted in an affirmative response initially. Participants may have called upon past experiences of teams and class groups to reply to this item, despite being told to think in terms of the current class group. By week 12, participants would be aware that they had little opportunity to influence the attitudes and actions of other members of the class group. This is in contrast to the impact each team member could have had at team meetings in the experimental group where teams typically consisted of 4 members.

5.2.4 Peer EI

Increases occurred for Peer-Report emotional intelligence similar to Self-Report emotional intelligence. As participants perceived their own EI to have increased as a result of the training intervention, peers also perceived an increase in their team members' EI.

There was a statistically significant increase in Peer-Report emotional intelligence from $Time_1$ to $Time_2$ supporting Hypothesis 2 which stated: The training intervention can increase Peer-report emotional intelligence. The eta squared statistic (.29) indicated a large effect size (Cohen, 1988) showing that the proportion of variance of the increase in Peer-Report EI scores as a result of the training programme was large at 29%. An increase of 8.2 points occurred in mean scores from $Time_1$ ($M = 120.23$; $SD = 8.11$) to $Time_2$ ($M = 128.47$; $SD = 11.17$).

Members of the experimental group were somewhat familiar with each other prior to the training intervention so it could, perhaps, be assumed that they would more accurately notice changes in behaviour and patterns of interaction within their teams, adding weight to their findings. There was a statistically significant increase in Peer-Report EI sub-scales from $Time_1$ to $Time_2$ for all six of the sub-scales. These subscales included Sub-scale 2, "Ability to discuss emotions"; Sub-scale 3, "Using emotions to prioritise thinking"; Sub-scale 4, "Application of own emotions to facilitate thinking"; Sub-scale 5, "Ability to recognise the emotions of others"; Sub-scale 6, "Ability to read false displays of emotion in others"; and Sub-scale 8, "Influencing emotional states of others to facilitate thinking". Similarly, there was a statistically significant increase for both factors - Factor I, "Ability to deal with own emotions" and Factor 2, "Ability to deal with emotions of others". (Note: Peer-Report EI in the WEIP-5 measure (Jordan, 2000) does not contain subscale 1, "Awareness of own emotions" or subscale 7, "Empathy").

Seventy-three per cent of participants were judged by their peers to have increased their EI levels in the current study. Sixty-eight per cent of participants self-reported an increase in their EI levels. Previous research into the use of self-report instruments has identified a number of weaknesses associated with their use. The limitations of self-report measures have been identified as relying on people's ability to make accurate self-reports (Whitely, 2002). In addition, respondents may not be willing to make totally accurate self-reports as they may desire to make themselves look good (Whitely, 2002). In order to offset these limitations, the WEIP-5 measure of EI (Jordan, 2000) used in the current study consisted of both a Self-Report and a Peer-Report instrument. Peer reports were obtained for each participant from each of their team members. Jordan (2000) identified self-report of previous behaviour as the most attractive method for the measurement of EI. He cautioned, however, about the risk of faking, particularly when scores were used as part of an overall assessment for gaining employment or promotion within an organisation. The arguments of Whitely (2002) and Jordan (2000) suggest the potential for an exaggeration within self-report scores. Consequently, it was expected that more participants would self-report increased EI as a result of the training intervention than the number of increases identified through peer-reporting. Interestingly, this was not found to be the case in this study. Five per cent more participants were identified by their peers as having increased their EI. This finding increases the overall success of the

training programme as peer-report measurement is considered to be more accurate than self-report measurement (D'Augelli, 1973). In addition, faking may not have been an issue with the current participants as there were no tangible benefits, such as promotion, to be obtained. Furthermore, participants were not informed of their EI scores due to time constraints so they could not gauge an increase in scores very easily when re-tested 12 weeks later.

Twenty-seven per cent of participants were judged by their peers to have decreased their EI levels slightly, compared with twenty-nine per cent of self-reported reductions. A small difference exists between the figures for self-report and peer-report, and again, this was unexpected in that self-reports were the higher of the two figures. This finding contradicts Whitely's (2002) argument that participants bias self-reports in order to make themselves look better. A reason for reporting a decrease in EI following the training intervention could centre around readiness and willingness to learn. Cracolice and Deming (2001) proposed that peer-led team learning encouraged participants to take responsibility for their own learning. It could be argued that some participants simply chose not to learn. This choice could have been made for a number of reasons (e.g., feelings of discomfort in social settings, or lack of appreciation for the importance of emotions in human interaction in a workplace setting). Slaski and Cartwright (2003) found that not all participants increased their EI scores significantly due to their EI training intervention. Slaski and Cartwright (2003) observed that this finding was in line with other developmental training, where individual effort was required and that some trainees put in more effort and were more motivated in the programme than others. The use of an exit survey or the collection of qualitative data from focus groups could have informed on these reported reductions.

Dweck (1986) identified the importance of motivation in learning. He proposed that motivation occurs when there is a need to learn and when individuals feel they are ready to learn. He also proposed that if learners do not wish to learn motivation is not present, and learning fails to occur. In the current group, motivation was provided through the necessity to complete a team presentation and a team report. However, while most participants did experience an increase in EI, a number reported reductions. It could have been possible for participants to maintain a task focus only (Marcic, 1992) and produce

the assessment materials required without developing their self-awareness. Participants were required to keep diaries to aid introspection, reflection and self-awareness, but these diaries were not assessed. An honour system existed. It could, therefore, be possible that some participants failed to keep a diary, failed to introspect or to develop their self-awareness in the context of their teams. Ilgen, Fisher and Taylor (1979) found that trainees who most needed to develop their EI benefited the most from feedback. While facilitated learning took place as part of the programme, a large aspect of the programme took place through unsupervised team meetings. Teams established team norms of attendance and behaviour at the outset, and the self-awareness enhancing questionnaire results were proposed as topics for teams to discuss at their unsupervised meetings. Some participants may have opted out of this process, again reducing the potential to develop their EI. As other team members increased their EI, they may have recognised this failure to participate in some peers and, consequently, scored them lower on EI.

It is also possible that a 12-week training programme was not sufficient in length for some participants, as people learn at different rates (Dweck, 1986). It may be that the adoption of emotionally intelligent team norms (Druskat & Wolff, 2001), for example, would be faster for participants who found it easy to identify and discuss emotions. Participants who, perhaps, had existed in environments where emotional display was not desirable would require additional effort and practice in order to get in touch with their emotions and then to identify and control those emotions in others. Jordan et al. (2002) found in their study of 448 undergraduate Australian students that some participants possessed high levels of EI from the outset of their team training intervention. High emotional intelligence teams operated at high levels of performance throughout the 9-week study period. Three possible explanations were offered including training, familiarity with other team members, or the influence of skilled, dominant team members whose individual skills improved the performance of the team as a whole. The study design did not allow Jordan et al. (2002) to differentiate between explanations. The finding does support the idea that participants possessed differing levels of EI prior to the training intervention, which in turn may have impacted on the pace of their learning and absorption of emotional material.

5.2.5 Relationship between Self-Report and Peer-Report Emotional Intelligence

Self-Report EI and Peer-Report EI showed small, positive intercorrelations at both $Time_1$ and $Time_2$, indicating a relationship between participants Self-Report EI and the reports given on them by their peers. Jordan (2000) obtained intercorrelations of $r = .18$, $N = 140$, $p<.05$ in a comparison between Self-Report and Peer-Report EI and concluded that there was a lack of congruence between self assessment and peer assessment. The results from this study were $r = .18$, $N = 231$, $p < .01$ at $Time_1$ and $r = .24$, $N = 231$, $p < .01$ at $Time_2$. In large samples, small correlations can be statistically significant. Calculating the coefficient of determination to evaluate the amount of variance, a result of 3.24% is obtained for $Time_1$ and a result of 5.76% for $Time_2$. Both figures indicate very small overlap and show a lack of major congruence between Self-Report and Peer-Report EI. This result supports the findings of Jordan (2000). The WEIP-5 (Jordan 2000) contained a Peer-Report EI measure which was considered valuable due to the limitations of relying purely on self-report measurement (Whitely, 2002). A lack of congruence between Peer-Report and Self-Report EI points to a recognised difference in subject's evaluation of their own behaviour and evaluation by their peers. This result is interesting in the context of the design of the current training programme to enhance EI. A central tenet of the programme was an increase in self-awareness, facilitated through a number of exercises (e.g., personality type, conflict handling style). The impact of the results obtained in these exercises for the functioning and output of the team was discussed in facilitated team meetings. Participants discovered how different behavioural and thought preferences resulted in consequent emotional reactions within their teams. For example, in Rowe's (1988) decision-making styles orientation questionnaire, directive styles focused on facts and could appear autocratic and controlling. Conceptual styles, on the other hand, liked to consider all their options, rely on intuition, and tended to be indecisive. A team containing participants with both of these style preferences could expect conflict. Teams discussed how best to deal with this conflict and the impact it could have on team productivity. Participants learned about their behavioural styles and the consequences of these styles when interacting socially, such as in team settings. It would be expected, therefore, that these insights would have resulted in greater self-awareness. This could have been mirrored by a lack of congruence between Self-Report EI and Peer-Report EI at $Time_1$, as the training intervention had not begun. It was

expected, however, that a greater overlap would have occurred at $Time_2$. While the results show a slight increase in intercorrelation for $Time_2$, the overall result is still negligible.

Interestingly, participants who self-reported a decrease in EI from $Time_1$ to $Time_2$ were not generally the same participants who were judged by their peers to have reduced EI over the period. Less than 25% of the participants who self-reported a decrease in EI were also judged by their peers to have decreased in EI. This finding could be attributed to a lack of awareness of their own EI among some participants.

5.2.6 Reliability of WEIP-5

The Workgroup Emotional Intelligence Profile Version 5 (WEIP-5) (Jordan, 2000) proved reliable with internal consistency higher at both $Time_1$ (.87) and $Time_2$ (.90) with the current sample when compared with .84 originally obtained by Jordan (2000). These findings indicate the WEIP-5 acts as a consistent measure within itself, suggesting each item contributes in a useful way to the scale as Cronbach's Alpha Coefficient represents the mean correlation of all of the items with one another.

Correlations between Self-Report EI measured using the WEIP-5 (Jordan, 2000) at $Time_1$ and $Time_2$ ($r = .52$; $p < .01$) were positive and indicated consistency over time in the measure. Correlations between Peer-Report EI at $Time_1$ and $Time_2$ ($r = .17$, n.s.) indicated a lack of consistency over time with the current sample.

Intercorrelations between the Self-Report and Peer-Report WEIP-5 (Jordan, 2000) were very low at both $Time_1$ ($r = .18$, $p < .01$) and $Time_2$ ($r = .24$, $p < .01$), despite both measures claiming to measure EI. Both forms are not designed to give the same score per participant, as the Self-Report contains 48 items, while the Peer-Report contains 26 items, negating alternate forms consistency.

Subscale and factor reliability was calculated using Cronbach's Alpha Coefficients. Results were similar, in general, to those obtained originally by Jordan (2000) in both

factors ("factor 1, ability to deal with own emotions" and "factor 2, ability to deal with others' emotions"), and in six of the eight subscales. Subscale 3 "using emotions to prioritise thinking" consists of 5 items and only produced coefficients of .47 at $Time_1$ and .59 at $Time_2$, compared with .66 reported by Jordan (2000). Subscale 4 "application of own emotions to facilitate thinking" consists of 8 items and resulted in coefficients of .48 at $Time_1$ and .49 at $Time_2$, compared with .67 reported previously by Jordan (2000). Jordan (ibid) retained the subscales despite their low coefficients as they appeared within his six-factor solution following principal axis factor analysis with varimax rotation. He concluded that they contributed to the overall construct of EI.

All coefficients fell below the acceptable limit of .70 (Nunnally, 1978), indicating a potential difficulty within these subscale structures. Not all items appeared to measure the same construct, and this was borne out in the factor analyses which are discussed later in the chapter. Jordan (2000) grouped 2 constructs into some factors e.g. subscale 4 "application of own emotions to facilitate thinking" which is subdivided into "ability to control emotional states" and "perspective taking", with each construct measured by 4 items. The 8 subscales, therefore, can be subdivided into 10 constructs.

For the total Self-Report EI measure, the item-total statistics identified only one item which would result in a higher coefficient of .88 (compared with .87 obtained) if deleted - item 32 "I am not very good at controlling my emotions when working in my team". This was only true in the case of $Time_1$ data, suggesting it did not prove problematic at $Time_2$.

The subscale item-total statistics for the Peer-Report EI measure identified 3 items that reduced coefficients across 3 subscales. Item 2 in subscale 3 ("This person seldom mentions that s/he has an initial feeling that something is right or wrong when working with our team") if deleted, would have increased Cronbach's Alpha to .40 at $Time_1$ and to .57 at $Time_2$ (compared with .22 at $Time_1$ and .54 at $Time_2$ reported). Similarly, item 4 of subscale 6 ("This person can read other team members' "true" feelings, even if they try to hide them") if deleted, yielded coefficients of .38 at $Time_1$ and .25 at $Time_2$ (compared with .15 at $Time_1$ and .23 at $Time_2$ reported. Finally, item 6 in subscale 2 ("This person finds it difficult to tell fellow team members how s/he feels") if deleted, yielded a coefficient of .60 at $Time_1$ (compared with .53 reported).

For the total Peer-Report EI measure, the 23-item $Time_1$ measure would result in a coefficient of .82 (compared with .83 obtained) if the items discussed above had been deleted. Similarly, at $Time_2$, the 24-item measure would result in a coefficient of .87 (compared with .89 obtained). As both editions of the measure resulted in reduced coefficients, it could be concluded that the 26-item measure produced higher internal consistency and was, therefore, a better measure of Peer-Report EI.

5.2.7 Structure of the WEIP-5

Jordan (2000) based his model of EI on the Ability Model of EI (Mayer & Salovey, 1997), dividing the four Branches across eight subscales in the Self-Report WEIP-5, and six subscales in the Peer-Report WEIP-5 (Jordan, 2000). Exploratory factor analyses were undertaken to examine the underlying factor structure of the measures. Taking an orthoganol approach, which assumed the factors were not related (Jordan, 2000), a varimax rotation (loadings > .3) failed to support the subscale structure of the WEIP-5 in both the Self-Report and the Peer-Report instruments at $Time_1$ and $Time_2$.

5.2.8 Structure of the Self-Report WEIP-5

The Self-Report WEIP-5 (Jordan, 2000) exploratory factor analyses showed different results for $Time_1$ and $Time_2$. Some clustering of items appeared to suggest factors similar to subscales 1 and 3 at $Time_1$ and subscales 1, 2, 3, 4 and 7 at $Time_2$. Most subscales contained reduced item numbers and mixed items across subscales. Exploratory factor analyses highlighted similar problems with 14 factors identified at $Time_1$ and 11 factors at $Time_2$ with eigenvalues exceeding 1. Using the analysis of the screeplots, a four-factor solution was chosen and varimax rotations (loadings > .3) resulted in a 44-item measure. Taking an orthogonal approach, which assumed that the factors were not related (Jordan, 2000), a varimax rotation was performed using the four components. The rotated solution excluded items 2, 19 and 30 (subscale 3), and item 14 (subscale 6) at $Time_1$ as only loadings above 0.3 were included. There was some support for Jordan's (2000) original

subscale structure, but with a reduction to four components, many subscales were mixed across components.

The 44-item scale produced Cronbach's alpha coefficients of .88 at $Time_1$ and .91 at $Time_2$ which represented an increase on the original 48-item scale which produced alpha coefficients of .87 for $Time_1$ and .90 for $Time_2$. In order to assess the ability of this measure to predict increases in EI, paired samples t-tests were conducted using the total scores and factor scores from the 44-item measure on data sets from $Time_1$ and $Time_2$. The 44-item measure was capable of identifying increases in total Self-Report EI and significant increases in three of the four factors (subscales).

Overall results showed different loadings of items onto factors at $Time_1$ and $Time_2$. Jordan (2007) attributed this to the large number of items in version 5 of the WEIP measure (48 items), and has subsequently reduced the number of items to 36 in the WEIP-version 6. Furthermore, he is currently reducing the scale to 16 items in the WEIP-version 7, which is unpublished at present.

It was possible to reduce the Self-Report WEIP-5 to a 16-item measure containing the same items at both Time1 and Time2 using exploratory factor analytic techniques on the data from the current study. A two-factor solution fitted the data and the much-reduced measure produced Cronbach's alpha coefficients of .80 for $Time_1$ and .83 for $Time_2$. These results were lower than the original 48-item measure and the 44-item measure. While the same items composed the measure at $Time_1$ and $Time_2$, the items moved again between factors. Factor 1, "recognising and controlling others' emotional states" contained 11 items at $Time_1$ and 9 items at $Time_2$, while Factor 2, "Awareness of own emotions" contained 5 items at $Time_1$ and 7 items at $Time_2$. The 2-factor scale derived from the $Time_1$ data produced higher coefficients, suggesting higher internal consistency with Cronbach's alpha coefficients of .79 and .80 for Factor 1, "recognising and controlling others' emotional states" at $Time_1$ and .71 and .76 for Factor 2, "Awareness of own emotions" for $Time_2$. The 2-factor scale derived from the $Time_2$ data produced lower coefficients (.77 and .78 for Factor 1 and .68 and .75 for Factor 2 at $Time_1$ and $Time_2$, respectively) and was not subjected to paired-samples t-tests in the evaluation of the reduced 16-item scale.

In order to assess the ability of this measure to detect increases in EI, paired samples t-tests were again conducted using the total scores and factor scores from the 16-item measure on data sets from $Time_1$ and $Time_2$. Statistically significant results were obtained for all three tests indicating that the much-reduced measure could identify changes in EI.

This new measure still fits the original overall theoretical structure of Jordan's (2000) model of EI which contained two "factors" or "scales", "ability to deal with own emotions" and "ability to deal with others' emotions". Factor 1, "recognising and controlling others' emotional states" contains items from subscale 4, "application of own emotions to facilitate thinking", subscale 5, "ability to recognise the emotions of others" and subscale 8, "managing others' emotional states". Factor 2, "Awareness of own emotions" contains items from subscale 1, "awareness of emotions" from the WEIP-5 (Jordan, 2000). It is interesting to note that these were the subscales which showed statistically significant increases from $Time_1$ to $Time_2$. Subscale 3, "using emotion to prioritise thinking" and subscale 7, "empathy" failed to show statistically significant increases (as discussed) and items from these subscales have also been omitted from the 16-item measure. Empathy has proved problematic as a subscale, and Jordan (2000) removed it from his Peer-Report WEIP-5 as it failed to feature in his exploratory factor analyses. Mayer and Salovey (1997) have suggested that empathy, rather than being a part of EI, is a shadow construct, which can exist independently of EI. It is more difficult to understand the theoretical reason for the absence of subscale 2, "ability to discuss emotions", and subscale 6, "ability to read others' false displays of emotion". As discussed, the ability to communicate emotions was seen as an important part of the training intervention and styles of communication were assessed and evaluated in role-play exercises and in team meetings. Emotionally intelligent team norms (Druskat & Wolff, 2001) ensured emotions were discussed. Perhaps it can be linked back to the omission of discussion of emotions in the 4-Branch Ability Model of EI (Mayer & Salovey, 1997). Identification and perception of emotions (Branch 1) does not actually refer to discussion of emotions. Similarly, in the case of subscale 6, understanding of emotions (Branch 3) and use of this understanding to manage emotions (Branch 4) does not refer to the identification of false expressions of emotion, despite Jordan's (2000) theoretical inclusion of the subscale as part of Branch 3.

5.2.9 Structure of the Peer-Report WEIP-5

Results of the six-factor exploratory factor analysis for $Time_1$ data showed little support for a six-factor model with six discreet factors containing the items identified by Jordan (2000) for the Peer-Report WEIP-5. Twenty items were mixed together across five of the six factors, with subscale 4 items ("application of own emotions to facilitate thinking") the only items to appear as a distinct factor. Results of the exploratory factor analysis for the $Time_2$ data were dissimilar to the results from the $Time_1$ data, but again failed to confirm the distribution of items as defined by Jordan (2000). No support was found for any of the six discreet factors proposed, as items from different subscales mixed together to form factors.

Principal components analysis revealed the presence of 8 components with eigenvalues exceeding 1, explaining 62.87 per cent of the variance for $Time_1$ data and 6 components with eigenvalues exceeding 1, explaining 62.45 per cent of the variance for $Time_2$ data. Results of an exploratory factor analysis with varimax rotation (loadings < .3) showed a four-factor, 21-item measure was a better fit to the data. Items 4, 6, 8, 11, and 19 were removed, which represent items from subscales 6, 2, 4, 8 and 8 respectively. The internal consistency of the 21-item Peer-Report EI measure was .81 for $Time_1$ and .87 for $Time_2$ which were both lower than the Cronbach's alpha coefficients obtained for the original 26-item measure of 0.83 for $Time_1$ and 0.89 for $Time_2$. Cronbach's alpha coefficient obtained for the 21-item measure of 0.81 for $Time_1$ was also slightly lower than the findings of Moriarty and Buckley (2003) who obtained an overall Cronbach's alpha coefficient of 0.82 for the 26-item scale, which was not expected. If items were deleted which were not measuring EI, it was expected that the internal consistency would increase. Subscale internal consistency was low for subscale 3, giving Cronbach's alpha coefficients of .40 at $Time_1$ and .48 at $Time_2$, possibly explaining the reduced overall alpha coefficients.

In order to assess the ability of the 21-item measure to detect increases in EI, paired samples t-tests were conducted using the total scores and factor scores from the 21-item Peer-Report measure on data sets from $Time_1$ and $Time_2$. Statistically significant results were obtained for all total Peer-Report EI scores and for two of the four subscales,

indicating that the reduced measure could not identify changes in Peer-Report EI to the same extent as the original 26-item Peer-Report WEIP-5 (Jordan, 2000).

Looking at the Peer-Report measure in the context of the 16-item Self-Report measure, as Jordan (2000) derived the Peer-Report WEIP-5 from the Self-Report WEIP-5, some overlap was apparent. Five items from the original subscale 8, "influencing others' emotions to facilitate thinking" loaded onto one factor in both of the reduced measures. Similarly, 2 items from subscale 4, "application of own emotions to facilitate thinking" and 2 items from subscale 5 "ability to recognise the emotions of others" were also common to the reduced measures. A total of 9 items were common between the measures. The remaining items were not relevant to the Peer-Report measure as they represented subscale 1, "awareness of own emotions".

5.2.10 Emotional Intelligence and Gender

The experimental sample for this research comprised 231 participants, 117 males and 113 females. A statistically significant different was found in Self-Report EI scores between males and females. Mean scores for females were higher at both $Time_1$ and $Time_2$. They differed by 9.11 points at $Time_1$ and 10.79 at $Time_2$. Similarly, a statistically significant different was found in Peer-Report EI scores for males and females with females attributed a higher level of EI by their team peers than were males. Mean scores for females were higher at both $Time_1$ and $Time_2$, but the differences were much smaller. They differed by 2.88 points at $Time_1$ and 1.14 at $Time_2$.

This finding supports the gender difference in EI found by Ciarrochi, Chan and Caputi (2000). They found gender differences in EI scores using the ability model (MEIS; Mayer & Salovey, 1997) in 134 undergraduate Australian students. Women scored significantly higher than men on Overall EI. This finding reflected earlier findings which suggested that women were better than men at perceiving emotions (Mayer, Caruso & Salovey, 1999a; Mayer & Geher, 1996; Rosenthal, Hall, DiMatteo, Rogers & Archer, 1979). The explanation offered was that women may be socialised to read emotions better than men or, alternatively, they may be biologically prepared for emotion

perception (Mayer et al. 1999a). The current study sheds no light on biological explanations, but it could be argued that women are socialised differently to men, particularly in childhood, which could explain higher self-reports of EI in females. Female peers may also have scored other female participants in their teams higher than male participants for this reason. Their self-knowledge of female socialisation may have biased them towards higher ratings for females.

Higher EI scores in females found in this study is similar to results found by Ciarrochi, Chan and Bajgar (2001), who found that adolescent females self-reported higher EI scores than their male counterparts. While the mean age of the current participants was much older at 34 years, females again scored higher on EI for both self-reports and peer-reports.

This finding does not support the results of Petrides and Furnham (2000), who found that males rated themselves significantly higher than females on all three factors of Dulewicz and Higg's (1998) Self-Report EI measure (ability to understand own emotions; ability to handle conflict and settle disputes; and being positive and optimistic). In the same study, EI was also measured with Schutte et al.'s (1998) EI measure, and, conversely, females scored higher than males. This is a trait measure of EI and the factor "social skills" was measured. Petrides and Furnham (2000) attributed the difference to a self-enhancing bias in males and a self-derogating bias in females in self-reports. While females may be more socially skilled than males as rated on EI tests, their self-estimation of their EI ability tends to be lower. This was not the case in the current study. Males self-reported lower levels of EI at both $Time_1$ and $Time_2$. No apparent bias in the male direction was evident. If the higher results for females represented a bias in their self-reports, they were upheld by peer-reports which, again, were higher for females. A simple conclusion is that females are more emotionally intelligent than males.

The findings in this study do not support the findings of Moriarty and Buckley (2003), who failed to find a significant difference in total EI scores between males and females. They did report a difference between genders in that females self-reported higher levels of "awareness of emotions" than males at $Time_2$. Moriarty and Buckley (2003) attributed this difference to an increased awareness of their emotional states within women as a

result of their sex-role in society, being perceived as more nurturing and caring than males.

Goleman (1995) suggested that women experience more ranges of emotion, with more intensity, due to their socialisation, and are, therefore, more "emotional" than men (p. 132). This suggestion was not backed up with empirical evidence, but it does show the general perception that women are more emotional beings than men. The design of the current study does not facilitate a deeper examination of gender and EI other than to point out that both genders were subjected to identical training and measurement, so any differences that occurred were not as a result of the training programme. Any suggestions as to why this difference exists are theoretical speculation, therefore, and further studies would need to be designed in such a way as to elucidate causes, if possible.

5.2.11 Emotional Intelligence and Age

In the current study, participants' ages ranged between 22 and 56 years (Mean = 34.06; SD = 6.17). No statistically significant results were found for the relationships between Self-Report EI or Peer-Report EI and age, at either $Time_1$ or $Time_2$.

This result does not support earlier findings by Mayer et al. (1999) who reported that EI developed with age using a sample of 229 adolescents and 220 adults. Using seven tasks from three Branches of the Ability Model of EI, results revealed statistically significant differences between adult and adolescent scores. Mayer et al. (1999) concluded that the result demonstrated that EI ability levels increase with age. It could be argued that the current group had already reached a level of EI maturity with a mean age of 34 years. They would have built up a considerable amount of social experience and experience in teams prior to the study which would probably be quite different to an adolescent group. Age difference in relation to EI scores was not a focus of the current study, and more elaborate comparisons would need to be designed before further conclusions could be drawn about he validity of refuting the relationship between age and EI.

5.3 The Ability Model of EI

The Ability Model of EI (Mayer & Salovey, 1997) operationalised EI by demanding that participants accurately read emotions in others' facial expressions, show good judgement and make good decisions regarding emotionally laden scenarios (Ashkanasy & Daus, 2005). Jordan (2000) based his model of EI and the WEIP-5 measure of work team EI on the Ability Model of EI (Mayer & Salovey, 1997). The subscales of the WEIP-5 (Jordan, 2000) can be linked to the four branches of the Ability Model. Clarke (2006) pointed out that the abilities model depicts emotional ability as a cogent set of skills that include the ability to identify, reason with and utilise emotions effectively. Examination of the WEIP-5 (Jordan, 2000) subscale scores in the current study show that participants succeeded in acquiring those skills and increasing them. Results showed statistically significant increases for both self-reports and peer-reports of EI.

Branch 1, "identification and perception of emotions" (Mayer & Salovey, 1997) is represented by three subscales in the WEIP-5 (Jordan, 2000). They are subscale 1, "awareness of emotions", subscale 5, "ability to recognise others' emotions", and subscale 6, "ability to read others' false displays of emotion". All three of these subscales showed a statistically significant increase as a result of the EI training intervention on Self-Report EI scores. Peer-Report scores for subscales 5 and 6 also increased significantly, although subscale 1 does not exist in the Peer-Report WEIP-5 measure. As participants increased their abilities in recognising emotions in others, and in detecting false displays of emotions, their peers perceived a similar increase. Mayer and Salovey (1997) identified perceiving emotion as the most basic, initial skill in non-verbal reception and expression of emotion. Included in this skill is the ability to detect false displays of emotion by gauging facial expression, voice pitch and tone, and movement (Jordan et al. 2002). Inputs are compared with stored memory schemata which have been built up over time and interaction, and processed. When the participants in the experimental group worked in their teams, they increased their familiarity with their peers. They learned how they expressed their emotions (one peer, for example, may have gone very quiet when they are displeased and angry, while another peer became loud and aggressive). Over the course of the 12-week training intervention, team members had several opportunities to meet and interact. They met twice per week, formally, and at least twice per week informally.

Informal meetings moved from the Library to more informal settings including participants' homes in some cases. A social dimension was added to the training intervention as team members sought to get to know more about one another and to enjoy the experience of working and training together. It could be suggested that informal interaction provided peers with even greater insights into one another's behaviour and thoughts. Formal, facilitated team meetings, while producing healthy noise levels, sometimes seems to constrain interaction. This barrier would have been absent in informal situations, again increasing the depth and intensity of emotional life within the teams.

An intrinsic aspect of the training programme to increase EI involved the adoption of emotionally intelligent team norms (Druskat & Wolff, 2001). They consist of twenty norms to create awareness of emotions and twenty-four norms that regulate emotions (See Appendix F). The adoption of these team norms served to create interpersonal understanding, acknowledge and discuss team moods, induce a sense of caring about peers and create resources for working with emotion (e.g., expressing acceptance of members' emotions). As teams made use of these norms at both formal and informal team meetings, team members became more attuned to emotions both within themselves, and in their peers. This sense of awareness can be seen in the increase in Branch 1 equivalent subscales (subscales 1, 5 and 6).

Branch 2 of the Ability Model of EI (Mayer & Salovey, 1997) involves the assimilation of perceived emotions with existing knowledge. In this model, perception provides a platform for assimilation, and assimilation, in turn, provides a foundation for understanding. This understanding contributes to emotional management (Jordan et al. 2002). Jordan (2000) included subscale 3, "using emotions to prioritise thinking", and subscale 8, "managing others' emotional states" in the WEIP-5 to represent Branch 2. Subscales 3, as discussed, did not increase in Self-Report EI scores. This was largely attributed to participants' prior knowledge of each other resulting in low scores on this subscale, as items referred to the use of first impressions. Subscale 3 did increase significantly in Peer-Report EI scores. Peers judged team members to have increased the use of first impressions about issues and other team members over the duration of the training programme. They were also judged to have increased in their use of intuition and

instinct when discussing issues with their teams. This finding contradicts, somewhat, the earlier explanation that team members were known to each other and tended not to draw on first impressions. A possible explanation for the increase in Peer-Report scores for "use of emotions to prioritise thinking" was the new focus on emotions within teams. Despite the fact that team members had prior knowledge of each other, they now learned to identify and use emotions in their discussions. This change was probably more evident to peers than it would have been to individual team members, possibly accounting for the lack of increase in Self-Report scores. An increase in scores for item 2, for example, ("this person seldom mentions that s/he has an initial feeling that something is right or wrong when working in our team"), which is reverse scored (Jordan, 2000), could be explained as follows. A team member may exhibit emotions in their voice tone and pitch, through their facial expressions, or by their agreement or disagreement with a proposal when it is presented to the team. This set of responses would be obvious to peers, particularly over time, as they became more adept at identifying these emotional indicators. For the team member himself, he may feel he is keeping an open mind and is prepared to consider arguments for and against the proposal, and he may self-report his aspiration. He will not have the benefit of observing his own non-verbal and verbal cues in the way his peers have. Peers assimilated these cues with their existing knowledge of this member, and reported an increase in the use of emotions to prioritise thinking by this team member.

Subscale 8, "managing others' emotional states" is composed of two constructs, "ability to encourage positive emotions in others" and "assisting others to control emotional states". As team members identified and used emotions in their thinking, they became aware of the impact they potentially h ad on the team mood. Emotionally intelligent team norms ensured the creation of an affirmative environment, confronting aberrant behaviour and caring about each team member (Druskat & Wolff, 2001). As team members became emotionally aware, they developed strategies to calm angry peers, help them overcome their frustrations, influenced their decisions and engendered enthusiasm within the team (Druskat & Wolff, 2001).

Branch 3 of the Ability Model of EI (Mayer & Salovey, 1997) pertains to understanding emotions. This Branch is represented by subscales 2, 6 and 7 of the WEIP-5 (Jordan,

2000). Subscale 2, "ability to discuss own emotions" increased significantly in self-reported EI scores. The increase in the "ability to discuss own emotions" was also perceived by team members, as peer-reports of subscale 2 also increased significantly as a result of the training intervention. This increase represents an important aspect in the measurement of the increase in EI. Emotions convey information. For example, the emotion of anger, which may have stemmed from a sense that one's suggestions were not being taken seriously by team members, will result in a behavioural outcome. That outcome can vary from withdrawal from participation to a desire for revenge. Once a team member can identify these emotional messages and the behaviours that accompany them, the capacity to reason with and about those emotions and actions becomes an option (Mayer & Salovey, 1997).

The design of the training intervention ensured participants gained skills in Branch 3 abilities. Team norms of interpersonal understanding, perspective taking, caring about peers, and creating an affirmative environment (Druskat & Wolff, 2001) all ensure emotional understanding between team members. Validating members' contributions, for example, ensures each member's self-esteem remains intact in group discussions and reduces the chances of angering them. Group discussions have been identified as a successful element in enhance emotional intelligence (Cherniss & Adler, 2000; Druskat & Wolff, 2001; Slaski & Cartwright, 2003). Styles of communication could also be considered important in emotional understanding. Yost and Tucker (2000) proposed that successful work team members both understood themselves and related well to others. This was achieved through enhanced communication skills, handling emotions and building self-awareness. Aside from the development of an emotional vocabulary, team members in the current study became aware of the emotions engendered in others as a result of their communication style. This knowledge was facilitated through the use of Bales' (1940, 1953) Interaction Process Analysis. Socio-emotional positive acts (e.g., showing solidarity, showing tension release, perhaps through the use of humour, and showing agreement) were seen to establish better team relations and more team cohesion than socio-emotional negative acts (e.g., showing disagreement, antagonism and tension) in role-play exercises (Tucker et al. 2000). The use of role-play, while not individually assessed in the current study, was seen as an aid to understanding complex social interaction. Cherniss and Goleman (1998), in their four phase model of EI development,

advised that trainees needed to be moved from an initial sense of denial about the need for change, to seeing the need to improve. This is achieved through experiential exercises such as role-play, where alternative behaviours can be viewed, according to Tucker et al. (2000). Plans are then created for putting these changes in behaviour into action (Cherniss & Goleman, 1998). This idea supports Bandura's (1997) Social Learning Theory where individuals are motivated to copy behaviour seen to produce positive or desired results and rewards. The result of a cohesive, high-functioning team, with each member feeling included and with realistic goal setting and deadlines established, could have represented a desirable outcome. Team members would be motivated, therefore, to adopt behaviours that would achieve this outcome, even if it meant changes to their behaviour and style of communication.

Increasing self-awareness through the completion of a number of self-report instruments formed an intrinsic part of the training programme design. Self-awareness has been identified as an important element in emotional and social interaction and emotional intelligence (Cherniss & Adler, 2000; Cherniss & Goleman, 1998; Druskat & Wolff, 2001; Slaski & Cartwright, 2003; Yost & Tucker, 2000; Weisinger, 1998). Participants identified their conflict handling style (Thomas, 1976), for example, from four options (avoiding, forcing, accommodating and collaborating) for dealing with conflict. As participants learned about style options, they identified their own preferences and also the preferred styles of their peers. This knowledge could then inform on individual difference, and enhance the understanding of emotions derived through individuality. If, for example, a team member whose preferred style of conflict handling is collaborating, is placed in a team with peers who prefer a forcing style, he can expect to feel tension as each peer pushes their individual opinion and is not prepared to collaborate. The emotions of anger and frustration which could arise could perhaps be offset through a knowledge that his peers merely preferred this style of conflict handling and needed to be encouraged to adopt a more collaborative approach in order to ensure the team functioned successfully. Intelligent understanding of emotion origin (Mayer & Salovey, 1997) could prevent behaviour outcomes which would disrupt team functioning.

Subscale 6, "ability to read others' false displays of emotion", increased significantly in self-reported EI scores and the finding was also supported by a similar significant increase

in peer-reported scores on this subscale. An awareness of emotions in peers helped participants identify when those peers were presenting false emotional displays. Familiarity with peers developed prior to and during the programme was imbued with a new knowledge of emotions and behaviour. As this knowledge developed, schemata were extended as interaction increased. Consequently, changes to expected behaviour raised suspicion among peers and alerted them to detect falsities. Pretence of happiness by a peer, for example, with a team decision and apparent consensus on the outcome, could be detected by other team members. Carefully confronting the team member about their feelings and further explanation for or discussion of the decision choice could diffuse any negative emotions that peer was feeling. This behaviour is intelligent in that it anticipates problems before they arise. If that peer had hidden their feelings successfully from his team members, he could have suffered a sense of isolation and disillusionment with the team, possibly resulting in withdrawal or exit behaviours.

Subscale 7 of the WEIP-5 (Jordan, 2000), "empathy" did not increase significantly as a result of the training intervention, although there was a slight increase of 0.17 points in mean scores from $Time_1$ to $Time_2$. Empathetic concern involves caring about peers and how they are treated within the team. The slight increase within the team has been accounted for by the fact that these participants were already known to each other, which resulted in a high initial score on this subscale, indicating strong empathetic concern in the participant group prior to the training programme. Team norms designed to establish caring and perspective taking (Druskat & Wolff, 2001) were adopted within teams ensuring peers felt valued and respected. As subscale 7, "empathy" does not exist in the Peer-Report WEIP-5 (Jordan, 2000), no comparison of scores between Peer-Report and Self-Report was possible. In the development of both the WEIP-5 and its precursor, the WEIP-3, empathetic concern was extracted as a factor, but was considered a shadow construct of EI (Jordan et al. 2002), in line with the conclusions of Mayer and Salovey (1997).

Branch 4 of the Ability Model of EI (Mayer & Salovey, 1997) involves using the understanding of emotions to manage emotions. This Branch is represented by subscales 2, 4 and 8 in the WEIP-5 (Jordan, 2000). All three subscales increased significantly in both Self-Report and Peer-Report EI scores as a result of the training intervention.

Subscale 3 increases in "ability to discuss emotions" showed that participants could discuss their emotions with their peers at the end of the training programme. Emotionally intelligent team norms, increased self-awareness, observing role-plays and adopting behaviour changes and keeping a diary (Slaski & Cartwright, 2003) to aid reflection introduced an emotional content into team process and team content (Moriarty & Buckley, 2003). Team process became tangible and subject to influence through the discussion of emotions. A richness was brought to team life beyond task focus and content. When participants discussed emotions, they then learned to control emotional states both in themselves and in their peers, and take other perspectives (both measured in subscale 4). This application of emotions to facilitate thinking was the precursor to managing the emotional states of others (measured in subscale 8). When an emotion was felt, it was identified and discussed within the team. Understanding the origin of the emotion led to perspective taking. As peers identified with the emotion, interventions were made to control the emotion and bring the participant back to a more even state. This is emotional intelligence working at a team level. Emotions are not suppressed, but explored and dealt with by the whole team in a mature manner for the benefit of both the team and the individual team member.

5.4 Design of Training Programme

The statistically significant increase in Self-Report and Peer-Report EI showed that EI could be increased through training, and provided an affirmative response to the fundamental research question this research addressed - whether EI could be increased through training. The result also showed that the design of the training programme was appropriate and successful in increasing EI in teams. The finding shows that combining some of the EI training methodologies previously used can successfully increase EI providing support for some of the claims made by other researchers (e.g., Druskat & Wolff, 2001; Dulewicz & Higgs, 2004; Jordan et al. 2002; Sala, 2001; Slaski & Cartwright, 2003; Tucker et al. 2000; Weisinger, 1998). The novel aspect of the current programme was the combination of these training methodologies to create a focus on self-awareness throughout the training. This self-awareness was facilitated through discovery

of personal preferences and styles and the subsequent comparison of these preferences with fellow team members.

The training intervention employed a total of ten elements. They contributed in total to an increase in emotional intelligence within team participants. Working in teams has been identified as an aid to social development, emotional development and enhanced productivity (Cherniss & Adler, 2000; Cracolice & Deming, 2001; Druskat & Wolff, 2001; Jordan, Ashkanasy, Hartel & Hooper, 2000; Kaplan & Welker, 2001; Kremer & McGuinness, 1998; Sala, 2001; Slaski & Cartwright, 2003). Working in teams has contributed to successfully increasing EI in participants in the current study. The social and emotional interaction afforded by team working provided the backdrop to enable the identification of emotions, discussion of emotions and ultimately, the management of emotions in the self and in others. Tucker et al. (2000) advised that all EI training would benefit from the use of teams as teams provided supportive environments for testing new behaviours (e.g., controlling the emotions of others). The current study results support the advice of Tucker et al. (ibid). The comparison group showed no increase, but rather a slight decrease, in EI over the same 12-week period. This was attributable to the fact that they did not undergo the EI training intervention applied to the experimental group.

Working in a team ensured that active learning processes were employed with experiential learning facilitated (Dweck, 1986; Knowles, 1990). Clarke (2006) identified the role of social relationships and social interaction in developing emotional abilities through establishing shared meaning and significance in everyday interaction and through team meetings and activities. He identified emotional abilities as tacit and intuitive, posing a challenge for learning, which is potentially overcome through dialogue and reflection. In this study, assignment to teams and working in teams provided the essential background to the development of emotional intelligence. It is possible that the increase in EI obtained would not have occurred without the use of teams. The reasons for this are numerous. They include the failure to create a psychologically safe environment with large group numbers of alternating peers. Overlooking quieter team members or excluding them from discussions and decision-making would also become problematic without stable small teams. Learning to identify emotional responses in peers, and subsequently, how to control those emotional responses would also be difficult without

stable team composition. Emotions play a critical role in developing and maintaining social relationships (Ashkanasy, 2003) but emotional intelligence is the key ingredient in the process of developing social relationships and working with other people in groups (Lopes & Salovey, 2001) which was seen from the enhanced abilities acquired by participants (discussed earlier).

Development of self-awareness, and subsequent tolerance for individual difference, were essential components of the training programme. As participants developed their self-awareness, they understood emotional reactions and the control of those reactions, both in themselves and their peers. While a measure of self-awareness was not taken, it was presumed to have increased as a result of the training programme as participants learned their style preferences, personality types, and team roles. Recording the results of these questionnaires in a diary aided reflection and is seen as a further aid to the development of self-awareness (Slaski & Cartwright, 2003). In the preparation phase of Cherniss and Goleman's (1998) four-phase model of EI development, self-awareness is essential. Trainees list commonly felt emotions, compare with predicted emotions and discuss the findings. The training intervention applied in this study takes this preparation phase further by weaving self-awareness into the entire programme. Tucker et al. (2000) proposed that people have formed perceptions of themselves and how they relate to others and that they are less aware of their social and emotional weaknesses than of their work or technical deficiencies. Taking this into account, the training programme allowed participants a safe environment to discover and examine their social behaviour and to model new behaviour. Emotional aspects of social life within the team were openly addressed at team meetings and participants who were initially uncomfortable with emotions began to accept that they would be a topic at team meetings, in the same way as work plans, goals and deadlines.

Weisigner (1998) pointed out that self-evaluation can be generated by examining social responses and looking for ways to improve oneself. This is achieved by making a conscious effort to enhance self-awareness and social skills in order to increase emotional intelligence (Weisigner, ibid). While Weisinger's (1998) argument is justified in the context of this study, it is infinitely more robust when this self-evaluation takes place in the context of a team, a team where there are few threats as a participant absorb what is

reflected by through their social interaction. Similarly, a learning environment where each peer is on the same journey to improve their emotional intelligence could be seen as a motivating influence on participants to make changes to their behavioural response repertoire.

Adoption of emotionally intelligent team norms was identified by Druskat and Wolff (2001) as an essential part of developing EI. They provided anecdotal evidence of success based on the use of Goleman's (1995, 1998) model of EI which has been regarded as a measure of "something other than EI" by Mayer and Salovey (1997, p. 12). The current study adopted Druskat and Wolff's (2001) team norms and found them to be beneficial in increasing EI. Their actual contribution was not measured, but they provided a set of rules for newly formed teams to adhere to, in order to facilitate the development of EI. Their inclusion in this training programme ensured self-evaluation and attempts to change were made in a constructive, caring environment conducive to learning and improving.

5.5 Implications

Research into the development of EI remains in its infancy (Law et al. 2004), and despite the growth in the number of training programmes purporting to develop EI (Chapman, 2004; Cherniss & Caplan, 2001; Cooper, 1997), a distinct lack of empirical evidence existed to support the efficacy of such training programmes (Clarke, 2006b). The current study provides such empirical evidence. A documented training programme was designed, implemented and evaluated. The provision of empirical evidence in EI training was absent from several programmes, including those outlined by Cherniss and Adler, (2000); Dulewicz and Higgs, (1999, 2004); Druskat and Wolff (2001), Goleman, (1998); Tucker et al. (2000); and Yost and Tucker (2000), and from the major publications in the field of EI (i.e., Bar-On, 1997; Goleman, 1995, 1998; Weisinger, 1998). This lack of empirical evidence has resulted in criticism of, and suspicion around the existence of the concept of EI (Conte, 2005; Landy, 2005). When critics of EI seek reassurance, it is not to be found in much of the published literature around EI training or, indeed, around EI

measurement. The results from this research, it is hoped, will go some way towards redressing the balance.

Most research on EI has tended to focus on individuals (Bar-On, 1997; Bar-On, Taylor, & Parker, 1997; Goleman, 1998; Salovey & Mayer, 1990). Few studies relating to the development of EI in teams exist (e.g. Jordan et al., 2002; Moriarty & Buckley, 2003; Yost & Tucker, 2000). The current study was aimed specifically at teams and the training design employed relied on the use of the social interaction which occurs in teams. Self-awareness was greatly facilitated through the existence of peers who adopted emotionally intelligent team norms (Druskat & Wolff, 2001), respecting individual difference and creating a secure and psychologically safe environment (Edmondson, 1999) for team members to explore alternative behaviour and subsequent outcomes in peer reactions.

Researchers have identified a need for educational institutions to prepare students for the group decision-making processes that exists in the real world, as well as increasing their ability to function within a team structure (Kaplan & Welker, 2001). The current study outlined a training programme designed to increase EI that is based on teamwork. No measures of the teams' productivity were taken, but the constituent components of the training programme were beneficial to team functioning. Parker (1990) published a twelve-point list of characteristics of effective teams that included open communication, definition of clear goals, consensus decision making, shared leadership, civilised disagreement, listening and participating, an informal team climate and style diversity within teams, defined as differing focus on task and social aspects of teamwork. Many of these characteristics have been discussed, indicating their presence as a result of the training programme (e.g., open communication, civilised disagreement, listening and participating, an informal or psychologically safe team climate, acceptance of style diversity and individual difference and focus on social aspects (process) as well as task (content) of teamwork). This programme was conducted in an educational setting and satisfies the need to prepare students for teamworking (Kaplan & Welker, 2001; Kremer & McGuinness), while also ensuring teams become more effective (Parker, 1990).

The Ability Model of EI (Mayer & Salovey, 1997) has been identified as the most theoretically robust model of EI (Ashkanasy & Daus, 2005; Conte, 2005; Landy, 2005;) and the MEIS and MSCEIT measures (Mayer, Salovey & Caruso, 2002) based on the Ability Model, the most statistically robust measures of EI (Ciarrochi, Chan & Caputi, 2000; McEnrue & Groves, 2006). It was not possible to use either of these measures with the design of the current study, so the next best option of choosing a measure of EI for work teams, based on the Ability Model of EI, was employed. The WEIP-5 (Jordan, 2000) was designed by Jordan to measure EI in work teams and contained both a Self-Report instrument and a Peer-Report instrument, both of which were designed around the 4 Branches of the Ability Model of EI (Mayer & Salovey, 1997). Ashkanasy and Daus, (2005) bestowed the term "Stream 1 models of EI" on the Ability Model and its measures of EI. They represented what was truly meant by emotional intelligence and measured it in a statistically robust way (Ashkanasy & Daus, 2005). Stream 2 models are based on the Ability Model and encompass measures such as the WEIP-5 (Jordan, 2000). Stream 3 models were not considered measures of EI by Ashkanasy and Daus (2005) as they measured motivation, non-ability dispositions and traits and global and personal functioning. Clarke (2006) highlighted the dilution of Stream 3 models of EI by entitling them personality models which include traits and learned capabilities. The use of the WEIP-5 (Jordan, 2000) represented as true a measure of EI as was possible given the nature of the study. Mayer and Salovey (1997) assured users of the Ability Model and the MEIS and MSCEIT measures that they would be measuring emotional intelligence and only emotional intelligence. With Jordan's (2000) adherence to the Ability Model, a certain degree of assurance can be taken that the measure was also a measure of emotional intelligence applied to teams in the workplace.

Law et al. (2004) pointed out that a mutually acceptable, unitary definition of EI would be beneficial and would form the basis of more standardised measures based on the four-dimensional model of EI. In the current study, the definition of EI by Mayer and Salovey, (1997) was adopted. Mayer and Salovey are seen as the originators of the concept and adherence to their definition, which has formed the basis of the Ability Model of EI, proved useful in the interpretation of findings in the current study. Clarity was enhanced when subscales could be related back to a simple definition and model of EI, supporting the point raised by Law et al. (2004). Mayer and Salovey (1997) defined emotional

intelligence as "involving the ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth" (p.10). The definition proposed emotional ability as involving four aspects: the ability to perceive emotion, the ability to integrate emotion to facilitate thought, the ability to understand emotions, and the ability to manage emotions. Future research would benefit from the adoption of the definition. Linking measurement and findings to the definition would aid understanding for the reader, especially when a justified criticism is the wide range of definitions and measures in use in the field.

Care was taken in this study when selecting participants with the use of part-time postgraduate students who worked together in larger work groups in their respective workplaces. The nursing staff who participated, for example, came from one hospital and worked together for some time prior to training. This was an empirically important factor in the measurement of the success of the training intervention. If the participants were not known to each other and had not worked together previously, then it could have influenced the strength of the findings. The increase in EI could not have been fully attributed to the training programme intervention, but rather to a possible synergy created by the bringing together of a group of people, some perhaps, highly emotionally intelligent at the outset. For this reason, care was taken to only include participants in teams that had previously worked together.

The study, while not without limitations of its own, addressed some of the major limitations of previous research into EI training programmes. Firstly, failure to take measurements of EI both pre- and post training intervention was identified as a limitation in studies into EI training programmes conducted by Jordan et al. (2002) and Yost and Tucker (2000). Changes in EI level as a result of the training intervention require measurement at both times. The current study measured EI through Self-Report and Peer-Report at both week 2 and week 13 of semester, representing a pre- and post measurement of EI to assess any changes in EI due to the training intervention.

The use of undergraduate students in many studies into EI training programmes (e.g. Jordan et al. 2002) posed the problem of transferability of results.

Sample size has been an issue with Sala (2001) who conducted training on two groups with 19 participants in the first and 20 participants in the second. Generalisability of results from such a limited sample size could also be considered problematic. In order to address this issue, the current research was conducted on an experimental group consisting of 231 participants with an additional 100 participants used as a comparison group.

5.6 Practical Implications

This study confirms that emotional intelligence can be increased through training. With the large increase in training programmes in EI on offer (Chapman, 2004), the findings of this study identify the best model of EI to employ, the best measure.

This study outlines a training programme to successfully increase emotional intelligence in teams. The design of the training programme is specific to a university modular approach and requires some adjustment to fit with workplace training. The duration of 12-weeks afforded participants two hours of facilitated team meetings and at least four hours of informal team meetings per week. The duration of the programme could be condensed, therefore, to fit with the exigencies of organisational timelines. This has not been the norm in emotional intelligence training where interventions have varied from two hours per month of facilitated learning (Murphy & Walker, 2001) to five full days over the course of one year (Sala, 2001). The argument exists that it takes time to identify, test out, and adopt new emotional and behavioural responses (Clarke, 2006). This study showed that emotional intelligence increased significantly over a 12-week period, showing success in a much shorter timeframe than previous training interventions.

5.7 Limitations

There have been calls for research to examine how EI can be developed for use within organisations (Kunnanatt, 2004; Opengart, 2005; Weinberger, 2002). While the current study details and evaluates an EI training intervention, a limitation was that the participants used were not trained in their workplace. Participants were attending a part-time post-graduate programme at university and the training intervention was delivered as one module within the programme. Ideally, the training intervention would take place directly in a workplace setting. This was not possible with the current study. The use of part-time post-graduate participants who worked together in a larger team outside of the programme was an improvement on many previous studies conducted on undergraduate students (Jordan, 2000; Jordan et al. 2002).

Workplace-based training would ideally have alternative outputs to the assessments required to complete the module, which were a team presentation and a team report in this case. Workplace outputs could be more closely related to productivity. For example, in a planning department, perhaps the number of plans viewed and processed per week could be a deliverable. This measure of productivity could also provide the basis of testing any link between increased emotional intelligence and increased productivity in teams. This idea has formed the basis of much of Goleman's (1998) claims but again, lacks empirical evidence. Provision of evidence would be a worthwhile endeavour to enhance the understanding and use of emotional intelligence.

It is impossible to identify specifically which aspects of the training programme were more effective in facilitating the development of EI than others. This limitation reflects a similar limitation in the training programme designed by Slaski and Cartwright (2003). When multiple methods of training are used (i.e., diary, team work, report, presentation, self-awareness development, norms, facilitated team meetings and lecturettes) and statistical measures of outcomes are not taken pre and post-training, it is impossible to isolate any one aspect of the training programme and attribute it greater importance. The only conclusion that can be drawn is that the training intervention, as a whole, with its mix of methods, produced an increase in emotional intelligence.

During the discussion of findings, it became apparent that a measure of how long the teams had worked together prior to the implementation of the training intervention would have been beneficial. The level of practice and experience that participants had of interacting with each other would have been informative for issues such as use of first impressions and the use of empathy. It would be advisable to add some questions into the demographics section of the questionnaire to elicit this information.

Another issue not addressed in this research was the possibility of prior training in aspects of team functioning and self-awareness. If, for example, participants had previously undergone this training it could have impacted their attitude to learning and their responses to self-awareness inducing exercises.

Due to the nature of the training intervention, no follow-up was possible with participants, other than post-intervention measurement when the training ended. Some researchers (e.g. Cherniss & Goleman, 1998; Jordan et al. 2002; Slaski & Cartwright, 2003), indicated that follow-up measurement at six or twelve months remove would be informative. Furthermore, such a follow-up would provide valuable insight into the subsequent benefits (or otherwise) to participants of EI training and how, ultimately, such training impact on wider work team performance. Future research should, therefore, include a follow-up measure, either quantitative or qualitative, or both, at some remove following the training intervention.

5.8 Future Research

The use of a measure of self-awareness would have elucidated participants' levels of self-awareness before and after the EI training intervention. Future studies adopting this training model to increase EI in teams would benefit from the addition of a measure of self-awareness. While Jordan's (2000) WEIP-5 contained items relating to emotional self-awareness (e.g. "I am aware of my feelings when working in my team"), a broader measure of overall self-awareness around issues of the impact on peers of behaviour would be beneficial.

Emotional intelligence has grown into a multimillion dollar training industry (Adkins, 2004; Kunnanatt, 2004). McEnrue and Groves (2006) pointed out that the major vendors of this training use different measures of emotional intelligence and their analysis of measures concluded the MSCEIT (Mayer, Salovey & Caruso, 2002), based on the four-Branch Ability Model of EI (Mayer & Salovey, 1997), was the most statistically robust measure of EI. The current study has outlined the development of a successful EI training programme, which has been absent in the literature. It would be useful to test this training programme using the MSCEIT (Mayer, Salovey & Caruso, 2002) in addition to the WEIP-5 (Jordan, 2000). The fact that the MSCEIT is an ability measure may require some redesign of the training programme, but it would lend important further statistical support to the positive findings.

The current training intervention did not isolate the success or otherwise of individual training methods, but concluded that the training programme as a whole was successful. Future research could test each element's contribution to that success and eliminate any aspects that proved non-contributory. Measurement, for example, of the contribution of team working, conflict resolution, personality type identification, team role preference, and leadership style were not included in this study, but did form part of the training programme. Similarly, the use of a diary, making a team presentation and submitting a team report could be assessed for the contribution participants felt they made to the programme in future iterations.

Linking increased emotional intelligence to increased productivity in the workplace with the provision of empirical evidence would prove beneficial in the field of emotional intelligence. Claims have been made (Bar-On, 1997; Covey, 1996; Druskat & Wolff, 2001; Goleman, 1998; Jordan et al. 2002; Weisinger, 1998) that increased EI results in enhanced team performance, greater leadership capacity, and career success. These claims existed without empirical evidence, without a single model of EI, and without a single definition of EI, but more importantly, without a training programme to enhance EI which was outlined and measured in an empirically robust manner. The programme now exists, a model and definition has been isolated in the Ability Model of EI (Mayer & Salovey, 1997), so the next step involves the provision of empirical evidence for the efficacy of these claims.

Empathy has proved problematic as a subscale within emotional intelligence when using the WEIP-5 (Jordan, 2000) as a measure. Based on the results found by Sala (2001), it may be beneficial in future studies to adopt a peer-report aspect to the measurement of empathy. Empathy may be easier to identify in others than in the self.

Additional issues to be addressed in the demographics section of any future questionnaires would cover the length of time participants had worked together prior to the training intervention and details of any previous training in self-awareness or emotional intelligence. Any possible relationships between these variables and emotional intelligence could then be investigated.

5.9 Conclusions

A team based training intervention successfully increased individual levels of emotional intelligence in team members. This finding proved that emotional intelligence could be increased through training and provided empirical evidence for the finding. To date, much of the published literature around emotional intelligence has failed to provide such evidence. Furthermore, in order to design the training intervention, it was necessary to review and evaluate models and measures of emotional intelligence currently available. The work of Mayer and Salovey (1997) emerged as the most theoretically and statistically robust model and measure of emotional intelligence. This study incorporated the Ability Model (Mayer & Salovey, 1997) of emotional intelligence for the definition of the concept and the discussion of findings. It was not possible to use the measure associated with the Ability Model, the MSCEIT with the design of the current study. The best option from available measures was chosen. The measure applied, the WEIP-5 (Jordan, 2000), is based on the Ability Model of emotional intelligence and was designed specifically for work teams. The use of this model and measure of emotional intelligence acts as a reassurance that actual emotional intelligence was measured in this study. This has been a criticism of other studies where alternative models and measures of emotional intelligence have been used, many of which have been likened to personality and trait measures.

The increase in emotional intelligence was measured using both Self-Report and Peer-Report instruments (i.e., WEIP-5: Jordan, 2000). As such, the results are more robust than self-report measures of emotional intelligence. In addition, a comparison group was used for the Self-Report element of emotional intelligence to further ensure that the increases in emotional intelligence were due to the training intervention.

The design of the training intervention employed a combination of methods used previously in both theoretical and practical training interventions to increase emotional intelligence. The combination of these methods proved successful when combined with an emphasis on increasing self-awareness. Self-awareness enhancing exercises throughout the training programme induced a sense of understanding between peers, which was reflected in increased emotional intelligence.

Study 2

Chapter 6

Study 2 Team Process Variables

6.1 Introduction

Psychological research into team composition and team processes has proven challenging (Landy & Conte, 2004). Emphasis has been placed on the use of the Input-Process-Output model of team effectiveness (Gladstein, 1984; Hackman, 1987) which proposed that inputs have direct effect on team outputs (Campion, Medscar & Higgs, 1993) and also indirect effects on outputs through team processes (Landy & Conte, 2004). Most research has focused on the Input-Performance relationship with significantly less concern for the Input-Process part of the model (Afolabi & Ehigie, 2005). Processes are the interactions that take place among members (Hackman, 1987), and the operations within a team that allow it to function smoothly and efficiently (Muchinsky, 2003). These team processes are the focus of the current study.

Team process variables mediate between input and output (Hackman, 1987). Researchers are becoming interested in the influence of emotional intelligence (EI) on team processes (Folkerts, 2002; Robins, 2002). The mediation relationship is not explored in this study due to the constraints of the sample, but theoretical links are established and discussed in later chapters.

Study 1 outlined a training programme to increase emotional intelligence (EI) in teams and found that EI did increase. Study 2 examined the effect of the EI team training intervention on team process variables. The effect of increasing EI was investigated in relation to five variables - team decision making process, trust between team members, communication between team members, team development and team psychological safety. This chapter provides an outline of each team variable including definitions, measures, and research findings to date in areas relevant to working in teams.

The links between EI and each of these variables in the literature to date is also outlined. There have been strong links between communication and emotional intelligence, and similarly, strong theoretical links between trust and emotional intelligence, and decision making and emotional intelligence. Links between emotional intelligence and

psychological safety have not been established previously, nor have links to team development existed. Theory suggests such links are possible, and are outlined in the chapter.

Research findings have linked each of the five team process variables with enhanced team performance and these links are also included. They lay the foundation for theoretical links between the variables and emotional intelligence in relation to team performance.

6.2 Communication

The nature of communication in teams is complex. Goleman (1998, p.174) captured some of the social complexity of communicating when he defined communication as "listening openly and sending convincing messages". He proposed that people with competence in communication were effective in give-and-take scenarios, registered emotional cues in attuning their message, and dealt with difficult issues in a straightforward manner. Furthermore, they listened well, sought mutual understanding and welcomed shared information. They fostered open communication and stayed receptive to bad news as well as good news, which ensured a firm basis in reality. Goleman pointed out that being an adept communicator was the keystone of all social skills. Among managers, communications competence distinguished high performers from average or poor ones, and resulted in enhanced morale in their followers.

Goleman (1998) found that managers rated highly on communication shared the ability to adopt a calm, composed, and patient manner, irrespective of the emotional stake they experienced. They were able to set aside the imperatives of their own feelings, even when those feelings were turbulent, in order to make themselves fully available for the person they were interacting with.

According to Goleman (ibid), being socially outgoing and extroverted was not a guarantee of being skilled at communication. At times, effective interaction meant underplaying one's presence. Extremely loquacious and outgoing leaders or peers have been considered intrusive by team members (Goleman, 1998).

6.2.1 Team communication

Communication in groups is vital for a number of reasons: to test reality, to organise tasks, to organise the group, to solve conflict and to make group decisions (Wilke & Meertens, 1994).

In today's team-centred organisations, it is desirable for employees to develop communication competence in order to function efficiently in the group setting (Goleman, 1998). Research has found that groups were able to make better decisions when members had good communication skills and when people were not competent at communication (i.e.,, they lacked the training and skills to function competently), they avoided group membership (Kreitner, Kinicki & Buelens, 1999).

Wilson Learning Corporation conducted extensive research in the United States on high-performance teams in 1987. Good communication (creating a climate of trust and open, honest communication) was identified among the top eight attributes of high-performance teams. Without good communication team process, team roles, achievement of tasks, trust, leadership and conflict resolution became impaired.

The role of discourse in learning has been recognised (Tien, Roth & Kampmeier, 2002). Development of understanding within groups is achieved through discussion of meaning, observations and refinement of ideas. Conclusions are reached through the process of conflict, discussion and argument as ideas and models are refined and revised. "Conceptual understanding is dependent on the opportunity to socially construct, and reconstruct, one's own personal knowledge through a process of dialogic argument" (Driver, Newton & Osborne, 2000, p. 298). Understanding develops through the course of communicating ideas and interacting with others. The element of peer discussion, available in teams, is important for "sharing, clarifying and distributing knowledge among peers" (Rivard & Straw, 2000, p. 585). Another key process observed in team discussion is connected discourse, which is the elaboration of ideas which leads to more sophisticated reasoning (Hogan, Nastasi & Pressley, 2000), which ultimately resulted in enhanced performance.

According to Vygotsky (1978), the zone of proximal development is defined as the distance between the actual development level as determined by independent problem solving, and the level of potential development under adult guidance or in collaboration with more capable peers. In teams, it has been accepted that performance levels rise beyond the levels of capability of the weakest members and result in higher performance than those weaker members were capable of on their own (Jordan & Troth, 2004). Peers share previous knowledge and new ideas through communication. The proposition that a central role exists for communication in team performance can, therefore, be suggested.

6.2.2 Communicative adaptability

Duran (1983) developed a measure, the Communicative Adaptability Scale (CAS), to examine an individual's competence at communication, where competence was viewed as the ability to adapt to different social constraints (Rubin, Palmgreen & Sypher, 1994). Communicative adaptability was defined as "a cognitive and behavioural ability to perceive socio-interpersonal relationships and adapt one's interaction goals and behaviours accordingly" (Duran, 1983, p.320). The Communicative Adaptability Scale is based on six dimensions of communicative adaptability, five of which were used in the present study to establish whether the EI training programme had increased participants' communicative ability.

These five, as outlined by Rubin et al. (1994) were: Social Composure (i.e., feeling relaxed in a social situation); Social Confirmation (i.e., maintaining the other's social image); Social Experience (i.e., enjoying participating socially); Appropriate Disclosure (i.e., adapting one's disclosures appropriately to the intimacy level of the exchange); and Wit (i.e., using humour to diffuse social situations).

Duran and Zakahi (1987) further explained some of these constructs. Social Confirmation was the measure of an individual's ability to show interest and concern for the other person. Social Experience measured the individual's ability and desire to interact with different people in various social settings. Appropriate Disclosure referred to one's ability to perceive and adapt to the topical constraints implied by other communicators.

Duran and Zakahi (1987) used the Communicative Adaptability Scale to establish whether there was a link between having good communication competence and being perceived by others as satisfying to interact with. They found that good communication competence, as rated by peers, was strongly correlated with being perceived, by their peers, as satisfying to interact with. "Social composure" was found to explain most of the variance while "wit" explained least. Interestingly, Duran and Zahiki's findings demonstrated that the perceived satisfaction of an interaction was dependent on the other participant's performance in the situation, and not on the individual's own perceived ability. Increasing the satisfaction experienced in the team interactions enhanced the positive climate known to be beneficial to the group. This finding, therefore, further illustrated the importance of having communicative competence in order to function in the team setting.

Stewart and Barrick (2000) outlined how the type of task a team is set influenced the level of communication required to complete it. Stewart and Barrick (ibid) found that teams that were not highly dependent on each other to complete a task required lower levels of communication, and, therefore, experienced less opportunity for conflict. Teams who faced a task that called for higher interdependence of members necessitated higher levels of communication and this increased the potential for conflict in the group. While conflict was not measured in this study for research purposes, team members completed Conflict Handling Styles Questionnaires in order to increase their self-awareness and to enhance their knowledge of conflict management.

6.2.3 The effect of communication

Where a group holds a self-image of themselves as interdependent, Oetzel (2001) found there was a positive relationship to co-operation and participation of group members. The communication processes in a group were dependent on the self-construal of the group as independent or interdependent. Participants in the present study were required to engage in communication in order to fulfil team tasks. All members were expected to contribute equally to the projects, and the final team score would be awarded to all the members of the group. This enhanced the idea that all members were dependent on the team and the

interdependence of the members was expected to enhance co-operation and participation within the group. The tasks and group processes required the development of high levels of interdependence and communication between the team members and it would be expected that this experience would cause an increase in the participant's communicative capacity by the end of the programme. In addition to task and goal achievement communication, participants learned to communicate about emotions. Adopting Druskat and Wolff's (2001) emotionally intelligent team norms, participants were encouraged to take time to discuss difficult issues and to address the emotions that surrounded these issues.

6.2.4 Communicating humour

Humour is known to be important for establishing a sense of community in groups (Terrion & Ashforth, 2002). Sharing a joke with the group can help foster a sense of group identity and cohesion. Humour has been used by individuals (particularly males) who dominated in a group in order to attract and sustain the attention of peers (Baxter, 2002). The EI training intervention encouraged the use of wit to diffuse tense situations or to point out errant behaviour to a team member (e.g., continually turning up late for meetings) through the adoption of emotionally intelligent team norms (Druskat & Wolff, 2001). Research suggests that males in the groups increase their "wit" levels significantly more than the females, since males have been known to employ this tactic more than females, particularly in mixed gender groups (Baxter, 2002).

6.3 Trust

Mayer, Davis, &, Schoorman, (1995, p. 710), defined trust as the "willingness to be vulnerable". Jones and George (1998) associated the willingness to become vulnerable to a set of behavioural expectations that allowed individuals to manage the uncertainty or risk associated with their actions. Risk appeared central in many definitions of trust and consisted of the perceived probability of loss as perceived by the trusting person(s) (Mayer et al. 1995). Luhmann (1979) defined risk as a prerequisite in the choice to trust.

If actions could be undertaken with complete certainty, trust would not be needed (Lewis & Weigert, 1985). Underlying the decision to trust is also the individual willingness to become vulnerable (Zand, 1972), and the expectation or belief that others will act in a way that is beneficial or at least not detrimental, for the relationship (Gambetta, 1988). Trust was also contingent on a certain situation and tended to be based not only on personal information, but also on non-personal (situational) information. Lewicki and Bunker (1996) argued that trust involved not only expectations about other people's motives and intentions, but also considerations about the situation and the risks associated with acting on such expectations.

6.3.1 The nature of trust

Throughout the research literature, a variety of behaviours have appeared to indicate trust including open communication (Boyatzis, Goleman & Rhee, 1999; Currall & Judge, 1995; Smith & Barclay, 1997), acceptance of influence (Blau, 1964; Smith & Barclay, 1997), forbearance from opportunism, (Smith & Barclay, 1997), and lack of monitoring (Currall & Judge, 1995; McAllister, 1995; Smith & Barclay, 1997). In the context of ongoing relationships, such as work teams, these behaviours may occur simultaneously, one type of behaviour may lead to another one, or even in some situations some behaviours may be less prevalent than those of others. The relative importance of each form of behaviour depends on the nature and context of the work relationship (Smith & Barclay, 1997). Since trust involved granting latitude to others over actions that may have an impact on ourselves, decisions to confer trust probably involved assessments of the accompanying risks and alternatives available to avoid such risks (Morris & Moberg, 1994).

Several researchers have alluded to the fact that trust is a multidimensional construct in discussing how expectations underlying trust affect subsequent behaviour. From a sociological point of view, Barber (1983) argued that trust involved moral, emotional and cognitive bases. Lewis and Weigert (1985) explained that interpersonal trust was a highly complex phenomenon with distinct cognitive, emotional and behavioural dimensions. More focused on dyadic work relationships, McAllister (1995) distinguished between

contents of cognition-based and affect-based trust, defined by Lewis and Weigert (1985), and the specific factors that influence the development of each form. Trust is cognition based when decisions are made about who to trust and who not to trust; under what conditions; and for what reasons. Trust is affect based when it consists of the emotional bonds between individuals (Lewis & Weigert, 1985). Team members make emotional investments in trust relationships, express genuine care and concern for the welfare of others in the team, believe in the intrinsic virtue of such relationships, and believe that these feelings are reciprocated (Pennings & Woiceshyn, 1987; Rempel, Holmes, & Zanna, 1985). McAllister (1995) concluded that emotional ties linking individuals provided the basis for trust.

Mayer et al. (1995) proposed further that cognitive and affective dimensions of trust both influenced, and were influenced by, a general propensity to trust others, which developed from general beliefs about the treatment individuals expected to receive from others. This belief became especially important in team-working and team settings.

In line with several of these multidimensional conceptualisations of trust, Costa (2003) proposed that trust was not only a psychological state based on expectations and on perceived motives and intentions of others, but also a manifestation of behaviour towards these others. Consistent with Mayer et al.'s (1995) integrated model of trust, Costa drew the distinction between propensity to trust and perceived trustworthiness. Propensity to trust referred to the general willingness to trust others (Rotter, 1980), grounded in the individual's personality, life experiences, cultural background, education and several other socio-economic factors. Perceived trustworthiness, referred to the expectations and considerations about other people's motives and the intentions underlying their actions; and also to trust behaviours which referred to the actions that reflected the willingness to be vulnerable to others whose actions one has no control over.

Earlier work showed that individuals who trusted their team colleagues had a high propensity to trust others, strongly perceived other team members as being trustworthy, often engaged in co-operative behaviours, and did not monitor the work of their colleagues (Costa, Roe, & Taillieu, 2001). Contrary to some other definitions (e.g.,

Rousseau et al. 1998), Costa viewed co-operative behaviour and lack of monitoring as components of trust, and not as an outcome of trust itself.

Appropriate social processes are a product of trust (Jones & George, 1998). Examples of these processes included selection of appropriate roles, intensive social relations, high confidence in the abilities and commitment of others, seeking help from fellow members, exchanging information freely, prioritising team objectives and needs, and creating a sense of unity and solidarity (Jones & George, 1998). Trust, therefore, was cited as a required condition for successful teamworking.

According to Goleman (1998), members of successful teams felt they could count on each other. Effective managers engendered trustworthiness through possessing high integrity, a strong concern for the needs of subordinates and colleagues, and for the demands of the tasks in hand. Effective managers gave higher priority to these aspects than to impressing their own bosses or superiors. Failed managers were typically over-ambitious and too ready to get ahead at the expense of those around them. Their followers did not trust them. Goleman (ibid) defined trustworthiness and conscientiousness as maintaining integrity and taking responsibility for personal performance. People with this competence acted ethically and were above reproach. They built trust through their reliability and authenticity. They admitted their own mistakes and confronted unethical actions in their peers and subordinates. They were able to take tough, principled stands even if they were unpopular.

Boyatzis, Goleman and Rhee (1999) published a framework of twenty emotional competencies of EI divided into four domains: self-awareness, self-management, social awareness, and relationship management. According to the framework, self-awareness included emotional self-awareness, accurate self-assessment and self-confidence. Self-management included self-control, trustworthiness, conscientiousness, adaptability, achievement drive and initiative. Following extensive research on a sample of almost 600 managers, using the self-report and peer-report versions of the Emotional Competence Inventory (ECI), Boyatzis et al. (1999) claimed support for the model with the statistical analyses grouping social awareness and relationship management as one cluster. While the ECI has largely been identified as measuring personality and has been classed as a

stream 3 model of EI (Ashkanasy & Daus, 2005), (see Study 1), this research highlighted the importance of trust (self-management domain), empathy (social awareness domain), communication, conflict management and teamwork and collaboration (relationship management domain) as essential emotional competencies in an emotionally intelligent workplace (Boyatzis et al. 1999).

Deutch (1960) defined trust as an individual's confidence in the intentions and capabilities of a relationship partner and the belief that a relationship partner would behave as one hoped. This definition made trust a very subjective aspect of the work relationship. Feelings and thoughts were generally not apparent to observers and could really only be captured effectively through self-report or interview. While team performance was evaluated from a manager's perspective, team members had the best understanding over how well their team performed tasks in relation to their objectives (Erdem et al. 2003). The underlying argument here was consistent with that of peer reporting in emotional intelligence. Team members, who interacted with each other on a continual basis, more accurately described their own feelings of trust in their team members than an observer from the outside. Using this argument, the current study employed a measure of trust, which involved peer rating within teams.

Druskat and Wolff (2001) provided norms to enhance team EI which included interpersonal understanding, perspective taking, team self-evaluation, seeking feedback, confronting, caring, creating resources for working with emotion, creating an affirmative environment, solving problems proactively and building external relationships. These norms were incorporated into the emotional intelligence training intervention outlined in Study 1. The current study tests the claims made by Druskat and Wolff (ibid) that increased EI through the adoption of their team norms, would result in increased team trust.

6.4 Decision Making

A problem exists whenever what is needed or desired is not available, for example, when a work project deadline approaches and the information required to complete the

assignment has not been supplied. Problem-solving is the process of removing the discrepancy between actual and desired outcomes. When a problem exists, it needs to be defined and analysed before solutions can be generated. Decision making involves selecting the best solution to the problem from a number of alternative solutions (Archer, 1980).

In attempting to elucidate better decision making, Beach and Connolly (2005) drew the distinction between decisions that are made better, and in a more thorough manner, and decisions that produce better results and, therefore, represented the better decision option choice. In the current study, to clarify, better decision making refers to the decision making process, involving team interaction that results in more thoroughness in deriving decisions. No measure was taken of decision results, so enhanced decision making in this study, refers to the quality of the decision making process. Enhanced quality is reflected by the inclusion of all team members in team decisions and the utilisation of each team member's skills. Also, the feeling by team members that they can safely offer suggestions at team meetings without fear of criticism is included.

Duffy (1992), in his review of team decision making biases, identified that teams must perceive, encode, store and retrieve information in order to accomplish decision making. The quality of the decision will depend on the shared mental model of the group and how the group operates as a system with clearly defined roles, norms, etc. Duffy posits the casting of a situation into a commonly shared frame of reference or big picture in order for successful decision making to occur. This, he concludes, is dependent on the quality of communication and the level of trust between team members, with high levels of both resulting in more successful decision making.

6.4.1 Framing and cognitive consensus

Scherer and Tran (2001) identified the importance of the group as an information processor and the relevance of group processing to the occurrence of both collective emotions and learning. Cognitive research on team performance suggests that shared or common knowledge is necessary for a team to operate, and that team information

processing involves the degree to which information, ideas, or cognitive processes are shared between team members, and how this sharing of information affects both individual and team-level outcomes (Hinsz, Tindale & Vollrath, 1997). This sharing of information should be evidenced through the measurement of decision-making process quality, type of communication, level of trust and positive team climate, which were all measured in Study 2.

According to Beach and Connolly (2005), decision making is a complex process which is made even more complex in the group situation. Each member of the group, when facing a decision, will draw upon their stored schemata to frame a decision. A frame is a mental construct which consists of all of the elements that are associated with a situation that relates to a decision. These elements vary from current context, previous history and experience, to relationships creating an expectation of the interaction between all of the elements (Beach & Connolly, 2005). Furthermore, this expectation, in turn, results in a representation of the situation of interest to the decision being made, and guides the decision-maker in their interpretation of a situation. The decision-maker will draw upon private theories of how people tend to behave, and stored knowledge of events from past experience, in addition to stored knowledge of how to achieve results. The decision-maker will know what the expected outcome of a decision will be based on this frame that they have used. The frame a decision-maker uses serves to predict and help explain the decisions they take (Beach & Connolly, 2005). Cannon-Bowers and Salas (1990) suggest that shared mental models, or the sharing of perspectives, is key to understanding group processes in decision making and that framing impacts on perspective taking. Orasanu (1990) proposed that shared problem models included common understanding of the problem, goals, information cues, strategies, and member roles, all of which are based upon the team's mental model of the task and the team. This ensures a context exists in which communication can be interpreted, and a basis for predicting the behaviour and needs of other team members (Orasanu, 1990).

In the group situation, decisions have an impact on fellow team members. Decision making becomes a social behaviour, even when team members are alone, as they then hypothesise on how other team members will react and behave as they reach their decision. In team decision making, advice is often sought, and feedback is given (Beach

& Connolly, 2005). This interaction impacts decision framing, and changes in framing may have to occur to avoid conflict within the team. If members adopt or apply differing decision frames to the majority of the team, their frames must be realigned. Realignment can occur through discussion where differences are aired and a common understanding is reached in relation to the problem. Alternatively, a team culture can develop where similar views are shared by members which can result in a unified view of the problem, leaving only alternative solutions to be negotiated (Beach & Connolly, 2005). Eden, Jones, Sims and Smithin (1981) identify shared understanding as central to the working of teams and suggested that a team is continually involved in some process of negotiating reality among team members. Bettenhausen (1991) described the development of a team's shared understanding as an essential group process. Assuming that team members enter a team with different viewpoints, the team energy is directed at resolving differences in how members conceptualise problems (Mohammed & Ringseis, 2001). Individual difference can be seen to underlie different frames as personal schemata are called into action to make sense of environmental inputs. Indeed, how a problem is represented is considered to be the most crucial stage in the decision making process (Cowan, 1986). Research has shown that the manner in which individuals frame a decision can hugely influence their decision option preferences (Brewer & Kramer, 1986; Tversky & Kahneman, 1981). Frames give rise to preferences which lead to decisions and sources of action (Mohammed & Ringseis, 2001). Mohammed and Ringseis (2001) found, in their study of 37 student groups, that cognitive consensus positively influenced expectations regarding decision implementation and satisfaction. Cognitive consensus refers to similarity among group members regarding how key matters are conceptualised. Results also revealed that group members who questioned reasons underlying others' decision preferences, accepted others' viewpoints as legitimate, and incorporated others' perspectives into their own interpretations of the issues arrived at a greater degree of cognitive consensus. Mohammed and Ringseis (2001) concluded that the findings suggested that the importance of arriving at shared assumptions may extend beyond the decisions that are reached, to affect long-term team productivity.

Cannon-Bowers, Salas and Converse (1993) pointed out that despite the formation of shared mental models within a team, there was still a role for individual difference through personality, attitudes, motivation, preferences, styles and goals. Cannon-Bowers

et al. (1993) suggested a role in enhancing team performance through drawing on these individual differences, as members bring different skills, knowledge and abilities to the team.

6.5 Psychological Safety

Edmondson (1999) examined a model of team learning and evaluated team psychological safety, described as a shared belief by members of a team that the team was safe for interpersonal risk taking. She modelled the effects of team psychological safety and team efficacy together on learning and performance in organisational work teams. The rationale employed was team psychological safety facilitated learning behaviour in work teams because it alleviated excessive concern about others' reactions to actions that have the potential for embarrassment or threat, which learning behaviours often have. Many people, through the course of their lives, have internalised a fear of failure and an unwillingness to appear foolish or mistaken. Edmondson (1999) pointed out that team members may be unwilling to bring up errors that could help the team make subsequent changes because they were concerned about being seen as incompetent. This represented a very harmful effect as it allowed team members to ignore or discount the negative consequences of their silence for team performance overall. If a team member both respected the team and felt respected by the team in return, they should have felt confident that team members would not hold error against them and the benefits of speaking out were likely to be given more weight within the team. People were very attentive to the tone and quality of social processes and were more willing to comply with these when they felt valued in a team (Tyler & Lind, 1992).

Edmondson (1999), in results from 53 work teams (N = 496) in a manufacturing company, found that learning behaviour was a significant predictor of team performance. She also found team psychological safety and team efficacy were positively associated with learning behaviour in work teams. This mirrored the model of EI development through team norms of Druskat and Wolff (2001), who proposed team effectiveness was based on trust, team identity and team efficacy, discussed in Study 1.

In Edmondson's study, she investigated the difference in learning behaviour between teams with high and low psychological safety both quantitatively and qualitatively. In terms of new product development, teams studied exhibited very different behaviours. Teams measuring high in psychological safety reported constant new ideas and suggestions on how things should be done. The team continually challenged themselves to find what was essential to designing and manufacturing new products. Team members undertook several different roles at the same time as the team tried many things quickly and often simultaneously, doing design work and engineering work at the same time. Team members described their team as able to make the right decisions : "I trust the people here that they're making the right decision for the function and for the team, and they feel the same way about me" (Edmondson, 1999, p. 375). Edmondson described psychological safety and trust within the team as the belief that facilitated the rapid, low-stakes experimentation behaviour the team exhibited.

In contrast, teams with poor psychological safety described themselves as getting stuck in blind alleys in their decision-making processes (Edmondson, 1999). Using a process of perfecting one solution at a time, before getting feedback, resulted in these teams going down a certain path for a while, developing details and then abandoning that path. A lot of time was wasted, consequently, and decisions taken were of a poor quality. The teams reported that they did not rely on other team members for information. There was a distinct lack of trust involved. Decision-making was always cautious as team members were mindful of producing the solution they felt management would approve of. There was a distinct lack of questioning of decisions and team members expressed worry that management would punish them for questioning decisions or team goals. These teams who were lacking in psychological safety made poorer decisions, produced far less creativity in their product development, lacked trust and communication between team members. Edmondson (1999) concluded that team psychological safety affected learning behaviour, which in turn affected team performance.

The findings reported by Edmondson (1999) bore direct relevance for this study in a number of ways. Firstly, as outlined previously, in team decision making, advice is often sought, and feedback is given (Beach & Connolly, 2005). Emotionally intelligent teams spend time confronting, caring, creating an affirmative environment, and solving

problems proactively (Druskat & Wolff, 2001; Goleman, 1998). As these skills are learned in the course of the EI development programme, teams will theoretically become psychologically safer environments in which opinions can be expressed and discussed. Secondly, as trust is established between team members as a result of increased EI, a more trusting environment will be established into which risk taking can be introduced without fear of recrimination (Edmondson, 1999). Finally, as intra-team communication becomes more effective, through interpersonal understanding, perspective taking, seeking feedback, caring and confronting in emotionally intelligent ways (Druskat & Wolff, 2001), a psychologically safer environment should be established (Edmondson, 1999). This results in the proposition that there will be an increase in team psychological safety as a result of the EI training intervention, which represents a novel pairing of psychological safety and emotional intelligence.

6.6 Team development

Rickards, Chen and Moger (2001) developed a self-report instrument exploring team factors essential to team development, and their relationship to leadership and performance (i.e., creativity and productivity). In the study, a creative team was defined as a team that creates new ideas on task-related issues and displays imagination at work, and a productive team achieves its intended goals (task & team goals) (Rickards et al. 2001).

The purpose of the instrument was to investigate the dynamics of team performance, with particular emphasis on non-routine or creative outputs. Collecting 1103 inventories from international work related teams, Rickards et al. (2001) found all seven factors to correlate with transformational leadership (Bass & Avolio, 1994) and team creativity criteria. Rickards et al. (2001) defined transformational leadership occurring where the team leader tends to be inspirational, relying on personal charisma and on gaining trust in leader's abilities, and empowering team members who act out of self-generated enthusiasm and interests. This was in contrast to the second leadership style their study evaluated - transactional leadership - where the team leader tends to keep the team focus

on tasks necessary for success, using implicit and explicit instrumental rewards as motivational and control mechanisms (Rickards et al. 2001).

They concluded that team effectiveness, including its creativity, could be interpreted as arising through leadership interventions of a transformational kind, which impacted upon a set of theoretically-derived team development factors. The seven team development factors are platform of understanding (where team members understand and respect each other's viewpoints and the team shares knowledge, beliefs, and assumptions which are elements comprising a 'platform of understanding' from which new ideas develop); shared vision (where team members share a sense of purpose and responsibility that motivates and sustains team progress); creative climate (where team members trust each other, and share a positive and supportive approach to stimulate creativity in work situations); idea owners (where the ideas that are given more attention are those perceived as open to strong sponsorship by team members as a creative team generates and sustains new and valued ideas on task-related issues, in a manner supportive of the behavioural needs of its members); resilience (team members trust each other, and share a positive and supportive approach to stimulate creativity in work situations); network activators (team members are good at networking with key individuals outside formal organisational systems, exchanging ideas and offering mutual support); and learning from experience (team members are oriented toward learning from their experiences, thus permitting growth, change, adaptation, and creative problem-solving).

The scale reliabilities across the seven team development factors ranged from 0.73 to 0.81. Six factors (all except 'resilience') were identified as predictors of creativity in Rickards et al's (2001) research. All seven factors predicted productivity.

Study 1 outlined a programme for development of EI in teams. Team norms to develop emotionally intelligent teams (Druskat & Wolff, 2001) represented one of the training elements utilised in the programme. The norms proposed by Druskat and Wolff (2001) appear to reflect, to some extent, the seven team development factors identified by Rickards et al. (2001). The norms of interpersonal understanding, perspective taking, and team self-evaluation (Druskat & Wolff, 2001) are loosely represented by platform of understanding, shared vision and learning from experience, and creative climate and ideas

owners (Rickards et al. 2001) in the Team Factor Inventory (Rickards et al. 2001). In order to assess the adoption of the team norms, each experimental group team completed the Team Factor Inventory (Rickards et al. 2001). This results in the proposition that there will be an increase in team development factors as a result of increased team EI. The link between emotional intelligence and team development is novel. Theoretically, it could be suggested that linking emotional intelligence to team development provided a link between emotional intelligence and productivity, since team development has been linked to productivity by Rickards et al. (ibid).

6.7 Linking emotional intelligence and communication

Sy and Côte (2004), in a theoretical model of the importance of EI for success in matrix organisations, identified the essential role of communication in displaying EI. Adopting the ability model of EI (Mayer & Salovey, 1997) and its four branches, Sy and Côte (2004) explain that to manage emotions in oneself and others, high EI individuals repair unpleasant emotions, enhance pleasant emotions, and employ strategies to alter emotions. This is achieved, for example, when anger is controlled in one's voice, or when enthusiasm for a project is conveyed when discussing with team members, resulting in creation of excitement in fellow team members (Sy & Côte, 2004). Perceiving emotion involves the abilities to identify emotions in oneself and others (Mayer & Salovey, 1997), and perception of communication has a central role. Confidence or anxiety communicated in response to team role demands, for example, potentially represents a decision issue for the team. Understanding emotion represents knowledge of emotional vocabulary and how those emotions occur and change across interactions. To be skilled in understanding emotions, a rich vocabulary regarding emotions is necessary so that relationships can be understood (Sy & Côte, 2004). Emotionally intelligent individuals, for example, understand that prolonged sadness becomes depression. Understanding of how emotions occur and why some emotions occur in response to situations, and others do not are elements of this understanding. Using emotion is the ability to harness emotions to guide information processing, problem solving and creativity, and communication of negative emotions, for example, can ensure additional checks and safeguards in decision making (Sy & Côte, 2004).

Afolabi and Ehigie (2005), in an examination of team interaction processes among 1,421 Nigerians involved in oil-drilling work teams, found that EI was positively associated with team communication. Team communication was defined in this study as the sharing of information among team members to reach a common understanding. Based on the findings of Dionne, 1998, that team members' communication skills predicted team performance, Afolabi and Ehigie (2005) measured team communication using a five-item openness-to-communication scale originally developed by O'Reilly and Roberts (1976). EI was measured using a 25-item scale developed specifically for the study. No details are given of this scale specifically, except that it was generated through the collection of information from existing EI literature and selected by focus group discussion into a 40-item measure of EI. Expert technique (Nunnally, 1978) was then used to isolate relevant items and the scale was reduced to 25 items. Results showed a positive correlation between EI and communication. A multiple regression analysis of team interaction processes on personality attributes, need for achievement and EI showed a statistically significant result for EI.

They concluded that high EI team members were able to relate more effectively due to their ability to recognise and regulate others' emotions. Adopting Goleman's (1995) rationale, Afolabi and Ehigie (2005) identified that high EI individuals engaged in activities that were both pro-individual and pro-social and felt emotions flexibly and appropriate to a situation, resulting in the link between EI and team communication. They do not, however, define pro-social or pro-individual activities.

Rode et al. (2007) found a link between effective communication and EI in a sample of 378 respondents using the EI ability model measure the MSCEIT V2.0 (Mayer, Salovey & Caruso, 2002). Rode et al. (2007) proposed that EI should be related to the effective communication of ideas and opinions for two reasons. Firstly, the ability to understand how environmental influences (e.g., message content, verbal and non-verbal cues) facilitate the transition from one emotional state to another is a central aspect of the Understanding Emotions dimension of EI (Salovey, Mayer & Caruso, 2002). Combined with the ability to manage one's own emotional state (Managing Emotions dimension), should result in the display of appropriate passion and restraint when speaking, a key characteristic of effective oral communication (Walker, 2005). Secondly, EI is related to

individual adaptive coping behaviours (Jordan, Ashkanasy & Härtel, 2002) which may influence communicative effectiveness. In addition, one of the defining abilities of the Managing Emotions dimension of EI is the capacity to connect or disconnect when feeling an emotion depending on its usefulness in the situation (Mayer & Salovey, 1997). This aspect of EI is expected to be relevant to oral communication in a team setting, given that public speaking and the expression of personal opinions is an essential component.

6.8 Linking Trust and emotional intelligence

The reciprocal relationship between trust and emotional intelligence has been alluded to in much of the literature (Cooper, 1997; Druskat & Wolff, 2001; George, 2000; Goleman, 1995, 1998). There is, however, a distinct lack of empirical evidence to prove the relationship.

Cooper (1997) posited that over time, as trust deepened, other team members reciprocated and became more attentive to how people around them felt valued. That shift in awareness extended throughout an organisation and beyond to customers and community. He pointed out that trust was more than a good idea, or attitude, it was an actionable emotional strength which dictated that it must be felt and acted upon. According to Cooper, when team members trusted themselves, extended trust to others and received it in return, it became the glue that held relationships together. It also freed up honest dialogue. A lack of trust prompted members to spend a lot of time and effort protecting, inspecting, doubting, checking, and weighing instead of doing work that was creative, collaborative, and value-added. Trust was achieved primarily on making emotional contact with people. Cooper pointed out that whether a person sold a product, a service or a relationship, everyone bought based on their emotions and justified afterwards with facts. Trust, for Cooper, was one of the key characteristics of emotional intelligence without which emotional intelligence could not take place. Cooper did not provide empirical evidence for his beliefs.

Prati, Douglas, Ferris, Ammeter and Buckley (2003) identified that emotional intelligence reflected the ability to read and understand others in social contexts, to detect the nuances

of their emotional reactions, and then to use this knowledge to influence others through emotional regulation and control. This, according to Prati et al. (ibid), ensured EI was essential for effective leadership and team performance. In their conceptual model of enhanced team performance, EI and trust work together to ensure enhanced functioning. In this model, trust develops as a result of sharing of emotion-laden situations (e.g., taking team members into one's confidence without the feelings of embarrassment or likely criticism) (Johnson-George & Swap, 1982). This type of trust is termed "affect-based trust" (McAllister, 1995, p. 24) and it has been shown to be influenced by frequency of contact between team members and assistance behaviours (e.g., sharing useful information; listening to team members' problems). McAllister (1995) also found that followers who reported higher levels of affect-based trust in their leaders, reported higher levels of managerial effectiveness.

Prati at al. (2003) proposed that a network of trust could be established if conflict was kept to a minimum (Amason, 1996), and individual members felt comfortable in sharing their intimate feelings and concerns (Abraham, 1999). In addition, according to Prati et al. (2003), the dynamic nature of trust (Jones & George, 1998) is created through team members' shared values, attitudes, moods and emotions, which results in behavioural expectations of team members to act in a trustworthy fashion. These expectations arise from intimate interactions between team members and continually serve to reinforce the trust network. Importantly, these interactions require team members to be aware of their responses, and to remain sensitive to how their responses are received by fellow team members (Jones & George, 1998). Prati et al. (2003) concluded that one required a high level of emotional intelligence in order to represent oneself as a trustworthy team member.

High trust levels have been identified as an aspect of strong ties in interpersonal relationships resulting in less task and relationship conflict (Yang & Mossholder, 2004). The flow of communication among team members is facilitated where ties between team members are built on high levels of trust (Brass, 1995). This is explained by Yang and Mossholder (2004) by the reduced likelihood of misinterpretations and misattributions occurring during discussions and disagreements. When group members trust that other group members are working toward the same goals, rather than in their own interest, there

is greater acceptance of critical comments as constructive and responses are co-operative rather than retributive (Yang & Mossholder, 2004). The use of team norms was identified as a vehicle for reducing and preventing negative emotionality. Norms that govern how members communicate and interact with one another strongly influence the display of emotions (Yang & Mossholder, 2004). Suggested norms include openness that encourages members to express their opinions without fear of reproach, and display norms for emotions to regulate emotion-related behaviour (Arvey, Renz & Watson, 1998). Display norms for emotions function as social influence mechanisms regulating members' emotional tones, supporting cohesion, and increasing members' sense of within-group identity (Arvey, et al. 1998). The norm of reducing negative emotion is also proposed as strong emotions will sometimes arise as group members discuss and debate task-related roles and responsiblities (Yang & Mossholder, 2004). Diffusing unacceptable emotions through the use of humour was proposed. Humour can cause amusement and help maintain positive emotional exchanges between team members. Eisenhardt, Kahwajy and Bourgeois (1997) found that humour was widely used in teams with low conflict and absent in teams denoted by high levels of conflict. Avolio, Howell and Sosik (1999) suggested that humour allowed team members to feel better about the team even though they were dissatisfied with individual members, resulting in less swift retaliation and emotional escalation in team interaction.

Yang and Mossholder, (2004) suggest a theoretical model of intragroup emotional processing to reduce group conflict. The model gives a central role to communication and advises the inclusion of training in effective intragroup communication techniques to help members frame task disagreements as challenges to the whole group, rather than to individuals within the team. Singling out individuals has the result of making task level disagreement personal which results in conflict within the team (Yang & Mossholder, 2004). Lovelace, Shapiro and Weingart (2001) examined collaborative communication during intragroup disagreements and found that a collaborative style facilitated the expression of the speaker's concern and care for fellow team members (e.g., We are all part of this team and it is important that we all feel comfortable with the solution to this problem).

6.9 Linking emotions and decision making

The findings of Zeelenberg, Beattie, van der Pligt and de Vries (1996) firmly established a link between emotions and decision making. They conducted experiments which showed that people engage in regret-minimising choices in decision making. Regret is felt when we realise that our current situation would have been better if we had acted differently (Zeelenberg, 1999). It is a comparison-based emotion (van Dijk & Zeelenberg, 2005) and is felt following poor decision processes and bad decision choices.

Previous research had shown that anticipated regret drove participants towards the safe option and away from more risky choices (Josephs, Larrick, Steele & Nisbett, 1992; Kardes, 1994; and Simonson, 1992). Zeelenberg et al. (1996) adopted regret theory (Loomes & Sugden, 1982) in their research and identified two aspects with emotional underpinnings. Firstly, people compare decision outcomes with what would have been if they had chosen a different decision outcome, and this comparison results in emotions e.g., regret if the other option worked out more favourably or happiness if the other option proved less favourable over time. Secondly, regret theory assumes that the emotional consequences of decisions are taken into account when decisions are being made. This results in a preference for positive feelings and emotions such as rejoicing, elation and pride as opposed to the negative feelings of disappointment, regret and self-recrimination. Their research findings across three experiments showed that participants were regret-averse, making choices to minimise any future feelings of regret. Importantly, Zeelenberg et al. (ibid) point out that this tendency to avoid later regret can result in feedback avoidance. If the poorer option was chosen, the decision maker may want to avoid hearing about how they got it wrong, and how the other option has proven so much better elsewhere. Research has shown that decision makers post decisional information seeking is biased towards information that supports the decision (Frey, 1986), and that when decision makers are unsure whether feedback will be positive or negative, they tend to avoid it to be safe (Northcraft & Ashford, 1990). The result of such behaviour is the failure to learn from feedback (Zeelenberg et al. 1996), which would result in conflict and reduced team performance.

Zeelenberg, Nijstad, van Putten and van Dijk (2006) found that the emotions associated with regret also impacted actions we forego when similar action choices are presented. For example, when presented with an opportunity to join a fitness centre located 30 minutes away, participants who subsequently heard they had missed out on an opportunity to join one located 25 minutes away (small difference condition) failed to join the one 30 minutes away. Interestingly, participants who subsequently heard they had missed out on an opportunity to join a fitness centre only 5 minutes away (large difference condition) showed even less willingness to join the one located 30 minutes away. The explanation given is that the opportunity is now associated with negative feelings and a sense of regret and loss at having missed a better opportunity. Individuals then become reluctant to process any further information which serves to reactivate the negative experience of regret, and dismiss alternative options without consideration (Zeelenberg et al. 2006).

The team norms designed by Druskat and Wolff (2001) to enhance EI ensure that feedback is sought from fellow team members and from other organisational members and teams, confrontation is permissible within the team when making decisions, and each perspective is taken into account before actions are taken. These norms should work against the personal tendencies to avoid feelings of regret by not engaging in feedback and not revisiting decisions with hindsight (Zeelenberg et al. 1996).

6.10 Linking decision making and trust to emotional intelligence

Druskat and Wolff (2001) outlined a model of group emotional intelligence based on the adoption of emotionally intelligent team norms. While they did not provide empirical evidence for their model, they did cite many examples and refered to "findings from their research" (p. 2). (For an outline of the norms identified by Druskat and Wolff, 2001, see Appendix F). These norms were designed to build trust, establish group identity (i.e., "a feeling among team members that they belong to a unique and worthwhile group") and develop group efficacy (i.e., "a belief that the team can perform well and that team members are more effective working together than apart") which in turn, result in complete task engagement by each team member (Druskat & Wolff, 2001, p. 16). This

engagement, according to Druskat and Wolff (ibid), results in increased overall team performance through the development of emotional intelligence. The essence of this enhanced performance through task engagement is achieved through the three group processes - building trust, establishing group identity and developing group efficacy. These three conditions are achieved through the adoption of norms that create awareness of emotions and norms that help to regulate emotions. These norms can be introduced through training (see Study 1). Trust, a sense of identity, and a feeling of efficacy rely on emotions as they arise in environments where emotion is handled well so that groups benefit by building their emotional intelligence. Emotions need to be brought to the surface, rather than suppressed. The emotions then need to be understood and their impact on team performance discussed. "Emotional intelligence means exploring, embracing, and ultimately relying on emotion in work ..." (p. 17). It means acknowledging when team harmony is false, when tension remains unexpressed and treating others with respect.

Emotions in teams operate at three levels: individual members, group or team emotions and emotions of groups and individuals outside of the team's boundaries (Druskat & Wolff, 2001). Emotional incompetence in dealing with emotions at any one of these levels results in dysfunction. When a team contains a member who is not as emotionally competent as the other team members, the team needs to be aware of this problem. Adopting a norm of interpersonal understanding which facilitates the realisation that some members act defensively when their opinions or ideas are questioned, increases the emotional intelligence of the team. Druskat and Wolff (2001) cited the example of a Hewlett-Packard production team whose realisation that working to accurately hear and understand member's feelings and concerns improved member morale and a willingness to co-operate.

Even when teams almost display consensus, for example with three out of four members choosing the same decision option, Druskat and Wolff (2001) advised the adoption of a norm to enquire if any perspectives have not been fully heard or thought through by the team. Consideration of matters from each individual member's perspective increases emotional intelligence by hearing objections, including every team member in decisions and creating a climate of trust within the team (Druskat & Wolff, 2001).

Druskat and Wolff (2001) gave an example of team emotions where one member wished to leave a team due to its constant negative outlook, despite having achieved most of its task goals. The team was unaware of the negative impact it was having on individual members. An emotionally intelligent team self-evaluates regularly to avoid negative group emotions and enhance team efficacy, and seeks feedback from the outside (e.g., customers). Group emotions can be regulated through communication by fostering an affirmative environment which results in a positive team with an optimistic outlook devoid of complaining and blaming. A common vocabulary which, for example, gently informs a member when they are having a negative impact on fellow team members by calling them "cranky today" lets the team member know the negative impact is not acceptable, that it is impacting the other team members, and that the particular cranky member is not usually cranky (Druskat & Wolff, 2001, p. 8).

Druskat and Wolff (2001) identified proactive problem solving as one of the most powerful norms for building a team's ability to deal with emotionally challenging situations. The rationale outlined included a sense of power felt by the team, which resulted in control of team emotions and stronger team focus on task accomplishment. Each team member worked to bring out the best in their fellow team members by avoiding blame, inviting ideas, and retaining a sense of being able to overcome obstacles together. An example was given of a manufacturing team who reduce defective products by directly contacting an engineering firm and successfully designing a machine component to correct the fault, rather than waiting for the quality control department to identify that the number of faults was high, inform management of this, invite expert opinion and eventually arrive a situation where management potentially implemented a change in production processes.

According to Druskat and Wolff (2001) emotionally intelligent teams are aware of their own individual members emotions, needs and perspectives, the emotions, needs, and perspectives of their team as a whole, and also the ability to recognise the emotions, needs and perspectives of other teams. Emotionally intelligent teams are able to regulate not only their own emotions and perspectives, but also the emotions and perspectives of other teams. Emotionally intelligent teams function better socially by developing external

relationships and can gain the confidence of outsiders. These team members confront one another when norms are broken and an apology is elicited or a punishment is assigned (usually something amusing like a contribution to the team lunch fund). Emotionally intelligent teams develop a high level of self-awareness by constantly seeking feedback from both inside and outside their organisations. They also require an outlet for potential stress that can build up as a result of regulating group emotion. An example given is that of yelling, to express anger or happiness, which one organisation has adopted to facilitate the expression of emotion.

Akerjordet and Severinsson (2004) pointed out that emotional intelligence is not the opposite of intelligence, nor is it a case of the heart winning over the head. EI is represented as combining emotion with intelligence, and the ability to use emotions as a support in problem solving and decision making (Mayer & Salovey, 1995). Damasio (1996) identified feelings as pointing us in the right direction, taking us to the appropriate place in decision making by putting logic and understanding to good use. Thomson (2000) suggested that a person's emotional capital was the driver for intellectual capital, suggesting that hidden resources such as feelings, beliefs, perceptions, values and attitudes drove intellect and effectiveness. Akerjordet and Severinsson (2004) posited that mental health nurses used EI skills of self-awareness, reflection, intuition, and compassion for oneself and others in decision making and creative processes in their daily work.

Cooper (1997) defined EI as being able to acknowledge and value feelings, both in the self, and, in others, and knowing how to respond appropriately to them. He describes emotionally intelligent people as those who possess the ability to sense, understand, and effectively apply the power and acumen of emotions to produce human energy (motivation), information, trust, creativity and influence. Cooper (1997) posited that as one increased their emotional intelligence, there was a corresponding increase in intuition, leadership effectiveness, the capacity to trust and be trusted, a sense of integrity and authenticity, an appreciation of constructive discontent within the team, and the ability to find breakthrough solutions in difficult circumstances and make sound decisions. He did not provide empirical evidence for his views but cited many anecdotal examples from work teams.

6.11 Teams

There is general agreement that human emotions and qualities are developed through participation in social contexts (Argyris & Schon, 1996; Bruner, 1990; Lave & Wenger, 1991; Mole, Griffiths & Boisot, 1996; Nonaka, 1991; Polanyi, 1958; Vygotsky, 1985). Langley (2000) identified the workplace as a social setting in which people learn about emotions and behaviour.

6.11.1 Team process

In order to retain an organisation's dynamism and efficiency, organisations must understand the learning processes involved in team development and how to maximise the effectiveness of these processes (Polat, 1995).

Intellectual learning has been claimed to be very different from behaviour change (Goleman, 1998). Team learning occurs as a process by which members of the team acquire, share and combine knowledge. Team-work is dynamic by nature. It is through participation and interaction in societies, and groups within societies, that learning about role and function in that society or group is facilitated and becomes possible (Langley, 2000), and this learning enables us to function effectively and be an "effective member of the various communities" (Langley, 2000, p.177). An effective team member is one who could not only complete tasks, but who could also deal with the difficulties encountered simply by being a member of a team. Issues that could be decided by one's self, when working alone, now became issues for debate. Action is no longer the outcome of one's own thoughts in a team, but rather the negotiated outcome over time. The more diverse the range of capabilities team members bring to a team, the more flexible that team needs to be in meeting changing demands (Goleman, 1998). The value of this diversity is, without question, in work performance. However, the challenge with diversity through individual difference is to be able to acknowledge team function at the level of the process. This is only possible if the team members are equipped with self-knowledge. Team members are known to quickly build up stores of knowledge about fellow team-members through cues from interaction. However, how this information is processed, and

how it manifests itself through behaviour, at the level of the individual, ultimately depends on how sense is made of the inputs. This cognitive sense-making process is greatly influenced through knowledge of the self. It is only when equipped with this knowledge that introspection occurs, which, in turn, may alter behaviour. Emotionally intelligent behaviour, and the competencies involved therein, can then be acquired, practised and learned (Goleman, 1998).

A model of team learning processes originally outlined by Huber (1991), but refined by Van Offenbeek (2001), identified four distinct stages in team learning. Firstly, information is acquired, either passively or actively. Secondly, this information is distributed to members of the team. The information is then convergently and divergently interpreted by the team through dialogue, and finally information is stored for future use and retrieved when required. The outcome is a change in the range of behaviours potentially exhibited by the team. Van Offenbeek (2001) found evidence for all four stages in a study of student work-teams and also that the stages impacted differently on team performance. Van Offenbeek's findings reflected those of Argryis and Schon (1996), in their description of participative sense-making. This sense-making could be linked to the increased and enhanced performance of a team over the performance of individual members, or indeed over and above the performance of its best member. It also highlighted the importance of communication in the process as an aid to convergent and divergent interpretation.

6.11.2 The role of emotion in teams

The experiential learning offered by team learning strategies provides an opportunity to develop students' capacities with regard to cognitive ability. However, the recent explosion of research on the emotional aspects of learning and behaving have indicated that emotional abilities are just as important, and indeed many claim more important, than cognitive abilities when developing effective team-working skills (Druskat & Wolff, 2001; Goleman, 1995; Mayer & Salovey, 1997). Initial research findings appeared to indicate that emotional intelligence or emotional competencies are indeed significant predictors of teamwork effectiveness (Weiss & Cropanzano, 1996; Wong & Law, 2002).

6.11.3 Emotional intelligence and teamwork

Work-groups with higher emotional intelligence appear to have the necessary criteria to be productive from the outset (Goleman, 1995). Group-based work has been described as the perfect opportunity for individuals to practice interpersonal skills, and therefore develop their emotional intelligence. Langley (2000) looked at the differences in the levels of emotional intelligence between middle and senior managers using Goleman's (1998) competencies. Senior managers were found to have higher scores on many personal and social competencies. A possible reason for this was that as we learn from interaction in a social context, senior managers had developed and learned these capacities through being allowed to utilise them frequently. For example, senior managers showed higher commitment to their jobs as they were involved in the creation of the organisational goals and were not merely expected to follow them in the way that middle managers were. Once managers were allowed to practice these capacities (i.e.,, when they became senior managers), these competencies began to were develop, leading to increased scores in emotional intelligence. These findings suggested that practising the competencies that define emotional intelligence facilitates learning and development of emotional intelligence. This in turn results in increased scores in emotional intelligence as it measures these criteria (Jordan et al. 1999).

Ashkanasy and Daus (2005) identified the importance of emotional intelligence in working with other people in groups. Research by Jordan and Troth (2004) and Offermann et al. (2004) demonstrated that, while intellectual intelligence was the main predictor of individual work performance, group performance was more a function of emotional, than intellectual intelligence.

Scott-Ladd & Chan (2004) defined social intelligence as the ability to understand and relate to people. Emotional intelligence is defined as an individual's ability to perceive reality accurately so as to understand and regulate their own emotional responses in addition to adapting and responding to others (Mayer & Salovey, 1997). Emotional intelligence involves four interrelated social skills grouped around knowledge, perception, regulation and general intelligence (Mayer & Salovey, 1997). Moving beyond general intelligence, the other aspects involve an individual's ability to manage their emotional

response (Goleman, 1998; Mayer & Salovey, 1997). Emotional perception enables individuals to respond appropriately in situations as they recognise their own and others' emotional responses. Emotional regulation results in individuals self-monitoring the intensity and direction of their own and others' emotional responses and this, in turn, allows them to moderate negative emotional reactions and remain positive (Pelliteri, 2002; Scott-Ladd & Chan, 2004). The third component, regulation, allows individuals to use their emotional knowledge to facilitate creativity and flexibility, social relations and to maintain their motivation (Scott-Ladd & Chan, 2004). Mayer and Salovey (1997) recommend the framework be applied so that individuals who understand their own emotions can more accurately identify their response and alter them if required. The intellectual use of emotions means individuals' cognitive decisions are more acute, meaning they can assimilate information more easily and quickly, make judgements or be creative and solve problems. According to Scott-Ladd and Chan (2004), this suggests emotionally intelligent people are more self-aware regarding their strengths and limitations, resulting in increased confidence, optimism, flexibility, innovation and willingness to try new ideas (Bellack, 1999; Goleman, 1995, 1998; Mayer & Salovey, 1997). Jordan et al. (2002) adopted this logic to explain why lower levels of EI contributed to negative reactions to job insecurity and reduced coping strategies. Higher levels of EI have been found to generate positive interpersonal relations (George, 2000) and greater ability to regulate and perceive emotions (Lam & Kirby, 2002). Leaders scoring high on EI displayed higher levels of self-awareness and the social skills required to motivate and empower others, resulting in greater co-operation, trust and enthusiasm (Cherniss, 1998; George, 2000).

Emotionally intelligent individuals are highly self aware - aware of their behaviour, and the labels that others put on that behaviour, and they self-monitor and seek feedback in response to established norms (Heise, 1989). Self-awareness allows individuals to set priorities and to set aside inconsequential problems in favour of more pressing needs (George, 2000). This ability is most important in team interaction, where conflict can be set aside by emotionally intelligent individuals to maintain team focus on task. Self-aware individuals have the ability to alter other team members' responses to their actions (Eisenberg & Fabes, 1992) and guide interactions to meet desired goals (Miller & Leary, 1992). Miller and Leary (1992) found proof of the social identification and feedback

process used by self-aware individuals in their study of embarrassment. Embarrassment serves as emotional feedback which results in the individual monitoring closely to identify the cause of the embarrassment, remedying the causal behaviour and adjusting future behaviour to ensure no repeat of the embarrassment.

Self-regulation of emotion requires an understanding of social expectations of actions, norms and roles within a team to ensure appropriate adaptation to the team's social context. When this is achieved, members are less stressed and react in a controlled and constructive manner in problematic situations (Eisenberg & Fabes, 1992).

6.12 Emotional intelligence and Performance

There have been many claims in the literature proposing that emotional intelligence (EI) predicts individual and group performance in a variety of contexts (Bar-On, 2000; Druskat & Wolff, 2001; Goleman, 1995; Law, Wong & Song, 2004). These claims identify EI as predicting performance beyond the effects of other known predictors such as general mental ability and personality. Empirical support for such claims has resulted in conflict around the EI-performance link. Rode, Mooney, Arthaud-Day, Near, Baldwin, Rubin & Bommer (2006) identified four factors causing this conflict. Firstly, as was discussed in Study 1, EI models and their measurement differ widely across studies. Stream 1 models derive from the ability model (Mayer & Salovey, 1993,1997), and are measured by problem-based instruments. Stream 2 represent mixed models, based on the ability model of EI (e.g., Jordan, 2000). Stream 3 models are largely personality-based models of EI (e.g., Goleman, 1995), and the latter two are measured by self-report and peer-report instruments. Stream 3 models of EI and their measures have been discounted as measures of EI (Ashkanasy & Daus, 2005) as they lack discriminant validity from measures of personality and are so far removed from the original concept of EI proposed by Mayer and Salovey (1993). Without a clear definition of EI, and without a model of EI to which researchers subscribe, and a definitive measure of EI, it is obvious that conflict will arise as different concepts attributed to EI are linked to different indicators of performance in the various studies conducted. The reader is left with a sense of scepticism.

Secondly, research results have been contradictory depending on the control variables included in the research models. EI was found to be correlated with individual performance (Grade Point Average) (Petrides, Frederickson & Furnham, 2004) until general mental ability and personality were controlled for (Barchard, 2003). Thirdly, according to Rode et al. (2007), empirical inconsistencies can be traced to inadequate consideration of the types of individual performance that are likely to be related to EI as performance is known to be a multidimensional construct. Rode et al. (ibid), considered EI especially pertinent whenever performance requires a high degree of interpersonal interaction. This has been supported in research with the finding of a relationship between EI and both group processes (Jordan & Troth, 2004) and the quality of social interactions (Lopes, Brackett, Nezlek, Schutz, Sellin & Salovey, 2004).

6.13 Design of training intervention

Participants engaged in the emotional intelligence training intervention previously outlined in Study 1.

6.14 Research Statement

It was the explicit aim of the current study to investigate the proposition that a training programme to increase emotional intelligence in teams would also influence team process variables. Study 1 outlined a training intervention designed and implemented based on aspects combined from previous training interventions (Cherniss & Goleman, 1998; Jordan et al 2002; Moriarty & Buckley, 2003; Slaski & Cartwright, 2003; Tucker et al. 2000) and models of EI development (Cherniss & Adler, 2000; Goleman, 1998; Weisinger, 1998). The impact of the training on emotional intelligence levels was evaluated through pre- and post-training EI measurement using the Workgroup Emotional Intelligence Profile - Version 5 (Jordan, 2000) specifically designed to measure work group EI levels and based on the most empirically robust model of EI, Mayer and Salovey's (1990) ability model of EI. Results showed a statistically significant increase in EI.

The current study investigated the impact of the training programme on the team process variables of team decision making process, team communication, trust within teams, psychological safety within teams and, finally, team development factors.

Previous research findings support the prediction that there will be an increase in team process variables associated with increased emotional intelligence scores (Afolabi & Ehigie, 2005; Boyatzis et al.1999; Druskat & Wolff, 2001; Goleman, 1998; Jordan et al. 2002; Prati et al. 2003; Rode et al. 2007; Sy & Côte, 2004; van Dijk & Zeelenberg, 2005). A tentative link between team process variables and performance has been established in some research (Afolabi & Ehigie, 2005; Boyatzis et al.1999; Edmondson, 1999; Jordan et al. 2002; Rode et al. 2007), while other studies point to a theoretical link (Druskat & Wolff, 2001; Goleman, 1998; Rickards et al. 2001). While team performance was not measured in this study, this study was intended to lay solid foundations for future research into the link between increased EI, enhanced team process variables and team performance.

Thus, in conclusion, it may be said that the specific predictions of the present study were as follows:

Decision-making styles were addressed in the programme to increase EI. Each participant completed a Decision Making Styles Questionnaire based on the model of Rowe, (1998) and concluded that their style fitted one of four categories: Directive, Analytical, Behavioural or Conceptual. Armed with this self-awareness, participants discussed the meaning of a team composed of members who possessed differing decision making styles. The emotional outcomes of these differences were discussed. This leads to the prediction that teams will enhance their decision making processes from $Time_1$ to $Time_2$ as a result of the EI training intervention measured using a bespoke measure of team decision making process.

H3: The training intervention to increase emotional intelligence can also enhance team decision making ability.

The nature of the EI training intervention facilitates the sharing of emotions, increases self-awareness and awareness of individual difference, in addition to the sharing of tasks. This results in the prediction that teams will increase their levels of team trust from $Time_1$ to $Time_2$ as a result of the EI training intervention.

H4: The training intervention to increase emotional intelligence can also increase trust between team members.

Participants analysed team conversation using Bales' (1953) Interaction Process Analysis. Teams then discussed the likely effect of the different communication styles on fellow team members. This resulted in the prediction that communication will be enhanced within teams as a result of the EI training intervention.

H5: The training intervention to increase emotional intelligence can also enhance team communication.

Druskat and Wolff (2001) identified team norms to produce emotionally intelligent teams. As part of the training programme to increase EI, teams implemented these norms. The norms facilitated the creation of a psychologically safe team environment in which team members felt they could contribute without the fear of censure from their peers. This resulted in the prediction that team psychological safety will increase from $Time_1$ to $Time_2$ as a result of the EI training intervention.

H6: The training intervention to increase Self-report emotional intelligence can also increase psychological safety within teams.

An element of the training intervention included the use of Tuckman and Jensen's (1977) five-stage model of team development. As team members overcame conflicts, learned to appreciate individual difference and discussed the emotional aspects of their team life, teams were expected to progress towards the performing stage of the model. The performing stage denotes the team at its most productive, with every member fully engaged in achieving the team goals. This resulted in the prediction that team

development factors will increase from $Time_1$ to $Time_2$ as a result of the EI training intervention.

H7: The training intervention to increase emotional intelligence can also enhance team development.

While causal relationships between increased EI and changes in the team process variables as a result of the training intervention cannot be concluded from the study design employed, results will be examined to determine whether changes in these variables were associated with changes in EI.

Chapter 7

7.0 METHOD

7.1 Study Design

This study incorporated a before/after design in which the dependent variables of team decision making process, team trust, communication, psychological safety and team development were measured at the beginning ($Time_1$) and at the end ($Time_2$) of the twelve-week EI training intervention, previously outlined in Study 1. Self-report and peer-report measures of emotional intelligence were also taken at the beginning ($Time_1$) and at the end ($Time_2$) of the same twelve-week period from two groups of postgraduate students (see Study 1).

7.2 Participants

The sample for the experimental group in this research was the same sample described in Study 1, which comprised 231 participants, 117 males and 113 females. Age ranged between 22 and 56 years (Mean = 34.06; SD = 6.17). Participants were divided into 52 prescribed teams to which they were assigned for the duration of the training intervention. Teams typically consisted of four or five members. Insofar as possible teams were balanced for gender, with equal numbers of males and females. The experimental participants consisted of various work groups who were involved in pursuing further education on a part-time basis and the training intervention was delivered as a separate module within their respective courses. Teams consisted only of individuals who had worked together previously and came from the same larger work group. Care was taken to ensure that no team members were added from other organisations. Teams 1-29 (146 respondents) worked in a team-based organisational setting in the Irish public sector. Teams 30-36 (25 respondents) worked as nurses in an Irish hospital and were again team-based. Teams 37-52 (58 respondents) were private sector employees from a service industry.

The names of organisations cannot be disclosed to maintain confidentiality as was agreed with respondents in advance of the survey.

7.3 Materials

The EI training programme materials used were identical to those used in Study 1.

Measurement of EI was taken using:

Self Report Workgroup Emotional Intelligence Profile Version 5 (Self WEIP-5) (Jordan, 2000)

Peer Report Workgroup Emotional Intelligence Profile Version 5 (Self WEIP-5) (Jordan, 2000)

Communication was measured using 25 items from the Communicative Adaptability Scale (CAS)(Duran and Kelly, 1992). Items 1-17 and 23-30 from the original scale were used (see Appendix G).

Trust within teams was measured using the 11-item Peer-Report Trust Instrument (Johnson-George & Swap, 1982; McAllister, 1995) (see Appendix G).

Decision Making ability was measured using a bespoke 3-item measure designed specifically for the study (see Appendix G).

Psychological Safety was measured using 16 items from Edmonson's (1999) Psychological Safety and Learning Behavior in Work Teams Instrument (see Appendix G). Items included were items 15-17, and 19-31 from the original scale.

Team development was measured using 15 items from Rickards, Chen & Moger's (2001) Self-Report Instrument for Exploring Team Factor, Leadership and Performance Relationships (see Appendix G). Items used were items 1-14 and item 18 from the original scale.

7.3.1 Self-Report Emotional Intelligence Measure

Emotional intelligence was measured using the self-report measure Self Report Workgroup Emotional Intelligence Profile Version 5 (Self WEIP-5) (Jordan, 2000) outlined in Study 1.

7.3.2 Peer Report Emotional Intelligence Measure

Each member of each team was scored on their emotional intelligence by their peers using the Peer WEIP-5 (Jordan, 2000) outlined in Study 1.

7.3.3 Communication Measure

Duran and Kelly (1992) produced a 30-item instrument which measured six dimensions of communicative adaptability. Twenty-five items from this instrument were used in the current study. One dimension, entitled Articulation, consisting of five items, was omitted as it tested the use of appropriate syntax and grammar and was not relevant to the current study. Respondents used a 5-point scale ranging from *always true of me* (5) to *never true of me* (1). The order of items were randomised and not presented in groups of five as on the original instrument to reduce order effect. Items 2, 4, 9, 13 and 14 were reverse scored. The scale is an additive scale and summing of scores provided an overall total score. The scale consists of the dimensions (sub-scales) outlined in Table 7.1. Scale reliability analysis was performed by Duran (1992) for the Communicative Adaptability Scale (CAS) across ten samples using 4,000 participants. Scale alpha reliability is noted for each construct in Table 7.1.

Table 7.1: Communicative Adaptability Scale constructs (Duran & Kelly, 1988) and Scale alpha reliability (Duran, 1992) (N = 4000)

Sub-scale	**Items**	**Dimension**	α
Sub-scale 1: Social composure	2, 4, 9, 10, 14	Feeling relaxed in social situations	0.82
Sub-scale 2: Social confirmation	5, 7, 16, 17, 18	Maintaining the other's social image	0.63
Sub-scale 3: Social experience	3, 6, 12, 13, 15	Enjoying & participating socially	0.80
Sub-scale 4: Appropriate disclosures	21, 22, 23, 24, 25	Adapting disclosure to intimacy level of exchange	0.76
Sub-scale 5: Wit	1, 8, 11, 19, 20	Using humour to diffuse social tension	0.74
Overall scale reliability (including Articulation)*			0.81

*Reported by Cupach and Spitzberg (1983)

7.3.4 Trust Measure

Trust within the team was measured using a Peer-Report instrument originally developed by Johnson-George and Swap (1982) and extended by McAllister (1995). Each team member scored each of their peers on each item. All eleven items were used and scored on a 10-point scale from 1 = Strongly Disagree to 10 = Strongly Agree. Averages of each item per number of peers were calculated for each participant and a total score was then calculated by summing the averages per item. Total scores of 77-100 represent a high score; 45-76 represent a medium score; and 11-44 a low trust score (Johnson-George & Swap, 1982; McAllister, 1995).

The scale consisted of three factors: Overall Trust, Emotional Trust and Reliableness. These three factors were combined to provide a total measure of trust within the teams.

The scale consists of the following sub-scales of trust outlined in Table 7.2. Scale reliability analysis was performed by Johnson-George and Swap, (1982) for the Trust Scale and scale alpha reliability is noted for each construct in Table 7.2.

Table 7.2: Trust Scale constructs and reliability (Johnson-George & Swap, 1982) (N = 435)

Sub-scale	**Items**	**Construct definition**	α
Sub-scale 1: Overall trust	1, 2, 3, 4	Overall trust (general interpersonal trust; a global sense of trustworthiness)	0.69
Sub-scale 2: Emotional trust	5, 6, 7	Emotional trust (situations involving confiding, freedom from criticism or embarrassment, honesty, trust in emotion-laden situations)	0.64
Sub-scale 3: Reliableness	8, 9, 10, 11	Reliableness (the dependability of another; keeping promises and commitments)	0.70
Overall scale reliability			0.83

7.3.5 Decision Making Measure

Following a review of the literature on the process of decision-making within teams, an aggregate team decision making questionnaire was designed to measure improvement in the decision making process of the team. This instrument was aimed at measuring the ease with which teams could discuss issues and resolve them to reach a consensus. It consisted of three items. Each item allowed a choice between five options ranging between poor performance (1) and high performance (5). The scale was an additive scale, with a total team decision making process score calculated by summing item scores. A copy of the measure is attached as Appendix G.

A pilot study was carried out to test the suitability of the statements in the Team Decision Making Process measure. Five teams (20 participants) completed the instrument and gave their feedback verbally.

Some small changes were made to the language used to ensure all respondents fully understood what was being asked of them. The average time taken to complete the questionnaire was noted at 15 minutes for future administration.

7.3.6 Psychological Safety Measure

Psychological safety was measured using 16 items from Edmonson's (1999) Psychological Safety and Learning Behavior in Work Teams Instrument which contains a total of 38 items. These items examined the constructs outlined in Table 7.3. Scale reliability analysis was performed by Edmonson (1999) for the Psychological Safety and Learning Behavior in Work Teams constructs. Scale alpha reliability is noted for each construct in Table 7.3.

Table 7.3: Psychological Safety and Learning Behavior in Work Teams Constructs and Scale alpha reliability (Edmondson, 1999) (N= 496)

Sub-scale	Items	Construct	α
Sub-scale 1: Clear direction	15, 16, 17	Clear direction	0.80
Sub-scale 2: Team efficacy	19, 20, 21	Team efficacy	0.63
Sub-scale 3: Team psychological safety	22, 23, 24, 25, 26, 27, 28	Team psychological safety	0.82
Sub-scale 4: Internal motivation	29, 30, 31	Member motivation	0.64

Items 22, 24 and 26 measuring Team psychological safety were reverse scored (Edmondson, 1999). The scale is an additive scale, and an overall score was calculated by summing scores per item for each participant.

7.3.7 Team Development Measure

This measure consisted of a total of 15 items from Rickards, Chen & Moger's (2001) Self-Report Instrument for Exploring Team Factor, Leadership and Performance Relationships which contains a total of 21 items. These 15 items examined the constructs listed in Table 7.4. Responses were scored on a 5-point scale (ranging from 1 = Strongly Disagree to 5 = Strongly Agree). The scale is an additive scale, and an overall score was calculated by summing scores per item for each participant. Scale reliability analysis was performed by Rickards et al. (2001) for the Team Factor, Leadership and Performance Relationship constructs. Scale alpha reliability is noted for each construct in Table 7.4.

Table 7.4: Team Factor, Leadership & Performance Relationships Constructs and Scale alpha reliability (Rickards et al. 2001) (N = 1103)

Sub-scale	Items	Construct	α
Sub-scale 1: Creative climate	1, 2, 3	Creative climate	0.79
Sub-scale 2: Shared vision	4, 5, 6	Shared vision	0.78
Sub-scale 3: Resilience	7, 8, 9	Resilience	0.73
Sub-scale 4: Ideas owners	10, 11, 12	Ideas owners	0.74
Sub-scale 5: Learning from experience	13,14	Learning from experience	0.77
Sub-scale 6: Platform of understanding	18	Understanding	0.76

7.4 Procedure

Questionnaires were administered to participants undertaking the training at different stages during 2003 and 2004.

Prior to participants completing the questionnaires, information sessions outlining the background to the research, its centrality to the training programme, confidentiality issues and how to complete the questionnaire had taken place during the first week of semester. It was explained to participants that the results of the research questionnaires would not be reported back due to time constraints, but that their participation was valued and would form an essential part of a larger study.

A sealed pack containing the Self-Report Workgroup Emotional Intelligence Profile Version 5 (Self WEIP-5) (Jordan, 2000) questionnaire; the Peer Report Workgroup Emotional Intelligence Profile Version 5 (Peer WEIP-5) (Jordan, 2000); a bespoke Team Decision Making Process Measure; a Peer-Report Trust instrument (Johnson-George and Swap, 1982; McAllister, 1995); a Self-Report communication measure (Duran & Kelly, 1992; a combined Self-Report psychological safety instrument (Edmondson, 1999) and a

Team Development measure (Rickards et al. 2001) was distributed to each participant in each team on two occasions. The first measurement ($Time_1$) occurred in Week 2 of semester (Lectures 3 & 4), and the second measurement ($Time_2$) occurred in Week 13 of semester (Lectures 23 & 24). Participants were instructed to complete the questionnaires measuring emotional intelligence, psychological safety, communication, team development factors and trust in private and in their own time. They were instructed to complete the team decision making process measure at a facilitated team meeting. This measure was completed one per team and required the agreement of team members to complete the instrument. Participants were instructed to complete all questionnaires in one sitting and not to skip any items. Participants returned questionnaires at the next lecture. Records were maintained by the researcher of returned questionnaires, resulting in a response rate of 100 percent. EI measures used in Study 2 are attached as Appendix E. All additional measures used in Study 2 are attached as Appendix G.

Chapter 8 - Results

8.0 RESULTS

8.1 Introduction

This chapter is presented in a number of sections. Section two deals with descriptive statistics to provide a general view. The results for Trust, Communication, Decision-making, Psychological Safety and Team Development are presented. Examinations of the adequacy of the data and its appropriateness for statistical examination by means of various techniques were undertaken. The data were judged to be adequate and fall within acceptable parameters for the type of examination performed and details are given throughout the chapter. Relationships between the variables is examined in section three and results of intercorrelations reported. Gender differences are then explored in section four, in addition to any relationship between the dependent variables and age, in section five.

The reliability of the measures for Trust, Communication, Decision-making, Psychological Safety and Team Development used are then assessed. Levels of reliability for each of the measures used and results are reported in section six. Paired-samples t-tests were then conducted between $Time_1$ and $Time_2$ data sets to evaluate the impact of the emotional intelligence training intervention on scores of Trust, Communication, Decision-making, Psychological Safety and Team Development and results are presented in section seven.

In section eight, factor analyses were conducted for the measures of Trust, Communication, Decision-making, Psychological Safety and Team Development to assess their underlying factor structure and results are reported. An exploratory factor analysis was conducted on the bespoke Team Decision Making designed for this study and findings are also reported in section eight.

A standard multiple regression analysis was then undertaken to explore the predictive relationships between the independent variables of communication, trust, decision making, psychological safety and team development and the dependent variables of self-

report emotional intelligence and peer-report emotional intelligence. Results are reported in section nine.

Data preparation was undertaken by coding raw data in line with established criteria for each of the scales and entered into and analysed using Statistical Package for the Social Sciences (SPSS 14).

8.2 Descriptive statistics and preliminary analyses

8.2.1. Normality of distribution of Communication scores

Preliminary analyses were performed to ensure no violation of the assumption of normality in the distribution of Communication total scores in the sample at both $Time_1$ and $Time_2$. Histograms depicting the distribution of Communication total scores can be seen in Figures 8.1 ($Time_1$) and 8.2 ($Time_2$). The Kolmogorov-Smirnov statistic was non-significant for each data set ($Z = .05$, $p = .20$ for $Time_1$ and $Z = .06$, $p = .24$ for $Time_2$), indicating normality.

Figure 8.1: Frequency distribution of Communication total scores at $Time_1$

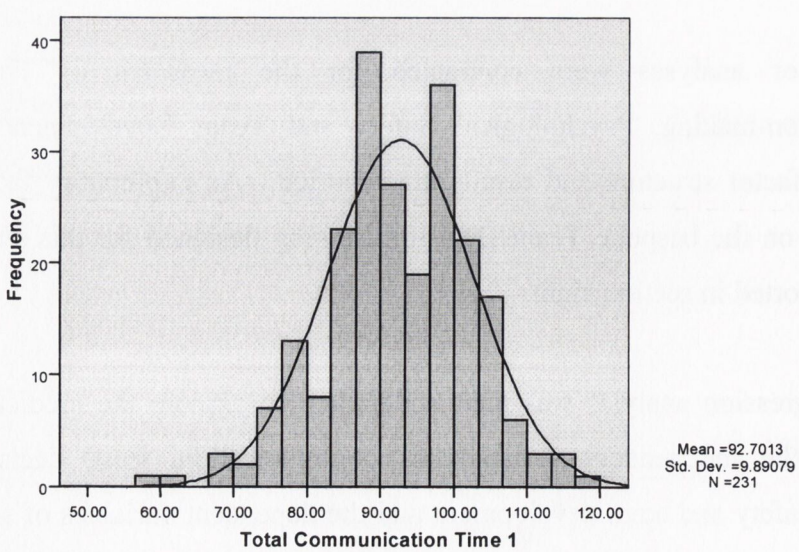
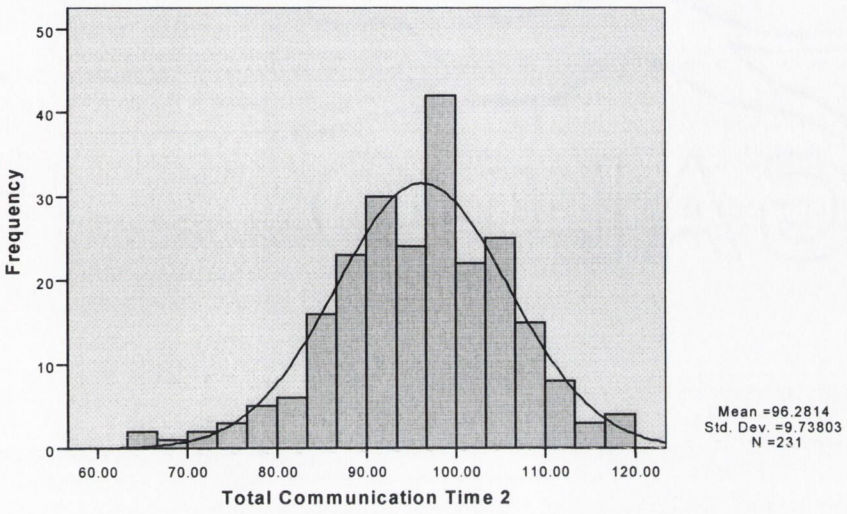
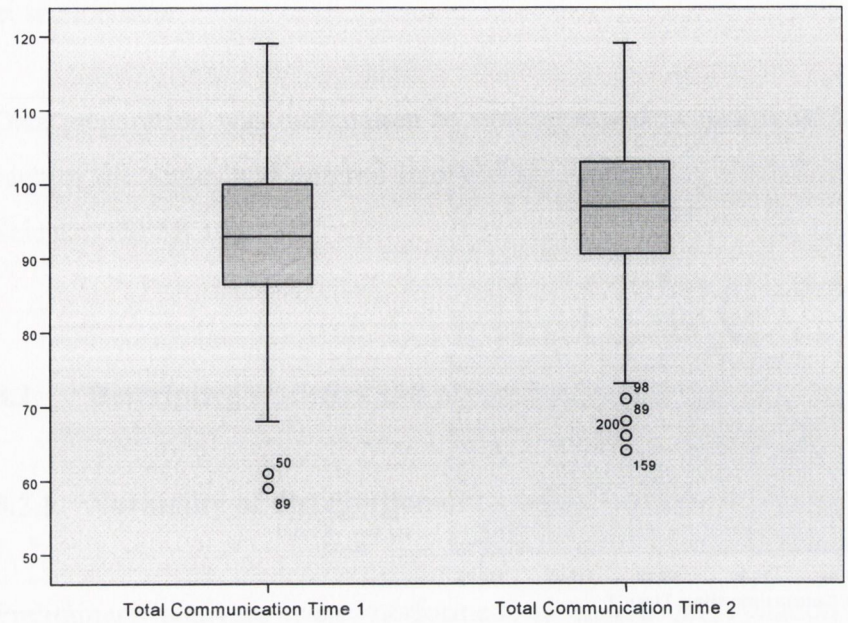


Figure 8.2: Frequency distribution of Communication total scores at $Time_2$



Boxplots (see Figure 8.3) indicated the presence of outliers in both data sets, but the 5% trimmed mean values differed from the mean score by only 0.19 at $Time_1$ and 0.24 at $Time_2$, indicating they were not greatly influenced by the presence of these outliers, and so it was decided to retain them. Tests of kurtosis and skew showed that distribution of scores fell within acceptable limits of plus or minus two for skewness (-.33, at $Time_1$; and -.40, at $Time_2$, Standard Error = .16), and plus or minus three for kurtosis (.376 at $Time_1$; and .52 at $Time_2$, Standard Error =.32) (Bryman & Cramer, 2001).

Figure 8.3: Boxplots of Communication total scores at $Time_1$ and at $Time_2$



It was concluded that the data were distributed in a sufficiently normal way as to permit subsequent parametric analyses.

The mean scores, range and standard deviations for Communication are shown in Table 8.1. Communication was measured using the Communicative Adaptablility Scale (CAS) (Duran & Kelly, 1992) which is divided into five sub-scales. Mean scores, range and standard deviations for these sub-scales are also given in Table 8.1

An examination of scores showed that 163 participants (70.6%) self-reported an increase in their communication scores, 64 participants (27.7%) decreased their communication scores and 4 participants (1.7%) showed neither an increase nor a decrease in their scores as a result of the EI training intervention.

Table 8.1: Mean, range and standard deviations of Communication total scores and subscales at $Time_1$ and $Time_2$. (N = 231)

Sub-scale	Variable	Time	Range	Mean	S.D.
	Total Communication	$Time_1$	59-119	92.70	9.89
		$Time_2$	64-119	96.28	9.74
1	Social composure	$Time_1$	6-25	18.62	3.20
		$Time_2$	9-25	19.40	2.50
2	Social confirmation	$Time_1$	9-25	19.43	2.91
		$Time_2$	8-25	20.17	2.95
3	Social experience	$Time_1$	10-25	19.95	2.98
		$Time_2$	11-25	20.48	2.83
4	Appropriate disclosures	$Time_1$	10-25	18.36	3.33
		$Time_2$	6-25	19.19	3.30
5	Wit	$Time_1$	8-25	16.45	3.54
		$Time_2$	7-25	17.03	3.67

8.2.2 Normality of distribution of Trust scores

Preliminary analyses were performed to ensure no violation of the assumption of normality in the distribution of Trust total scores in the sample at both $Time_1$ and $Time_2$. Histograms depicting the distribution of Communication total scores can be seen in Figures 8.4 ($Time_1$) and 8.5 ($Time_2$). The Kolmogorov-Smirnov statistic was, however, significant for $Time_1$ ($Z = .10$, $p < .0005$), possibly suggesting the distribution was not normal. However, according to Pallant (2001), when the sample size is large, as is the case here (N = 231), this test can be considered oversensitive and not much emphasis should be placed on the result. The statistic was non-significant for $Time_2$ ($Z = .06$, $p = .05$), indicating normality.

Figure 8.4: Frequency distribution of Trust total scores at $Time_1$

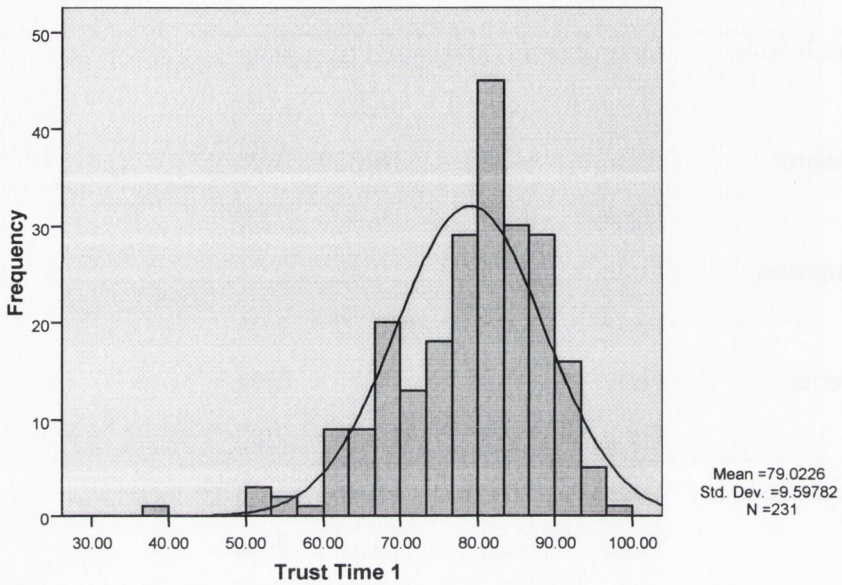
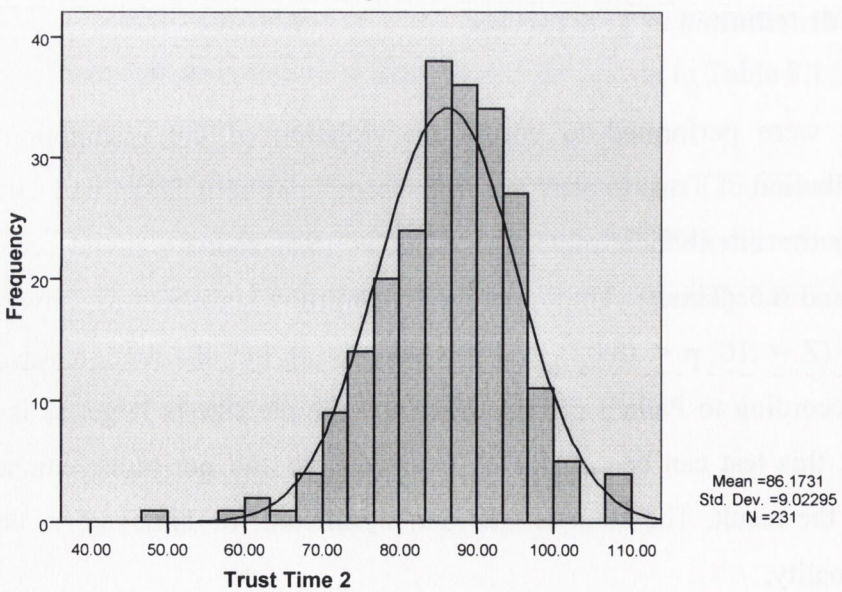
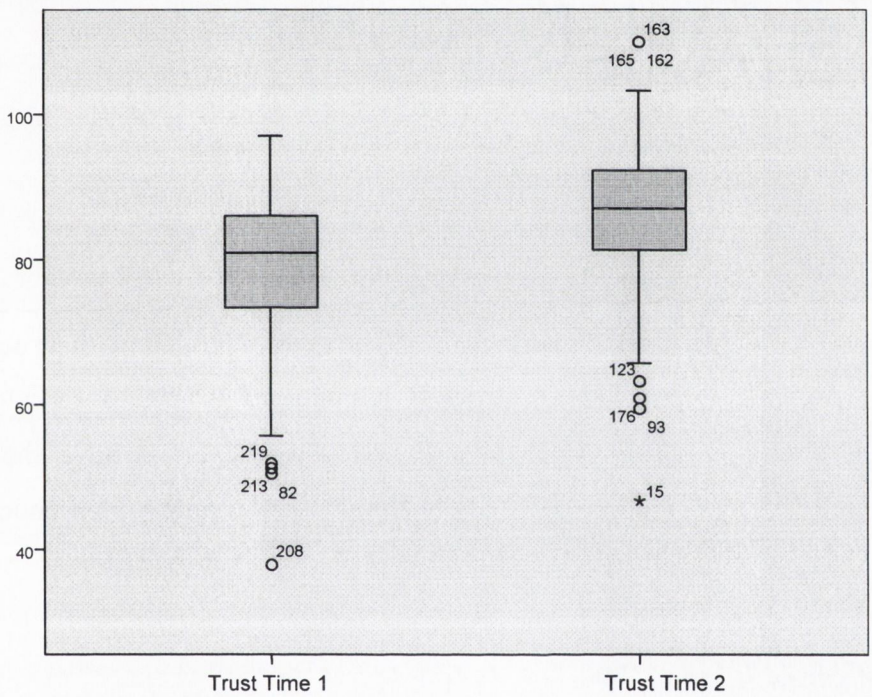


Figure 8.5: Frequency distribution of Trust total scores at $Time_2$



Boxplots (see Figure 8.6) indicated the presence of outliers in both data sets, but the 5% trimmed mean values differed from the mean score by only 0.48 at $Time_1$ and 0.18 at $Time_2$, indicating they were not greatly influenced by the presence of these outliers, and so it was decided to retain them. Tests of kurtosis and skew showed that distribution of scores fell within acceptable limits of plus or minus two for skewness (-.88, at $Time_1$; and -.49, Standard Error = .16 at $Time_2$), and plus or minus three for kurtosis (1.14 at $Time_1$; and 1.59 at $Time_2$, Standard Error =.32) (Bryman & Cramer, 2001).

Figure 8.6: Boxplot of Trust total scores at $Time_1$ and at $Time_2$



It was concluded that the data were distributed in a sufficiently normal way as to permit subsequent parametric analyses.

Trust within the team was measured using a Peer-Report instrument originally developed by Johnson-George and Swap (1982) and extended by McAllister (1995). The scale consisted of three factors: Overall Trust, Emotional Trust and Reliableness. These three factors were combined to provide a total measure of trust within the teams. Descriptive statistics are shown in Table 8.2 for the measure.

Table 8.2: Mean, range and standard deviations of Trust scores and subscales at $Time_1$ and $Time_2$ (N = 231)

Subscale	Variable	Time	Range	Mean	S.D.
	Total Trust	$Time_1$	38-97	79.02	9.60
		$Time_2$	46-110	86.17	9.02
1	Overall trust	$Time_1$	16-36	28.80	3.49
		$Time_2$	16-40	31.04	3.63
2	Emotional trust	$Time_1$	9-26	20.84	2.75
		$Time_2$	14-30	23.02	2.54
3	Reliableness	$Time_1$	13-39	29.38	4.19
		$Time_2$	15-40	32.11	3.66

An examination of scores showed that 170 participants (73.6%) were judged by their peers to have increased their trustworthiness scores. Fifty-six participants (24.2%) were judged to have decreased their scores and 5 participants (2.2%) were judged to have shown neither an increase nor a decrease in their scores as a result of the EI training intervention.

8.2.3 Normality of distribution of Decision Making scores

Preliminary analyses were performed to ensure no violation of the assumption of normality in the distribution of Decision Making total scores in the sample at both $Time_1$ and $Time_2$. Histograms depicting the distribution of Decision Making total scores can be seen in Figures 8.7 ($Time_1$) and 8.8 ($Time_2$). The Kolmogorov-Smirnov statistic was, however, significant for both $Time_1$ ($Z = .20$, $p < .0005$) and for $Time_2$ ($Z = .15$, $p < .0005$) possibly suggesting the distribution was not normal. However, according to Pallant (2001), when the sample size is large, as is the case here (N = 231), this test can be considered oversensitive and not much emphasis should be placed on the result.

Figure 8.7: Frequency distribution of Decision Making total scores at $Time_1$

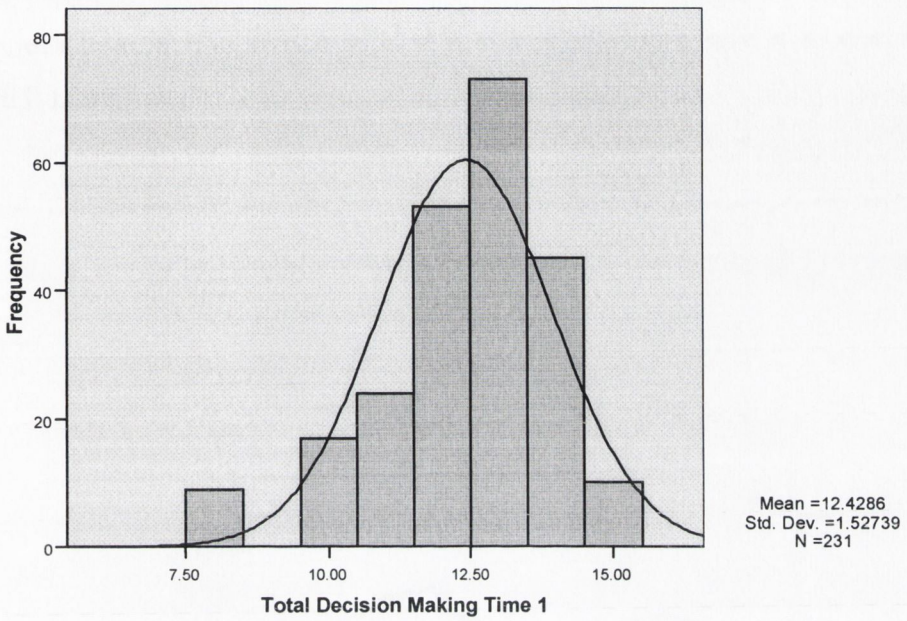
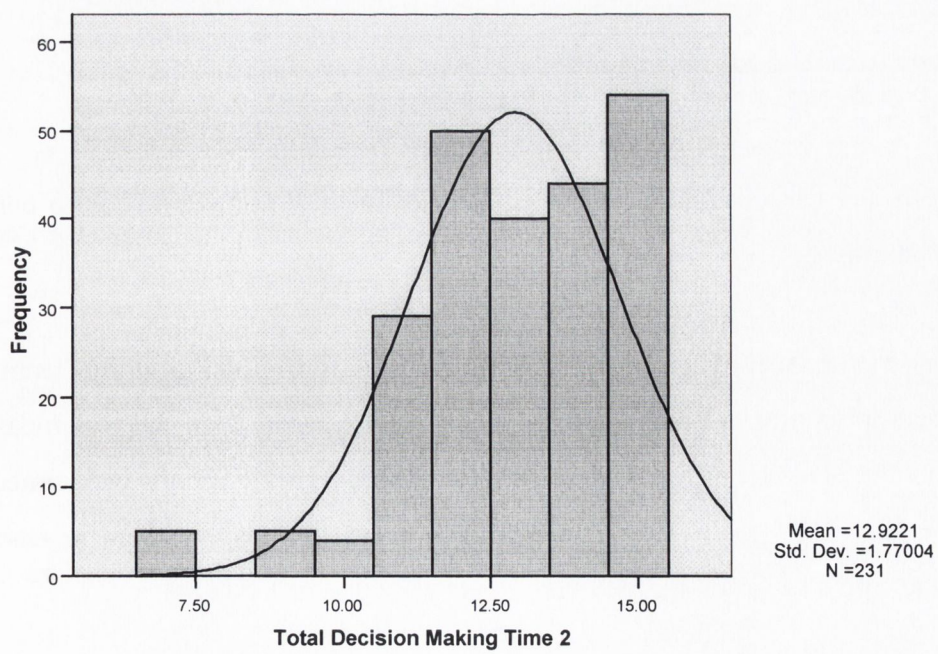
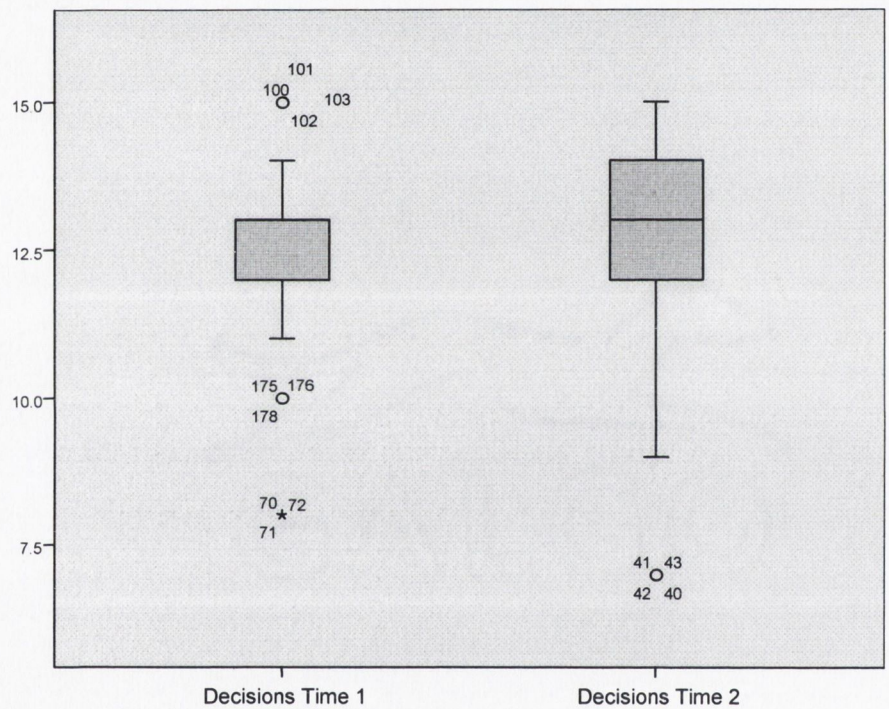


Figure 8.8: Frequency distribution of Decision Making total scores at $Time_2$



Boxplots (see Figure 8.9) indicated the presence of outliers in both data sets, but the 5% trimmed mean values differed from the mean score by only 0.08 at $Time_1$ and 0.14 at $Time_2$, indicating they were not greatly influenced by the presence of these outliers, and so it was decided to retain them. Tests of kurtosis and skew showed that distribution of scores fell within acceptable limits of plus or minus two for skewness (-.91, at $Time_1$; and -.91, Standard Error = .16 at $Time_2$), and plus or minus three for kurtosis (.96 at $Time_1$; and 1.11 at $Time_2$, Standard Error =.32) (Bryman & Cramer, 2001).

Figure 8.9: Boxplot of Decision Making total scores at $Time_1$ and at $Time_2$



It was concluded that the data were distributed in a sufficiently normal way as to permit subsequent parametric analyses.

Following a review of the literature on the process of decision-making within teams, a bespoke aggregate team decision making questionnaire was designed to measure improvement in the decision making process of the team. This measure was aimed at measuring the ease with which teams could discuss issues and resolve them to reach a consensus. Descriptive statistics for the measure are provided in Table 8.3.

Table 8.3: Mean, range and standard deviations of Decision Making scores at $Time_1$ and $Time_2$ (N = 231)

Subscale	Variable	Time	Range	Mean	S.D.
	Total Decision Making	$Time_1$	8-15	12.43	1.53
		$Time_2$	7-15	12.92	1.77

Examining the results showed that of a total of 52 teams participating, 23 (44.2%) showed a decrease in aggregate decision making scores as a result of the EI training intervention, while 29 (55.8%) showed an increase.

8.2.4 Normality of distribution of Psychological Safety scores

Preliminary analyses were performed to ensure no violation of the assumption of normality in the distribution of Psychological Safety total scores in the sample at both $Time_1$ and $Time_2$. Histograms depicting the distribution of Psychological Safety total scores can be seen in Figures 8.10 ($Time_1$) and 8.11 ($Time_2$). The Kolmogorov-Smirnov statistic was, however, significant for both $Time_1$ ($Z = .09$, $p < .0005$) and for $Time_2$ ($Z = .07$, $p = .004$), possibly suggesting the distribution was not normal. However, according to Pallant (2001), when the sample size is large, as is the case here (N = 231), this test can be considered oversensitive and not much emphasis should be placed on the result.

Figure 8.10: Frequency distribution of Psychological Safety total scores at $Time_1$

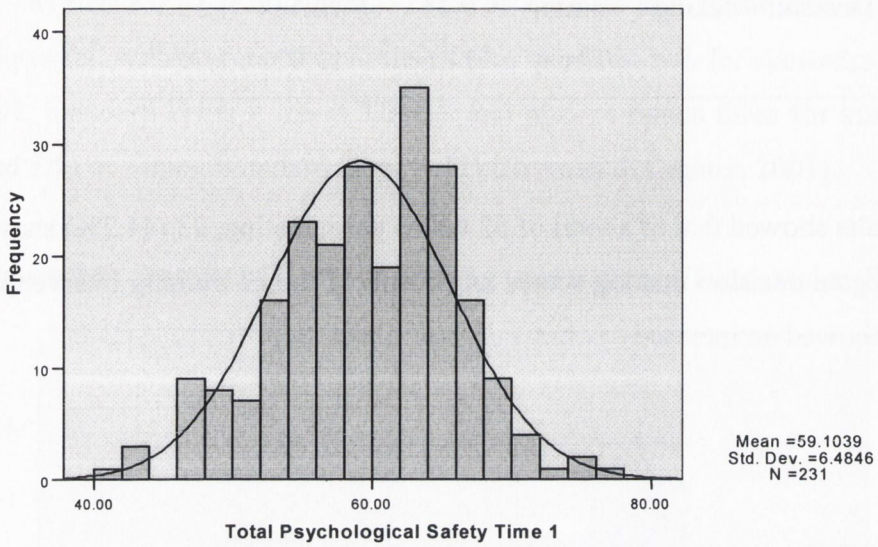
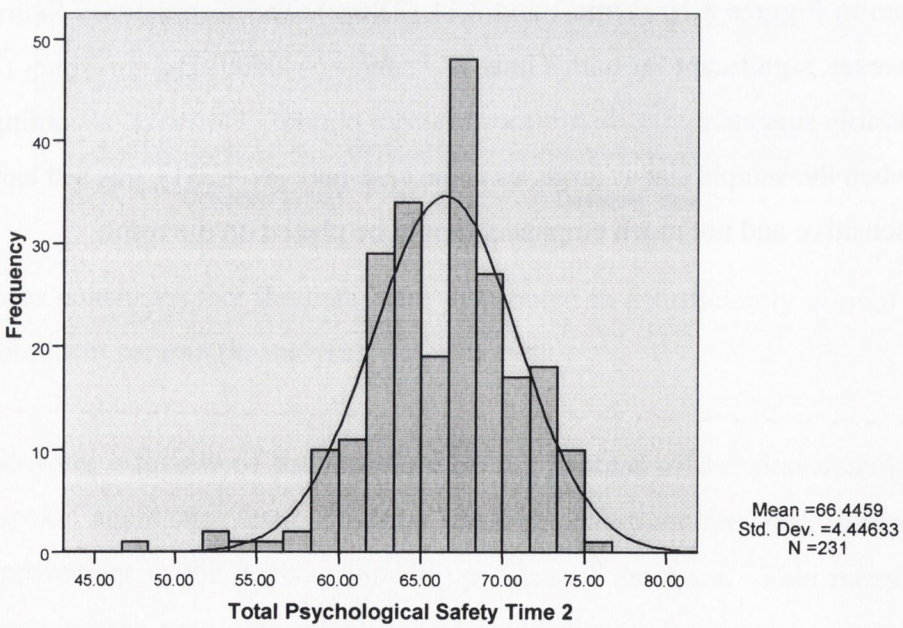
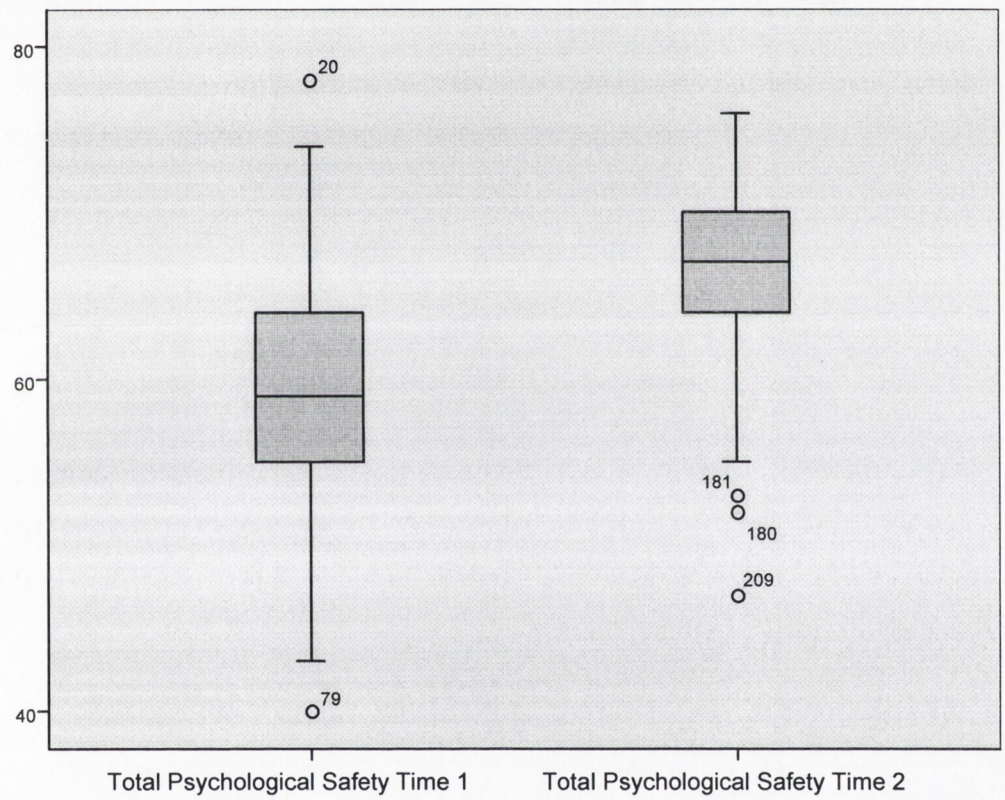


Figure 8.11: Frequency distribution of Psychological Safety total scores at $Time_2$



Boxplots (see Figure 8.12) indicated the presence of outliers in both data sets, but the 5% trimmed mean values differed from the mean score by only 0.11 at $Time_1$ and 0.12 at $Time_2$, indicating they were not greatly influenced by the presence of these outliers, and so it was decided to retain them. Tests of kurtosis and skew showed that distribution of scores fell within acceptable limits of plus or minus two for skewness (-.29, at $Time_1$; and -.56, Standard Error = .16 at $Time_2$), and plus or minus three for kurtosis (.04 at $Time_1$; and 1.34 at $Time_2$, Standard Error =.32) (Bryman & Cramer, 2001).

Figure 8.12: Boxplot of Psychological Safety total scores at $Time_1$ and $Time_2$



It was concluded that the data were distributed in a sufficiently normal way as to permit subsequent parametric analyses.

Psychological safety was measured using 16 items from Edmonson's (1999) Psychological Safety and Learning Behavior in Work Teams Instrument. These items were divided into 4 constructs and descriptive statistics are outlined in Table 8.4.

Table 8.4: Mean, range and standard deviations of Psychological Safety scores and subscales at $Time_1$ and $Time_2$. (N = 231)

Sub-scale	Variable	Time	Range	Mean	S.D.
	Total Psychological Safety	$Time_1$	40-78	59.10	6.48
		$Time_2$	47-76	66.45	4.45
1	Clear direction	$Time_1$	3-15	10.26	2.22
		$Time_2$	7-15	12.15	1.64
2	Team efficacy	$Time_1$	6-15	11.20	1.78
		$Time_2$	8-15	12.47	1.58
3	Team psychological safety	$Time_1$	12-34	25.26	4.12
		$Time_2$	14-35	28.78	2.84
4	Internal motivation	$Time_1$	6-15	12.38	1.67
		$Time_2$	9-15	13.04	1.32

An examination of scores showed that 214 participants (92.6%) self-reported an increase in their psychological safety scores, 12 participants (5.2%) decreased their psychological safety scores and 5 participants (2.2%) showed neither an increase nor a decrease in their scores as a result of the EI training intervention.

8.2.5 Normality of distribution of Team Development scores

Preliminary analyses were performed to ensure no violation of the assumption of normality in the distribution of Team Development total scores in the sample at both $Time_1$ and $Time_2$. Histograms depicting the distribution of Team Development total scores can be seen in Figures 8.13 ($Time_1$) and 8.14 ($Time_2$). The Kolmogorov-Smirnov statistic was, however, significant for both $Time_1$ ($Z = .10$, $p < .0005$) and for $Time_2$ ($Z = .08$, $p = .001$), possibly suggesting the distribution was not normal. However, according to Pallant (2001), when the sample size is large, as is the case here ($N = 231$), this test can be considered oversensitive and not much emphasis should be placed on the result.

Figure 8.13: Frequency distribution of Team Development total scores at $Time_1$

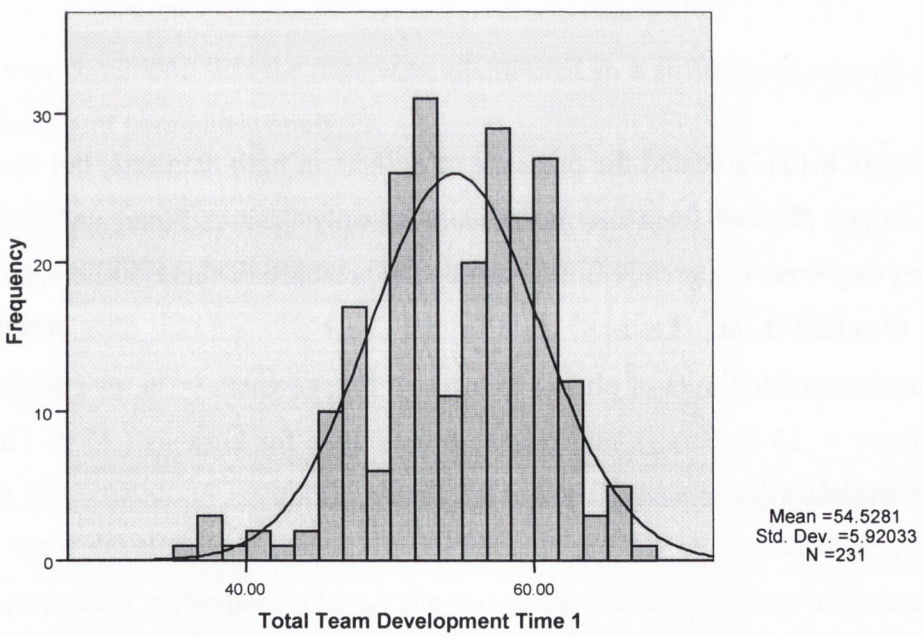
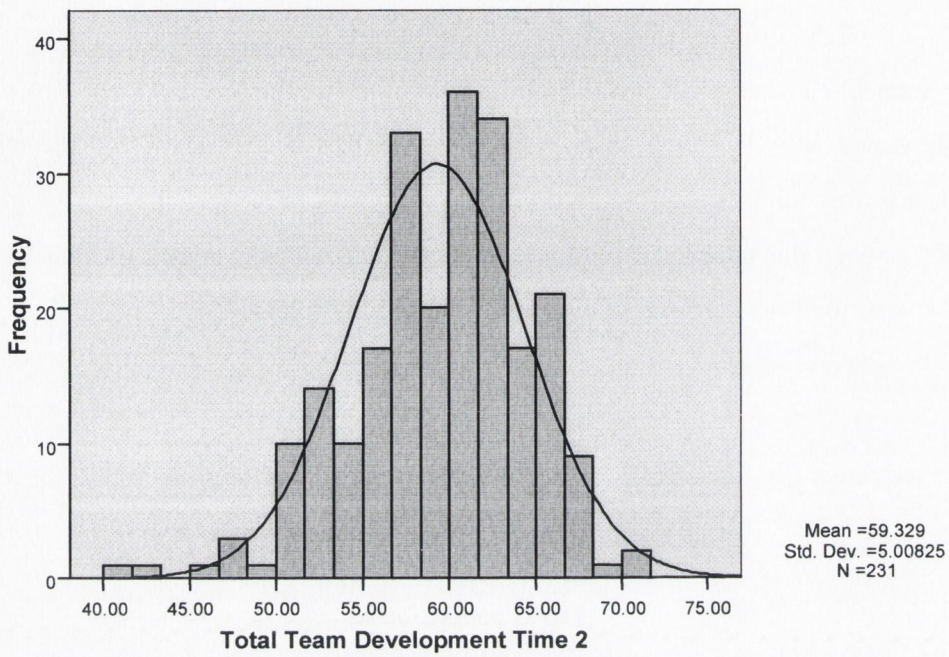
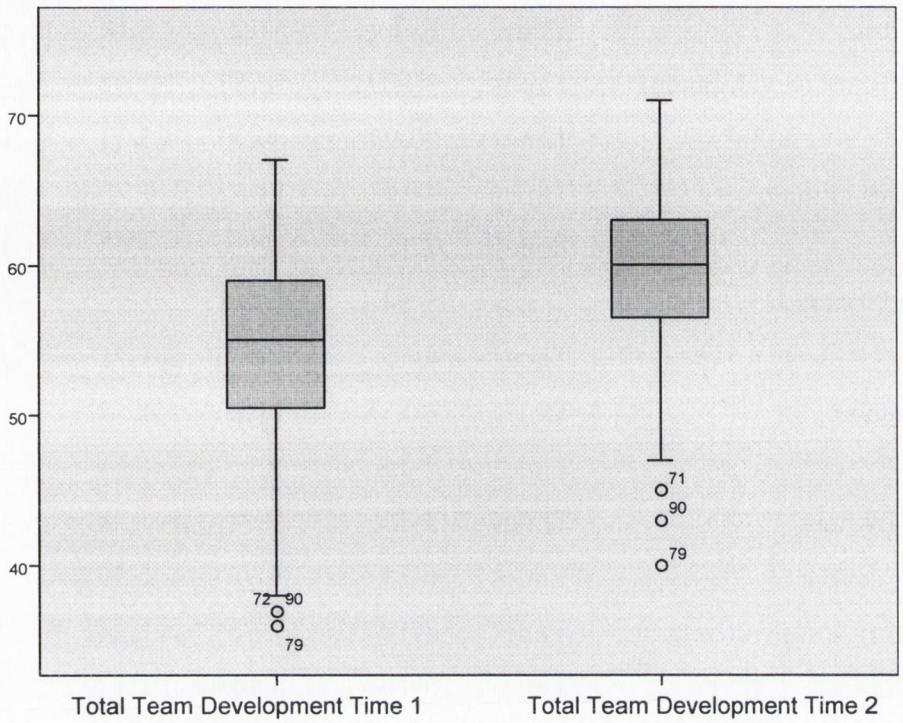


Figure 8.14: Frequency distribution of Team Development total scores at $Time_2$



Boxplots (see Figure 8.15) indicated the presence of outliers in both data sets, but the 5% trimmed mean values differed from the mean score by only 0.21 at $Time_1$ and 0.18 at $Time_2$, indicating they were not greatly influenced by the presence of these outliers, and so it was decided to retain them. Tests of kurtosis and skew showed that distribution of scores fell within acceptable limits of plus or minus two for skewness (-.50, at $Time_1$; and -.65, Standard Error = .16 at $Time_2$), and plus or minus three for kurtosis (.17 at $Time_1$; and 71 at $Time_2$, Standard Error =.32) (Bryman & Cramer, 2001).

Figure 8.15: Boxplot of Team Development total scores at $Time_1$ and $Time_2$



It was concluded that the data were distributed in a sufficiently normal way as to permit subsequent parametric analyses.

The Team Development measure consisted of a total of 15 items from Rickards, Chen & Moger's (2001) Self-Report Instrument for Exploring Team Factor, Leadership and Performance Relationships. These items examined six constructs and descriptive statistics are given in Table 8.5.

An examination of scores showed that 212 participants (91.8%) self-reported an increase in team development scores, 16 participants (6.9%) decreased their team development scores and 3 participants (1.3%) showed neither an increase nor a decrease in their scores as a result of the EI training intervention.

Table 8.5: Mean, range and standard deviations of Team Development scores and subscales at $Time_1$ and $Time_2$. (N = 231)

Subscale	Variable	Time	Range	Mean	S.D.
	Total Team Development	$Time_1$	36-67	54.53	5.92
		$Time_2$	40-71	59.33	5.01
1	Creative climate	$Time_1$	4-15	11.17	1.73
		$Time_2$	7-15	12.20	1.43
2	Shared vision	$Time_1$	5-14	10.48	1.92
		$Time_2$	6-15	11.29	1.71
3	Resilience	$Time_1$	6-15	11.25	1.57
		$Time_2$	7-15	12.09	1.44
4	Ideas owners	$Time_1$	5-15	10.95	1.78
		$Time_2$	6-15	11.70	1.57
5	Learning from experience	$Time_1$	4-10	7.61	1.24
		$Time_2$	5-10	8.14	1.17
6	Platform of understanding	$Time_1$	1-5	3.07	0.98
		$Time_2$	1-5	3.90	0.99

8.3 Relationships between Dependent Variables

8.3.1 Intercorrelations between Trust, Communication, Decision-making, Psychological Safety and Team Development

The relationships between the dependent variables of Trust, Communication, Decision-making, Psychological Safety and Team Development were investigated using Pearson product-moment correlation coefficient. Results are shown in Table 8.6 for $Time_1$ and Table 8.7 for $Time_2$ correlations.

Table 8.6: Intercorrelations between variables at $Time_1$

		1	2	3	4	5
1.	Communication	1				
2.	Decision Making	.001	1			
3.	Trust	-.050	.248**	1		
4.	Psychological Safety	.104	.130*	.187**	1	
5.	Team Development	.078	.244**	-.006	.496**	1

*p <0.05 denotes correlation is significant at .05 level (2-tailed)
**p <0.01 denotes correlation is significant at .01 level (2-tailed)

Results showed small, positive correlations between trust and decision-making, between psychological safety and both decision-making and trust, and between team development and decision-making. There was a medium, positive correlation between team development and psychological safety at $Time_1$.

Table 8.7: Intercorrelations between variables at $Time_2$

		1	2	3	4	5
1.	Communication	1				
2.	Decision Making	.100	1			
3.	Trust	.082	.312**	1		
4.	Psychological Safety	-.023	-.047	-.020	1	
5.	Team Development	.136*	.121	-.067	.320**	1

*p <0.05 denotes correlation is significant at .05 level (2-tailed)
**p <0.01 denotes correlation is significant at .01 level (2-tailed)

Results showed a small, positive correlation between communication and team development. There were medium, positive correlations trust and decision-making and between team development and psychological safety at $Time_2$.

8.3.2 Correlation of Self-Report and Peer-Report Emotional Intelligence with Trust, Communication, Decision-making, Psychological Safety and Team Development

The relationships between the dependent variables of Trust, Communication, Decision-making, Psychological Safety and Team Development and the two emotional intelligence measures (Self-Report and Peer-Report) were investigated using Pearson product-moment correlation coefficients. Results are shown in Table 8.8 for $Time_1$ and Table 8.9 for $Time_2$ correlations.

Table 8.8: Intercorrelations among variables and Self-Report and Peer-Report EI at $Time_1$

		Self-Report EI	Peer-Report EI
1.	Communication	.385**	-.005
2.	Decision Making	.097	.248**
3.	Trust	.096	.303**
4.	Psychological Safety	.260**	.116
5.	Team Development	.222**	.004

*p <0.05 denotes correlation is significant at .05 level (2-tailed)
**p <0.01 denotes correlation is significant at .01 level (2-tailed)

Results showed small, positive correlations between Self-Report EI and both psychological safety and team development. There was a medium, positive correlation between Self-Report EI and communication. Results showed a small, positive correlation between Peer-Report EI and decision-making. There was a medium, positive correlation between Peer-Report EI and trust. Self-Report EI and Peer-Report EI showed a small, positive correlation at $Time_1$.

Table 8.9: Intercorrelations among variables and Self-Report and Peer-Report EI at $Time_2$

		Self-Report EI	Peer-Report EI
1.	Communication	.464**	.163*
2.	Decision Making	.063	.270**
3.	Trust	.184**	.506**
4.	Psychological Safety	.058	-.034
5.	Team Development	.079	.059

*p <0.05 denotes correlation is significant at .05 level (2-tailed)
**p <0.01 denotes correlation is significant at .01 level (2-tailed)

Results showed a small, positive correlation between Self-Report EI and trust. There was a medium, positive correlation between Self-Report EI and communication, which was slightly higher than $Time_1$. Results showed small, positive correlations between Peer-Report EI and communication and decision-making. There was a large, positive correlation between Peer-Report EI and trust, again higher than at $Time_1$. Self-Report EI and Peer-Report EI showed a small, positive correlation at $Time_2$.

8.4 Gender analyses within variables

A repeated measures, between-groups Multivariate Analysis of Variance (MANOVA) was conducted to examine differences in the independent variable gender across scores at both $Time_1$ and $Time_2$ in the five dependent variables Trust, Communication, Decision-making, Psychological Safety and Team Development. Pearson product-moment correlation coefficients were calculated to examine the relationships between the variables (see Tables 8.10 and 8.11), and as the strength of the correlations were mostly small to medium, multicollinearity and singularity could be discounted. No statistically significant difference was found at $Time_1$ between males and females on the combined dependent variables $F(5, 225) = 1.07$, $p = .378$; Wilks' Lambda = .98; partial eta squared = .02. When the results for the dependent variables were considered separately, none of the differences between males and females reached statistical significance.

Table 8.10: Descriptive Gender Statistics per variable at $Time_1$

Variable	Gender	N	Mean	S.D.
Communication	Male	117	91.49	10.74
	Female	114	93.95	8.82
	Total	231	92.70	9.89
Decision-Making	Male	117	12.36	1.59
	Female	114	12.50	1.46
	Total	231	12.43	1.53
Trust	Male	117	78.49	9.50
	Female	114	79.57	9.71
	Total	231	79.02	9.60
Psychological Safety	Male	117	59.19	6.38
	Female	114	59.02	6.62
	Total	231	59.10	6.48
Team Development	Male	117	54.70	5.40
	Female	114	54.35	6.43
	Total	231	54.53	5.92

A statistically significant difference was found between males and females at $Time_2$ on the combined dependent variables $\underline{F}(5, 225) = 3.01$, $p = .012$; Wilks' Lambda = .94; partial eta squared = .06. The assumption of equality of variance was violated for the variables Psychological Safety and Team Development $Time_2$ ($p = .016$ and .048 respectively), indicating that a more conservative alpha level of .01 should be used to determine significance (Tabachnick & Fidell, 1996). Applying this level, $p = .012$ is just outside significance and the earlier conclusion that males and females differed significantly would need to be revised. Further information was available from the results of the separate dependent variables.

When the results for the dependent variables were considered separately, the difference between males and females was not significant on any variables using a Bonferoni adjusted alpha level of .010.

Table 8.11: Descriptive Gender Statistics per variable at $Time_2$

Variable	Gender	N	Mean	S.D.
Communication	Male	117	95.29	9.95
	Female	114	97.30	9.45
	Total	231	96.28	9.73
Decision-Making	Male	117	12.94	1.80
	Female	114	12.90	1.74
	Total	231	12.92	1.77
Trust	Male	117	84.70	8.53
	Female	114	87.69	9.30
	Total	231	86.17	9.02
Psychological Safety	Male	117	66.85	3.87
	Female	114	66.03	4.95
	Total	231	66.45	4.45
Team Development	Male	117	60.04	4.31
	Female	114	58.60	5.56
	Total	231	59.33	5.01

8.4.1 Gender differences in Wit subscale scores

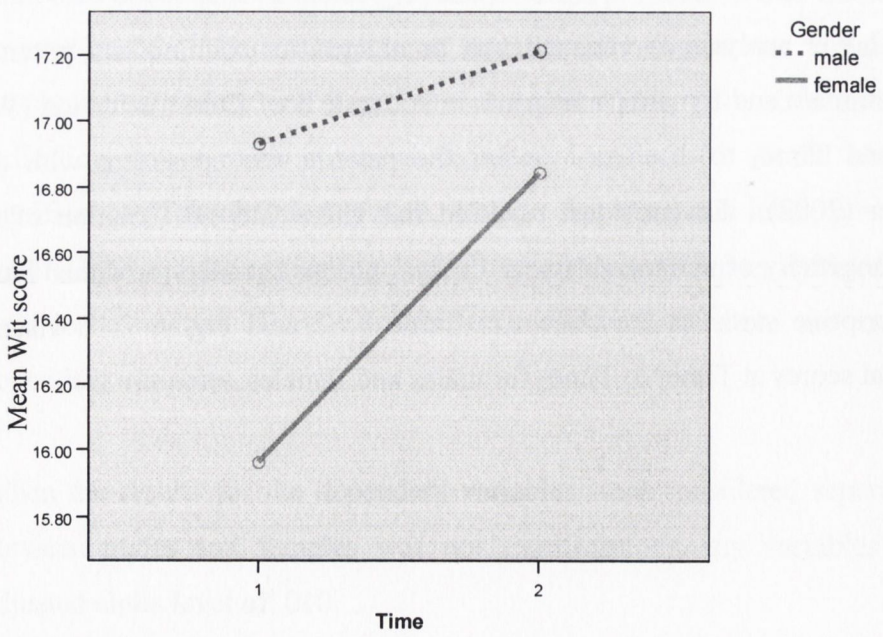
A mixed model, 2 x 2 analysis of variance was conducted to examine any potential differences between male and female participants in subscale 5 of Communication (Wit) scores at $Time_1$ and $Time_2$ to discover whether the pattern was consistent with that reported by Baxter (2002). Levene's test revealed that there was no violation of the assumption of homogeneity of variance between the two groups (genders) at either $Time_1$ or at $Time_2$. Descriptive statistics are shown in Table 8.12, and Figure 8.16 visually depicts the Wit total scores at $Time_1$ to $Time_2$ for males and females.

Table 8.12 Descriptive statistics for Wit subscale scores for Males and Females at $Time_1$ and $Time_2$.

Group	Variable	Time	N	Mean	S. D.
Males	Wit	$Time_1$	117	16.93	3.52
	Wit	$Time_2$	117	17.21	3.69
Females	Wit	$Time_1$	114	15.96	3.51
	Wit	$Time_2$	114	16.84	3.65

The analysis revealed a statistically significant main effect for time, Wilk's Lambda = .98, F(1, 229) = 54.83, p <.05, multivariate eta squared = .02, indicating a small effect size (Cohen, 1988), with the mean score at $Time_2$ being higher than at $Time_1$. The main effect of the between-subjects variable of Gender failed to show a statistically significant result [F(1, 229) = 2.74, p = .10, n.s.], eta squared = .01, indicating a small effect size (Cohen, 1988), with male participants having a higher mean score than female participants. In addition, the interaction between Time and Gender was not statistically significant, Wilk's Lambda = .99, F(1, 229) = 1.47, p = .23.

Figure 8.16: Mean Wit scores for Males and Females at $Time_1$ and $Time_2$.



8.5 Analysis of the effect of Age within variables

8.5.1 Age and Communication

Figure 8.17 shows the scatterplot of Communication $Time_1$ and age and appears to indicate no relationship. The relationship between Communication and age was investigated further using Pearson product-moment correlation coefficient. No significant relationship was found between Communication $Time_1$ and age ($r = .07$, $N = 231$, n.s.).

Figure 8.17: Scatterplot of Age and Communication $Time_1$

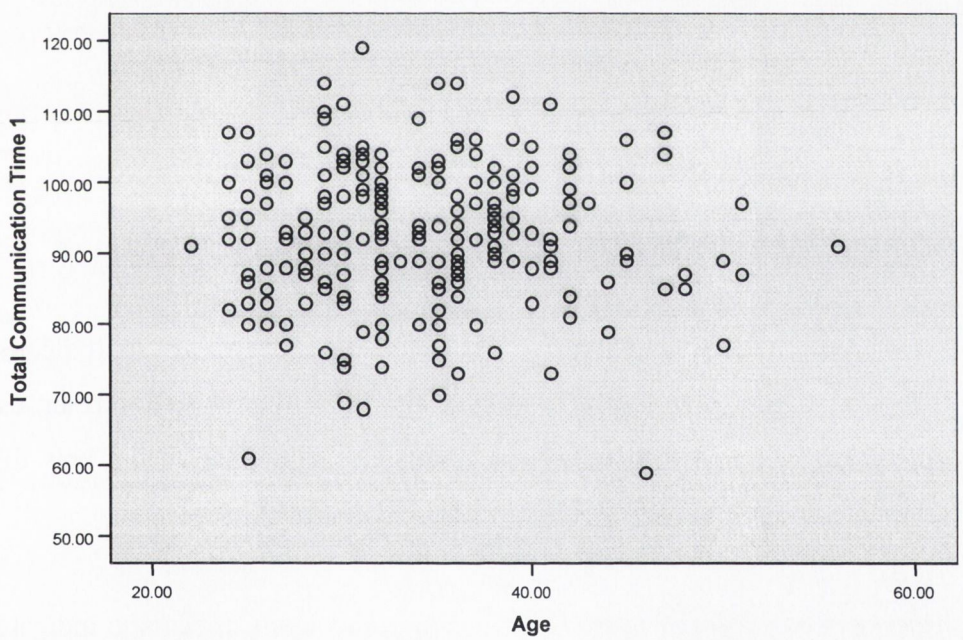
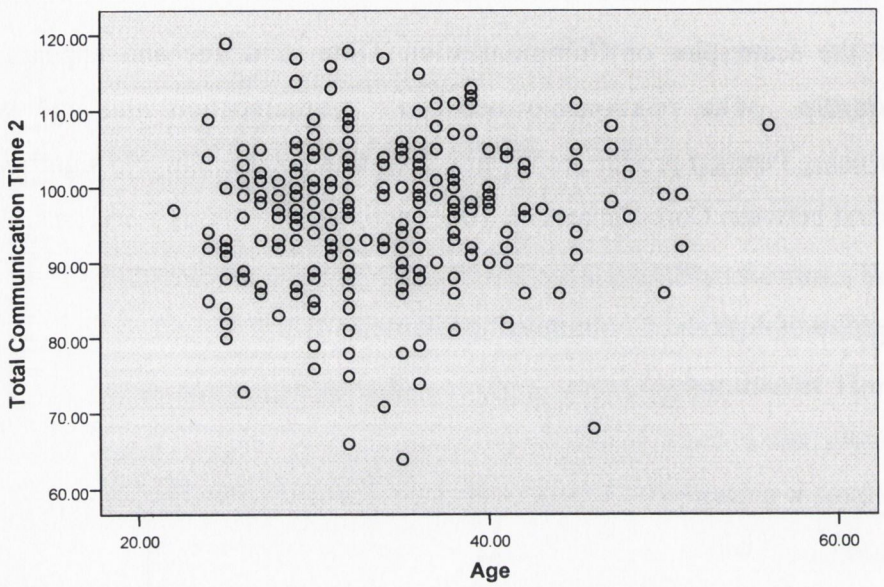


Figure 8.18 shows the scatterplot of Communication $Time_2$ and age, and again, appears to indicate no relationship. The relationship between Communication $Time_2$ and age was also investigated further using Pearson product-moment correlation coefficient. There was no significant relationship found between Total Self-Report EI $Time_2$ and age ($r = .06$, $N = 231$, n.s.).

Figure 8.18: Scatterplot of Age and Communication Time$_2$



8.5.2 Age and Trust

Figure 8.19 shows the scatterplot of Trust Time$_1$ and age and appears to indicate no relationship. The relationship between Trust and age was investigated further using Pearson product-moment correlation coefficient. No significant relationship was found between Trust Time$_1$ and age ($r = .09$, $N = 231$, n.s.).

Figure 8.20 shows the scatterplot of Trust Time$_2$ and age, and again, appears to indicate no relationship. The relationship between Trust Time$_2$ and age was also investigated further using Pearson product-moment correlation coefficient. A small, positive correlation was found between Trust Time$_2$ and age ($r = .14$, $N = 231$, $p<.05$). The result associated increased age with increased peer-reported trust in team members.

Figure 8.19: Scatterplot of Age and Trust Time$_1$

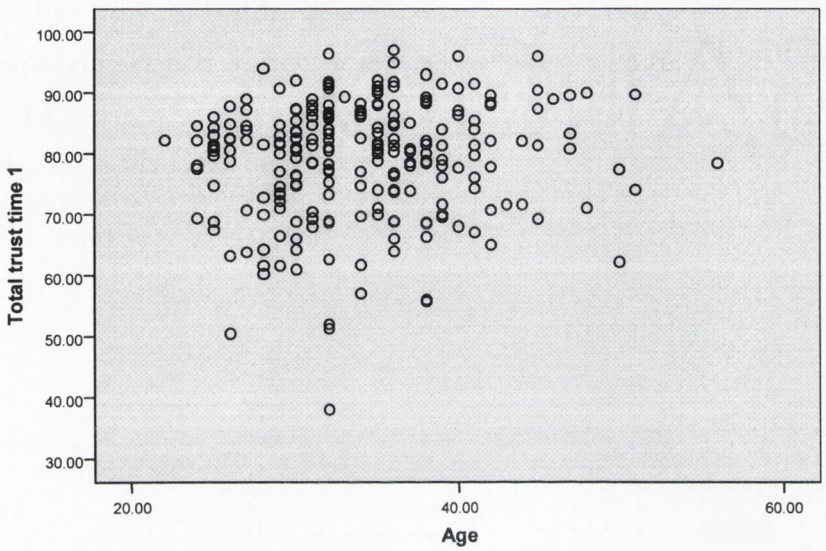
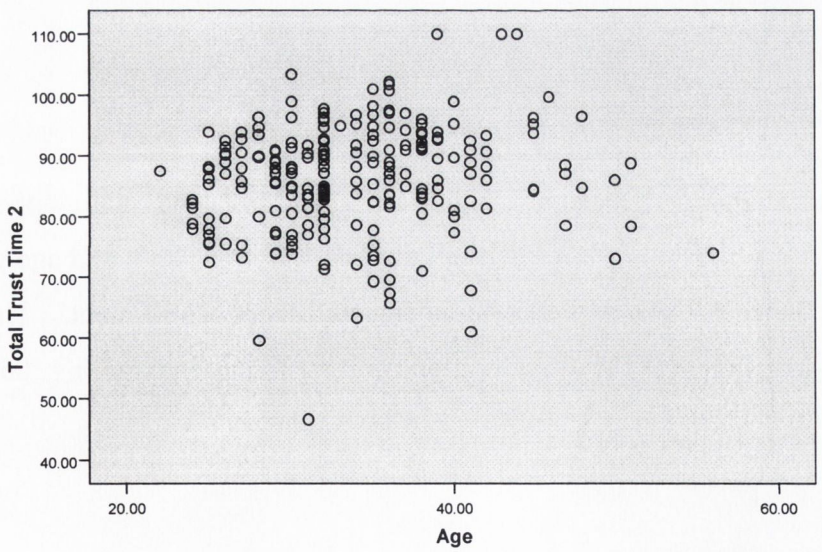


Figure 8.20: Scatterplot of Age and Trust Time$_2$



8.5.3 Age and Decision-Making

Figure 8.21 shows the scatterplot of Decision-Making $Time_1$ and age and appears to indicate no relationship. The relationship between Decision-Making and age was investigated further using Pearson product-moment correlation coefficient. No significant relationship was found between Communication $Time_1$ and age ($r = .02$, $N = 231$, n.s.).

Figure 8.21: Scatterplot of Age and Decision-Making $Time_1$

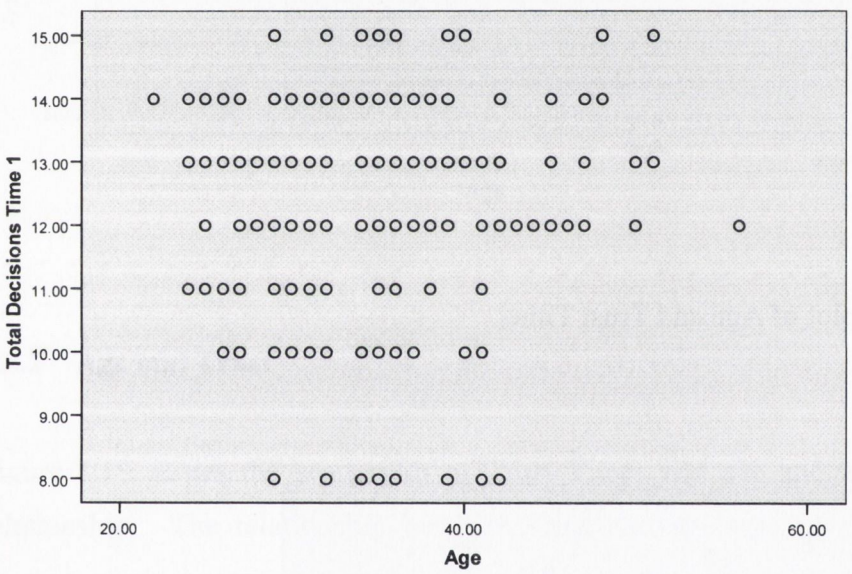
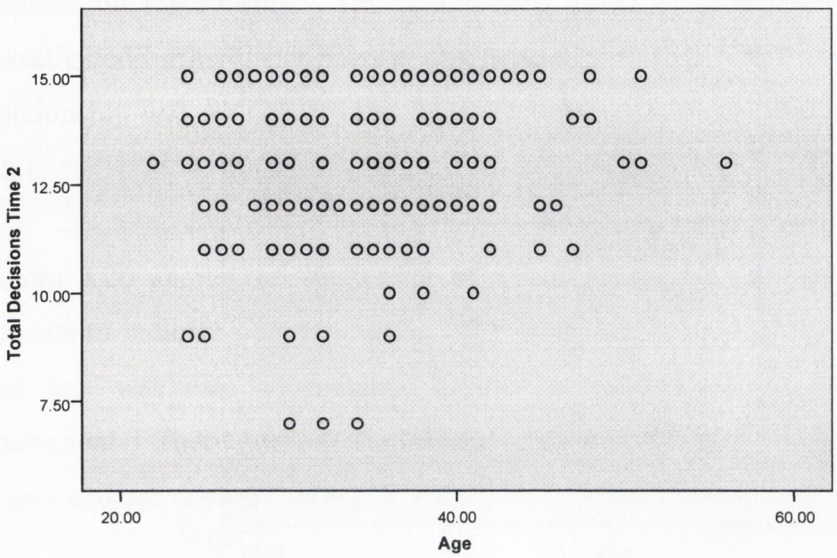


Figure 8.22 shows the scatterplot of Decision-Making $Time_2$ and age, and again, appears to indicate no relationship. The relationship between Decision-Making $Time_2$ and age was also investigated further using Pearson product-moment correlation coefficient. There was no significant relationship found between Decision-Making $Time_2$ and age ($r = .06$, $N = 231$, n.s.).

Figure 8.22: Scatterplot of Age and Decision-Making $Time_2$



8.5.4 Age and Psychological Safety

Figure 8.23 shows the scatterplot of Psychological Safety $Time_1$ and age and appears to indicate no relationship. The relationship between Psychological Safety and age was investigated further using Pearson product-moment correlation coefficient. No significant relationship was found between Psychological Safety $Time_1$ and age ($r = .01$, $N = 231$, n.s.).

Figure 8.24 shows the scatterplot of Psychological Safety $Time_2$ and age, and again, appears to indicate no relationship. The relationship between Psychological Safety $Time_2$ and age was also investigated further using Pearson product-moment correlation coefficient. There was no significant relationship found between Psychological Safety $Time_2$ and age ($r = -.04$, $N = 231$, n.s.).

Figure 8.23: Scatterplot of Age and Psychological Safety Time$_1$

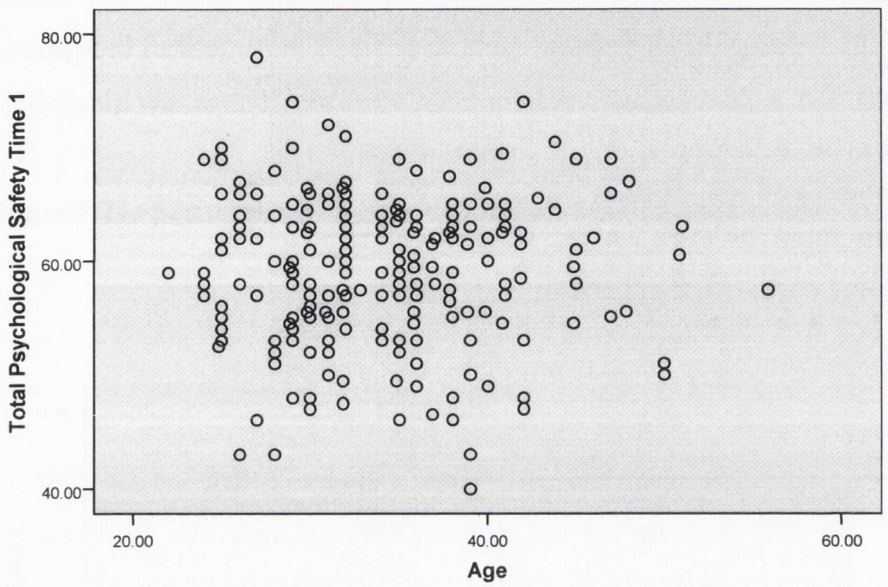
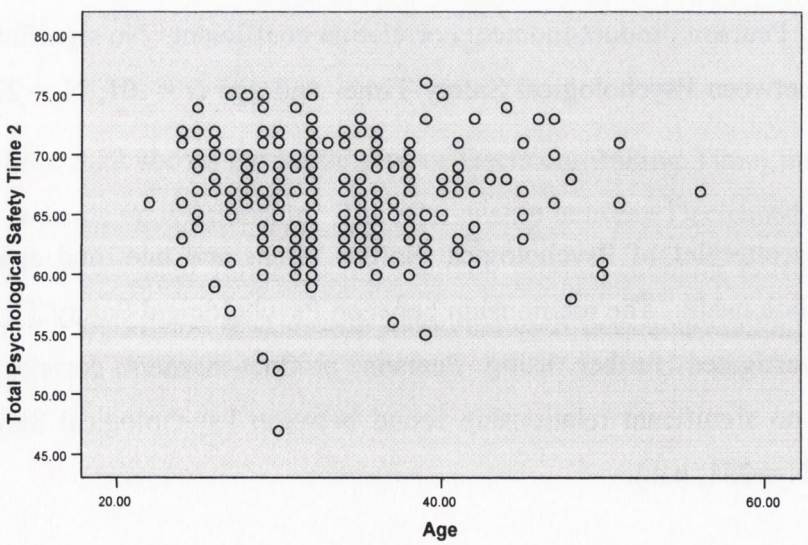


Figure 8.24: Scatterplot of Age and Psychological Safety Time$_2$



8.5.5 Age and Team Development

Figure 8.25 shows the scatterplot of Team Development $Time_1$ and age and appears to indicate no relationship. The relationship between Team Development and age was investigated further using Pearson product-moment correlation coefficient. No significant relationship was found between Team Development $Time_1$ and age ($r = -.04$, $N = 231$, n.s.).

Figure 8.26 shows the scatterplot of Team Development $Time_2$ and age, and again, appears to indicate no relationship. The relationship between Team Development $Time_2$ and age was also investigated further using Pearson product-moment correlation coefficient. There was no significant relationship found between Team Development $Time_2$ and age ($r = -.07$, $N = 231$, n.s.).

Figure 8.25: Scatterplot of Age and Team Development $Time_1$

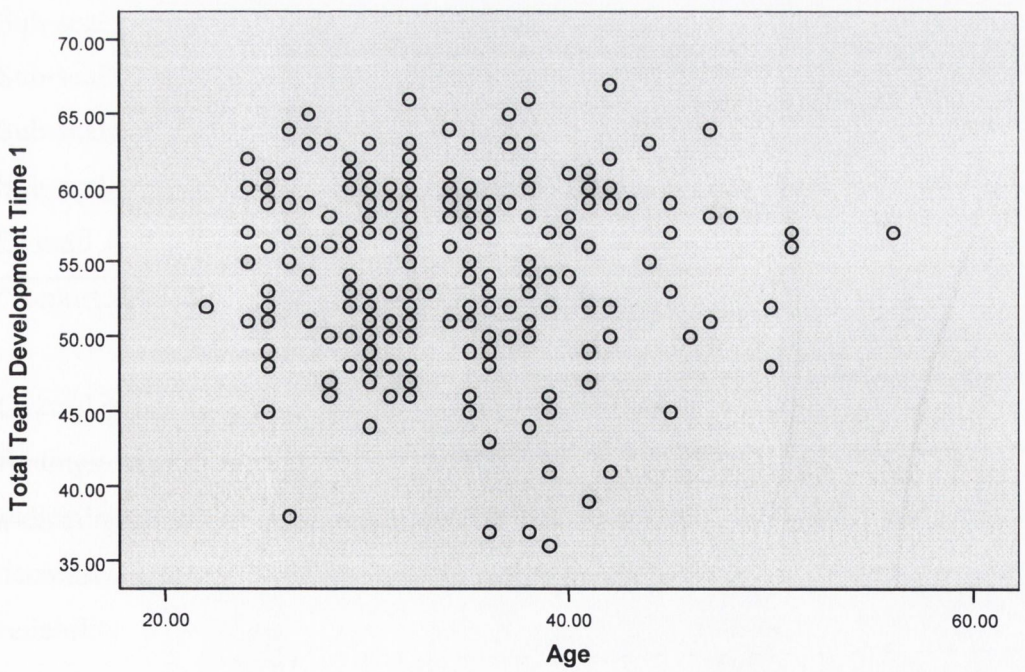
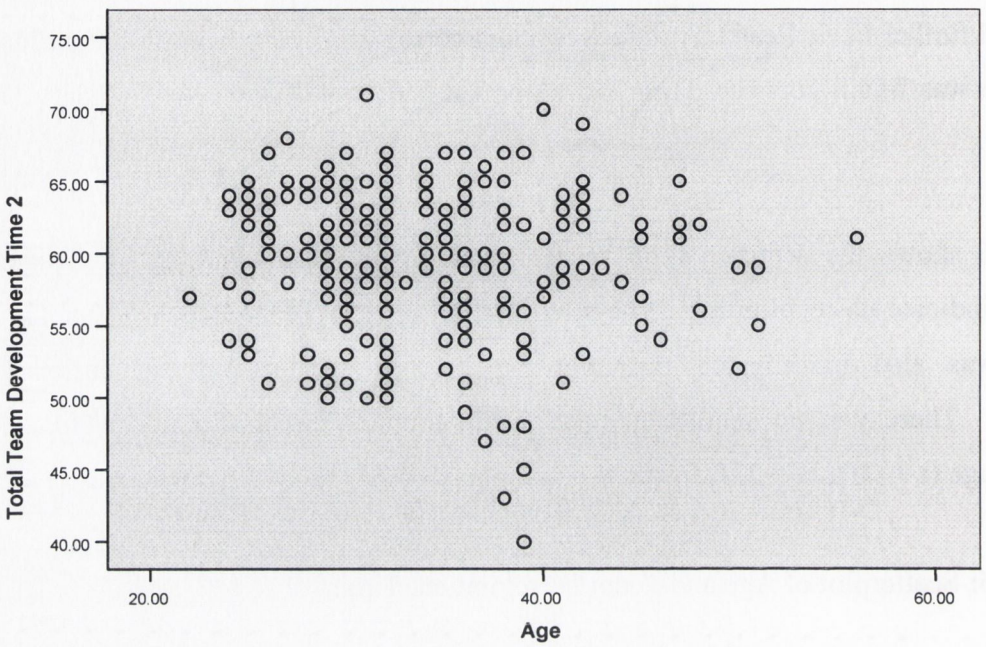


Figure 8.26: Scatterplot of Age and Team Development Time$_2$



8.6 Reliability Analyses

In order to examine the internal consistency of the various measures used, reliability analyses were performed by the calculation of Crobach's Alpha co-efficients. Results are shown for each measure and subscales at $Time_1$ and $Time_2$, together with previously published reliability findings for the measures and subscales.

8.6.1 Communication

Communication was measured using the Communicative Adaptability Scale (CAS) (Duran & Kelly, 1998) and Cupach and Spitzber (1983) reported overall reliability while Duran (1992) reported reliability results for the subscales. Table 8.13 compares these results with the results from the current study at $Time_1$ and $Time_2$.

Table 8.13: Reliability of Communicative Adaptability Scale

Construct	**Alpha Coefficient**		
	Duran (1992) N = 4000	Time 1	Time2
Sub-scale 1: Social composure	.82	.81	.71
Sub-scale 2: Social confirmation	.63	.73	.77
Sub-scale 3: Social experience	.80	.77	.75
Sub-scale 4: Appropriate disclosures	.76	.78	.78
Sub-scale 5: Wit	.74	.75	.79
Overall scale reliability*	.81	.82	.84

*Reported by Cupach and Spitzberg (1983)

Overall scale reliability in the current study showed an increase when compared with the findings of Cupach and Spitzberg (1983) with $Time_2$ results higher than $Time_1$ results indicating good internal consistency. The reliability of Subscales 1 and 3 showed decreases when compared with the findings of Duran (1992), in particular at $Time_2$. The reliability of Subscales 2, 4 and 5 showed increases and in the cases of subscales 2 and 5, these increases were greater at $Time_2$. The same increase was reported for subscale 4 at both $Time_1$ and $Time_2$.

8.6.2 Trust

Trust was measured using the Trust Scale originally developed by Johnson-George and Swap (1982) who reported subscale and overall reliability. Table 8.14 compares these results with the results from the current study at $Time_1$ and $Time_2$.

Table 8.14: Reliability of Trust Scale

Construct	**Alpha Coefficient**		
	Johnson-George and Swap (1982) N = 435	Time 1	Time2
Sub-scale 1: Overall trust	.69	.93	.94
Sub-scale 2: Emotional trust	.64	.85	.88
Sub-scale 3: Reliableness	.70	.79	.83
Overall scale reliability	.83	.87	.89

Overall scale reliability in the current study showed an increase when compared with the findings of Johnson-George and Swap (1982), with $Time_2$ results higher than $Time_1$ results indicating good internal consistency. The reliability of all three subscales increased quite considerably in this study, with greater increases shown at $Time_2$ on all three.

8.6.3 Psychological Safety

Psychological Safety was measured using sixteen items from Edmondson's (1999) Psychological Safety and Learning Behavior in Work Teams Instrument which contains 38 items in total. All subscales were used intact. Edmondson (ibid) reported subscale reliabilities and Table 8.15 compares these results with results from the current study at $Time_1$ and $Time_2$. Edmondson (ibid) failed to report the overall scale reliability for the instrument and no other report of the overall scale reliability was found in the published literature.

Table 8.15: Psychological Safety reliability

Construct	Alpha Coefficient		
	Edmondson (1999) N= 496	Time 1	Time2
Sub-scale 1: Clear direction	.80	.65	.18
Sub-scale 2: Team efficacy	.63	.35	.15
Sub-scale 3: Team psychological safety	.82	.75	.49
Sub-scale 4: Internal motivation	.64	.53	.38
Overall scale reliability	-*	.73	.49

*No overall scale reliability was reported by Edmondson (1999).

Overall scale reliability in the current study showed a considerable decrease from $Time_1$ to $Time_2$. The reliability of the subscales also showed decreases, in particular at $Time_2$, with only subscale 3 reporting a Cronbach's Alpha Coefficient above .70 at $Time_1$ (.73). Subscale reliability was lower than expected, with all four subscales producing lower Cronbach's Alpha coefficients than reported by Edmondson (1999). $Time_2$ results were particularly low when compared to $Time_1$ results.

8.6.4 Team Development

Team development was measured using fifteen items from the Self-Report Instrument for Exploring Team Factor, Leadership and Performance Relationships (Rickards, Chen & Moger, 2001) which contains a total of 21 items divided into 7 subscales with 3 items per subscale. Rickards et al. (2001) reported subscale reliabilities and Table 8.16 compares these results with results from the current study at $Time_1$ and $Time_2$. Rickards et al. (ibid) failed to report overall scale reliability and no published results were found.

While overall scale reliability showed good internal consistency at $Time_1$, a decrease occurred at $Time_2$. This finding cannot be compared with previous results as none have been published. Subscale reliability was lower than expected, with all six subscales producing lower Cronbach's Alpha coefficients than reported by Rickards et al. (2001). $Time_2$ results were lower than $Time_1$ results for five of the six subscales with the exception being subscale 2.

Table 8.16: Team Development reliability

Construct	Alpha Coefficient		
	Rickards et al. (2001) N = 1103	Time 1	Time2
Sub-scale 1: Creative climate	.79	.68	.55
Sub-scale 2: Shared vision	.78	.40	.47
Sub-scale 3: Resilience	.73	.59	.44
Sub-scale 4: Ideas owners	.74	.48	.39
Sub-scale 5: Learning from experience	.77(3)	.56(2)	.25(2)
Sub-scale 6: Platform of understanding*	.76 (3)	-(1)	-(1)
Overall scale reliability	-**	.76	.68

*Only 1 item used from this subscale. **No overall reliability reported.

8.6.5 Decision-Making

A bespoke measure of Decision-Making was developed for the current study which consisted of three items. Cronbach's Alpha coefficients for the reliability of the measure are reported in Table 8.17.

Table 8.17: Decision-Making measure reliability

Construct	Alpha Coefficient	
	Time 1	Time 2
Overall scale reliability	.39	.63

Results fell below the acceptable level of .70, particularly at $Time_1$, but were better at $Time_2$.

8.7 T-Tests to compare means at $Time_1$ and $Time_2$

In order to examine the effect of the EI training intervention on the variables Communication, Trust, Decision-making, Psychological Safety and Team Development, paired-samples t-tests were performed. Results are given in Table 8.18.

Table 8.18: Paired-samples T-test to compare means at $Time_1$ and $Time_2$ (N=231) for Communication, Trust, Decision-making, Psychological Safety and Team Development.

Variable	Time	t	df	Mean	S. D.	Sig (2-tailed)
Communication	$Time_1$			92.70	9.89	
	$Time_2$	5.49	230	96.28	9.74	p<.0005
Trust	$Time_1$			79.02	9.60	
	$Time_2$	9.16	230	86.17	9.02	p<.0005
Decision-Making	$Time_1$			12.43	1.53	
	$Time_2$	3.52	230	12.92	1.77	p<.001
Psychological Safety	$Time_1$			59.10	6.48	
	$Time_2$	19.32	230	66.45	4.45	p<.0005
Team Development	$Time_1$			54.53	5.92	
	$Time_2$	15.61	230	59.33	5.01	p<.0005

A statistically significant increase in Communication, Trust, Decision-Making, Psychological Safety and Team Development was found from $Time_1$ to $Time_2$. The effect size for Communication was 0.12 indicating a moderate effect size, 0.27 for Trust indicating a large effect size, 0.05 for Decision-Making indicating a small effect size, 0.62 for Psychological Safety indicating a very large effect size and 0.51 for Team Development, again indicating a very large effect size(Cohen, 1988).

As a significant increase in each variable was found it was decided to take a closer look at the increases at subscale level. Table 8.19 details the results of paired-samples t-tests at subscale level for Communication, Trust, and Decision-making. Table 8.20 details the

results of paired-samples t-tests at subscale level for Psychological Safety and Team Development.

Table 8.19: Paired-samples T-test to compare sub-scales means at $Time_1$ and $Time_2$ (N=231) for Communication, Trust, and Decision-making, (df = 230).

Sub-scale	Variable & Subscale	Time	Mean	S. D.	t	Sig (2-tailed)
	Communication	$Time_1$	92.70	9.89		
		$Time_2$	96.28	9.74	5.49	p<.0005
1	Social composure	$Time_1$	18.62	3.20		
	Social composure	$Time_2$	19.40	2.50	3.86	p<.0005
2	Social confirmation	$Time_1$	19.43	2.91		
	Social confirmation	$Time_2$	20.17	2.95	3.49	p<.01
3	Social experience	$Time_1$	19.95	2.98		
	Social experience	$Time_2$	20.48	2.83	2.53	p<.05
4	Appropriate disclosures	$Time_1$	18.36	3.33		
	Appropriate disclosures	$Time_2$	19.19	3.30	3.22	p<.01
5	Wit	$Time_1$	16.45	3.54		
	Wit	$Time_2$	17.03	3.67	2.34	p<.05
	Trust	$Time_1$	79.02	9.60		
		$Time_2$	86.17	9.02	9.16	p<.0005
1	Overall trust	$Time_1$	28.80	3.49		
		$Time_2$	31.04	3.63	7.58	p<.0005
2	Emotional trust	$Time_1$	20.84	2.75		
		$Time_2$	23.02	2.54	9.63	p<.0005
3	Reliableness	$Time_1$	29.38	4.19		
		$Time_2$	32.11	3.66	8.15	p<.0005
	Decision-Making	$Time_1$	12.43	1.53		
		$Time_2$	12.92	1.77	3.52	p<.001

Table 8.20: Paired-samples T-test to compare sub-scales means at $Time_1$ and $Time_2$ (N=231) for Psychological Safety and Team Development (df = 230).

Sub-scale	Variable & Subscale	Time	Mean	S. D.	t	Sig (2-tailed)
	Psychological Safety	$Time_1$	59.10	6.48		
		$Time_2$	66.45	4.45	19.32	p<.0005
1	Clear direction	$Time_1$	10.26	2.22		
		$Time_2$	12.15	1.64	13.67	p<.0005
2	Team efficacy	$Time_1$	11.20	1.78		
		$Time_2$	12.47	1.58	10.70	p<.0005
3	Team psychological safety	$Time_1$	25.26	4.12		
		$Time_2$	28.78	2.84	13.66	p<.0005
4	Internal motivation	$Time_1$	12.38	1.67		
		$Time_2$	13.04	1.32	6.42	p<.0005
	Team Development	$Time_1$	54.53	5.92		
		$Time_2$	59.33	5.01	15.61	p<.0005
1	Creative climate	$Time_1$	11.17	1.73		
		$Time_2$	12.20	1.43	9.85	p<.0005
2	Shared vision	$Time_1$	10.48	1.92		
		$Time_2$	11.29	1.71	9.42	p<.0005
3	Resilience	$Time_1$	11.25	1.57		
		$Time_2$	12.09	1.44	9.25	p<.0005
4	Ideas owners	$Time_1$	10.95	1.78		
		$Time_2$	11.70	1.57	7.14	p<.0005
5	Learning from experience	$Time_1$	7.61	1.24		
		$Time_2$	8.14	1.17	6.63	p<.0005
6	Platform of understanding	$Time_1$	3.07	0.98		
		$Time_2$	3.90	0.99	11.28	p<.0005

A significant increase in every subscale mean score occurred from $Time_1$ to $Time_2$ for the subscales of Communication, Trust, Decision-making, Psychological Safety and Team Development.

8.8 Exploratory Factor Analysis findings

An exploratory factor analysis was conducted on each scale used in Study 2 to examine underlying factor structures of the scales and their fit to the current data set.

8.8.1 Communication

The current study applied the Communicative Adaptability Scale (CAS) (Duran & Kelly, 1998) to the experimental group (N = 231) at both $Time_1$ and $Time_2$. An examination of the underlying factor structure of the Communicative Adaptability Scale (CAS) (Duran & Kelly, 1998) on both occasions was undertaken using exploratory factor analytic methods. Five factors were expected according to Duran and Kelly (1998).

The 25 items of the CAS $Time_1$ were subjected to principal components analysis (PCA) using SPSS. Prior to performing PCA, the suitability of data for factor analysis was assessed. Boxplots indicated the presence of two and four outliers in the data at the lower end of scores for both $Time_1$ and $Time_2$ respectively (see Figure 8.3). The outliers were retained as they were not extreme (i.e., beyond three box-lengths from the edge of the box) and had no great effect on the population mean. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Oklin value was .79, exceeding the recommended value of .6 (Kaiser, 1974) and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance ($p < .0005$), supporting the factorability of the correlation matrix. Taking an orthogonal approach, which assumed that the factors were not related, a varimax rotation was performed using the five components and loadings above .3 are displayed. Five factors explained 56% of the variance, with factors 1-5 accounting for 16.57, 11.22, 10.90, 10.47 and 7.14% of the variance respectively. The rotated solution (presented in Table 8.21) showed support for the structure of the CAS presenting the five subscales. Subscales 1, 4 and 5 emerged

intact, while items from subscales 2 and 3 were mixed across the two factors. These subscales represented "social confirmation" and "social experience" respectively.

Table 8.21: Varimax Rotation of Five Factor Solution Communication $Time_1$ (N=231)

Item	Sub-scale	Component				
		1	2	3	4	5
14	1	.81				
2	1	.76				
10	1	.71				
4	1	.70				
13	3	.68				
9	1	.63				
3	3	.55	.37			
12	3	.48	.43			
16	2		.79			
17	2		.71			
15	3		.68			
18	2		.62			
25	4			.86		
24	4			.79		
21	4			.66		
22	4			.64		
23	4			.56		
20	5				.79	
19	5				.78	
11	5				.71	
8	5				.63	
1	5				.59	
7	2					.73
5	2					.63
6	3					.47

Note: Only loadings above .3 are displayed.

The 25 items of the CAS Time$_2$ were similarly subjected to principal components analysis (PCA) using SPSS. Prior to performing PCA, the suitability of data for factor analysis

Table 8.22: Varimax Rotation of Five Factor Solution Communication Time$_2$ (N=231)

Item	Sub-scale	Component 1	2	3	4	5
14	1	.68				
10	1	.63				
3	3	.62				
2	1	.62				
12	3	.59				
13	3	.59				
15	3	.58				
6	3	.52				
17	2		.73			
16	2		.72			
18	2		.66			
7	2		.64			
5	2		.55			
22	4			.85		
25	4			.79		
24	4			.74		
21	4			.71		
23	4			.48		
20	5				.89	
19	5				.88	
11	5				.64	
8	5				.60	
9	1					.55
1	5					.52
4	1					.52

Note: Only loadings above .3 are displayed.

was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Oklin value was .79, exceeding the recommended value of .6 (Kaiser, 1974) and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance ($p < .0005$), supporting the factorability of the correlation matrix.

Taking an orthogonal approach, which assumed that the factors were not related, a varimax rotation was performed using the five components and again, loadings above 0.3 are displayed. Five factors explained 54.83 per cent of the variance. Factors 1-5 accounted for 13.82, 12.33, 11.67, 10.73 and 6.28% of the variance respectively. The rotated solution (presented in Table 8.22) showed some support for the structure of the CAS presenting subscales 2 and 4 intact with subscale 5 losing just one item. Subscales 1 and 3 mixed across 2 factors. $Time_2$ results were not as supportive of the 5-factor structure as $Time_1$ results.

8.8.2 Trust

The current study applied a peer-report measure of trust, the Trust Scale (McAllister, 1995) to the experimental group ($N = 231$) at both $Time_1$ and $Time_2$. An examination of the underlying factor structure of the Trust Scale (McAllister, 1995) on both occasions was undertaken using exploratory factor analytic methods. A 3-factor solution was expected according to McAllister (1995).

The eleven items of the Trust Scale $Time_1$ were subjected to principal components analysis (PCA) using SPSS. Prior to performing PCA, the suitability of the data for factor analysis was assessed. Boxplots indicated the presence of outliers in the data at the lower end of scores for both $Time_1$ and $Time_2$ respectively (see Figure 8.6). The outliers were retained as they were not extreme (i.e., beyond three box-lengths from the edge of the box) and had no great effect on the population mean. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Oklin value was .92, exceeding the recommended value of .6 (Kaiser, 1974) and Bartlett's Test

of Sphericity (Bartlett, 1954) reached statistical significance ($p < .0005$), supporting the factorability of the correlation matrix.

Taking an orthogonal approach, which assumed that the factors were not related, a varimax rotation was performed using the three components. Three factors explained 73.84 per cent of the variance. Factors 1-3 accounted for 26.33, 24.95 and 22.57% of the variance respectively. The rotated solution (presented in Table 8.23) showed strong support for the structure of the Trust Scale presenting three from $Time_1$ results.

Table 8.23: Varimax Rotation of Three-Factor Solution Trust Scale $Time_1$ (N=231)

Item	Subscale	Component		
		1	2	3
10	3	.79		
9	3	.72		
11	3	.68		
8	3	.67		
5	2		.77	
6	2		.74	
7	2		.73	
2	1			.85
4	1			.74
3	1			.73
1	1			.73

Note: Only loadings above .3 are displayed.

Results supported the expected three-factor solution (McAllister, 1995) on the $Time_1$ data, with the division of items over the subscales matching the subscale structure previously reported by McAllister (1995).

The eleven items of the Trust Scale $Time_2$ were similarly subjected to principal components analysis (PCA) using SPSS. Prior to performing PCA, the suitability of the data for factor analysis was assessed. Boxplots indicated the presence of outliers in the data at the lower end of scores for both $Time_1$ and $Time_2$ respectively (see Figure 8.6).

The outliers were retained as they were not extreme (i.e., beyond three box-lengths from the edge of the box) and had no great effect on the population mean. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Oklin value was .91, exceeding the recommended value of .6 (Kaiser, 1974) and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance ($p < .0005$), supporting the factorability of the correlation matrix.

Taking an orthogonal approach again, which assumed that the factors were not related, a varimax rotation was performed using the three components. Three factors explained 77.47 per cent of the variance. Factors 1-3 accounted for 30.45, 25.97 and 21.05% of the variance respectively. The rotated solution (presented in Table 8.24) showed strong support for the structure of the Trust Scale presenting three from $Time_2$ results.

Table 8.24: Varimax Rotation of Three Factor Solution Trust Scale $Time_2$ (N=231)

Item	Subscale	Component		
		1	2	3
9	3	.83		
11	3	.77		
10	3	.70		
8	3	.68		
4	1		.82	
3	1		.76	
2	1		.75	
1	1		.48	
6	2			.89
7	2			.62
5	2			.54

Note: Only loadings above .3 are displayed.

Results again supported the expected three-factor solution (McAllister, 1995) on the $Time_2$ data, with the division of items over the subscales matching the subscale structure previously reported by McAllister (1995).

8.8.3 Decision-Making

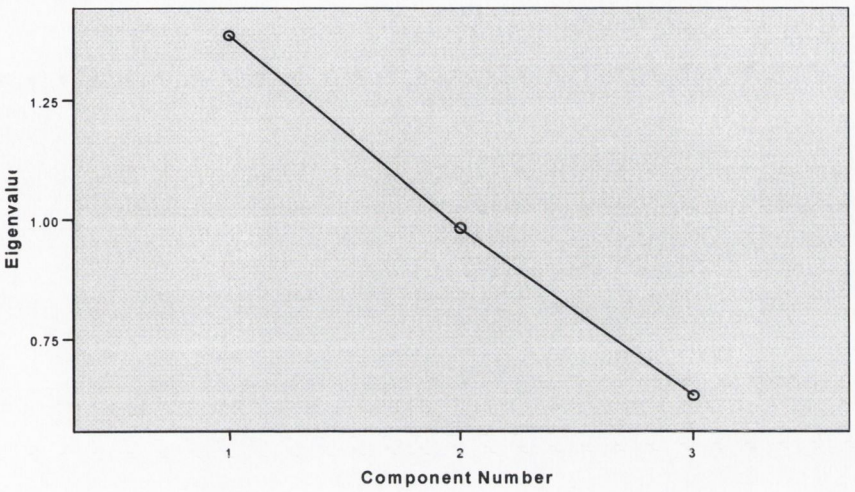
The current study applied a bespoke measure of Decision-Making to the experimental group (N = 231) at both $Time_1$ and $Time_2$. An examination of the underlying factor structure of the measure on both occasions was undertaken using exploratory factor analytic methods.

The three items of the Decision-Making measure $Time_1$ were subjected to principal components analysis (PCA) using SPSS. Prior to performing PCA, the suitability of data for factor analysis was assessed. Boxplots indicated the presence of outliers in the data for both $Time_1$ and $Time_2$ respectively (see Figure 8.9). The outliers were retained as only three participants were identified as extreme at $Time_1$ only (i.e., beyond three box-lengths from the edge of the box) and had no great effect on the population mean. Inspection of the correlation matrix revealed the presence of one coefficient of .33. The Kaiser-Meyer-Oklin value was .49, therefore not exceeding the recommended value of .6 (Kaiser, 1974) and so violating the assumption of sampling adequacy. Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance ($p < .0005$), so it was considered that preliminary examinations in general supported the factorability of the correlation matrix. Principal components analysis revealed the presence of 1 component with eigenvalues exceeding 1, explaining 46.19 per cent, of the variance. An inspection of the screeplot (see Figure 8.27) revealed an absence of a foot, indicating the presence of a single item. Table 8.25 shows the loading of items onto the single factor, as expected from the screeplot.

Table 8.25: Loading of items onto single factor solution for Decision-Making $Time_1$

Item	Component
1	.82
2	.73
3	.42

Figure 8.27: Screeplot of Factor Analysis of Decision-Making $Time_1$



The three items of the Decision-Making measure $Time_2$ were also subjected to principal components analysis (PCA) using SPSS. Prior to performing PCA, the suitability of data for factor analysis was assessed. Boxplots indicated the presence of outliers in the data for $Time_2$ (see Figure 8.9). The outliers were retained as they were not extreme (i.e., beyond three box-lengths from the edge of the box) and had no great effect on the population mean. Inspection of the correlation matrix revealed the presence of one coefficient of .41. The Kaiser-Meyer-Oklin value was .58, therefore not exceeding the recommended value of .6 (Kaiser, 1974) and so violating the assumption of sampling adequacy. Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance ($p < .0005$), so it was considered that preliminary examinations in general supporting the factorability of the correlation matrix.

Principal components analysis revealed the presence of 1 component with eigenvalues exceeding 1, explaining 52.67 per cent, of the variance. An inspection of the screeplot (see Figure 8.28) revealed the absence of a foot, implying all three items were contained within a single factor. Table 8.25 shows the loading of items onto the single factor, as expected from the screeplot.

Figure 8.28: Screeplot of Factor Analysis of Decision-Making $Time_2$

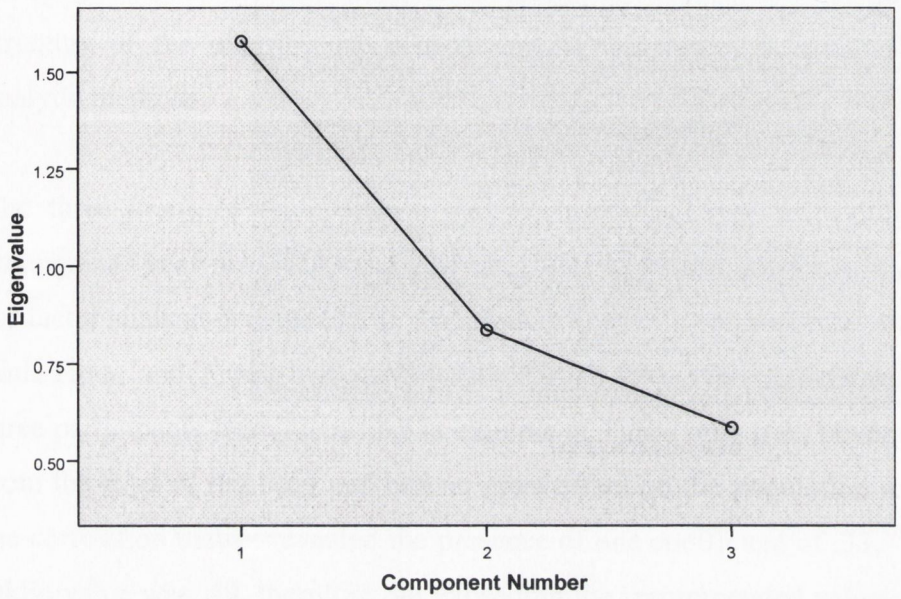


Table 8.26: Loading of items onto single factor solution for Decision-Making $Time_2$

Item	Component
1	.80
2	.76
3	.60

8.8.4 Psychological Safety

Psychological Safety was measured by applying sixteen items from Edmondson's (1999) Psychological Safety and Learning Behavior Work Teams Instrument to the experimental group (N = 231) at both $Time_1$ and $Time_2$. An examination of the underlying factor structure of the measure on both occasions was undertaken using exploratory factor analytic methods. It was expected that the 16 items would load onto four factors representing the four subscales outlined by Edmondson (1999).

The sixteen items of the Psychological Safety and Learning Behavior Work Teams Instrument (Edmondson, 1999) $Time_1$ were subjected to principal components analysis (PCA) using SPSS. Prior to performing PCA, the suitability of data for factor analysis was assessed. Boxplots indicated the presence of two and three outliers in the data for both $Time_1$ and $Time_2$ respectively (see Figure 8.12). The outliers were retained as they were not extreme (i.e., beyond three box-lengths from the edge of the box) and had no great effect on the population mean. Inspection of the correlation matrix revealed the presence of one coefficient of .33. The Kaiser-Meyer-Oklin value was .73, exceeding the recommended value of .6 (Kaiser, 1974) and so not violating the assumption of sampling adequacy. Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance ($p<$ .0005), supporting the factorability of the correlation matrix.

Taking an orthogonal approach, which assumed that the factors were not related, a varimax rotation was performed using the four components. The four components accounted for 52.08 per cent of the variance cumulatively at $Time_1$. Components one to four individually explained 18.16 per cent, 11.54 per cent, 11.38 per cent, and 11.00 per cent of the variance respectively. The rotated solution (presented in Table 8.27) showed strong support for the structure of the scale, keeping all four subscales intact with the exception of item 23, which moved from subscale 3 to subscale 2.

The sixteen items of the Psychological Safety and Learning Behavior Work Teams Instrument (Edmondson, 1999) $Time_2$ were similarly subjected to principal components analysis (PCA) using SPSS. Prior to performing PCA, the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of only two coefficients of .3 and above. The Kaiser-Meyer-Oklin value was .57, therefore not exceeding the recommended value of .6 (Kaiser, 1974) and so violating the assumption of sampling adequacy. Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance ($p<$ .0005), providing weak support for the factorability of the correlation matrix.

Table 8.27: Varimax Rotation of Four Factor Solution Psychological Safety $Time_1$ (N=231)

Item	Sub-scale	Component 1	2	3	4
22	3	.78			
26	3	.73			
27	3	.67			
24	3	.67			
25	3	.64			
28	3	.43			
16	1		.85		
17	1		.75		
15	1		.52		
19	2			.70	
21	2			.65	
23	3			.60	
20	2			.32	
31	4				.75
29	4				.74
30	4				.63

Note: Only loadings above .3 are displayed.

Taking an orthogonal approach, which assumed that the factors were not related, a varimax rotation was performed using the four components. . The four components accounted for 38.95 per cent of the variance cumulatively at $Time_2$, a significant reduction on $Time_1$. Components one to four individually explained 11.84 per cent, 9.73 per cent, 8.80 per cent, and 8.58 per cent of the variance respectively. Values less than a cut off of 0.2 (as opposed to 0.3) were displayed in order to ensure all items were included as item 23 showed a very low loading of 0.24. The rotated solution (presented in Table 8.28) showed some support for the structure of the scale. Each factor shared items from different subscales in the $Time_2$ data, with subscale 3 losing two items (items 23 and 27) to factors 2 and 3 (respectively).

Since the $Time_1$ data supported the factor structure of the scale it was decided that an exploratory factor analysis would not be meaningful. Low internal consistency was achieved on the $Time_2$ data, further supporting a difficulty with the scale in that data set.

Table 8.28: Varimax Rotation of Four Factor Solution Psychological Safety $Time_2$ (N=231)

Item	Sub-scale	Component 1	2	3	4
22	3	.67			
24	3	.64			
26	3	.52			
25	3	.51			
28	3	.35			
21	2		.69		
15	1		.58		
19	2		.53		
23	3		.24		
29	4			.62	
17	1			.61	
27	3			.50	
30	4				.69
31	4				.60
16	1				.49
20	2				.40

Note: Only loadings above .2 are displayed.

8.8.5 Team Development

Team Development was measured by applying fifteen items from Self-Report Instrument for Exploring Team Factor, Leadership and Performance Relationships (Rickards et al. 2001) to the experimental group (N = 231) at both $Time_1$ and $Time_2$. An examination of the underlying factor structure of the measure on both occasions was undertaken using

exploratory factor analytic methods. A six-factor solution was expected (Rickards et al. 2001).

The fifteen items of the Self-Report Instrument for Exploring Team Factor, Leadership and Performance Relationships (Rickards et al. 2001) $Time_1$ were subjected to principal components analysis (PCA) using SPSS. Prior to performing PCA, the suitability of data for factor analysis was assessed. Boxplots indicated the presence of three outliers at the lower range in the data for both $Time_1$ and $Time_2$ respectively (see Figure 8.15). The outliers were retained as they were not extreme (i.e., beyond three box-lengths from the edge of the box) and had no great effect on the population mean.

Inspection of the correlation matrix revealed the presence of several coefficients above .3. The Kaiser-Meyer-Oklin value was .74, exceeding the recommended value of .6 (Kaiser, 1974) and so not violating the assumption of sampling adequacy. Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance ($p < .0005$), supporting the factorability of the correlation matrix.

Taking an orthogonal approach, which assumed that the factors were not related, a varimax rotation was performed using six factors and values below 0.3 were suppressed. Six factors accounted for 65.73 per cent of the variance. Factors 1-6 accounted for 13.19 per cent, 12.60 per cent, 11.69 per cent, 10.68 per cent, 9.50 per cent, and 8.08 per cent of the variance respectively.

The rotated solution (presented in Table 8.29) showed some support for a six-factor solution, although there was some movement of items across subscales. Subscale 5 emerged intact, with subscales 1 and 3 each gaining one item from subscales 4 and 2 respectively. Subscales 2, 4 and 6 gained items from other subscales.

Table 8.29: Varimax Rotation of Six Factor Solution Team Development $Time_1$ (N=231)

Item	Sub-scale	Component					
		1	2	3	4	5	6
9	3	.78					
8	3	.71					
5	2	.51					
7	3	.42					
2	1		.79				
1	1		.72				
11	4		.53				
3	1		.51				
18	6			.74			
12	4			.62			
13	5				.80		
14	5				.75		
10	4					.77	
4	2					.57	
6	2						.90

Note: Only loadings above .3 are displayed.

The fifteen items of the Self-Report Instrument for Exploring Team Factor, Leadership and Performance Relationships (Rickards et al. 2001) $Time_2$ were similarly subjected to principal components analysis (PCA) using SPSS. Prior to performing PCA, the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of several coefficients above .3. The Kaiser-Meyer-Oklin value was .70, exceeding the recommended value of .6 (Kaiser, 1974) and so not violating the assumption of sampling adequacy. Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance ($p < .0005$), supporting the factorability of the correlation matrix.

Taking an orthogonal approach, which assumed that the factors were not related, a varimax rotation was performed using six factors and values below 0.3 were suppressed. Six factors accounted for 59.91 per cent of the variance. Factors 1-6 accounted for 12.90

per cent, 10.87 per cent, 9.93 per cent, 9.30 per cent, 9.10 per cent, and 7.82 per cent of the variance respectively.

The rotated solution (presented in Table 8.30) showed some support for a six-factor solution, although there was some movement of items across subscales at $Time_2$. Subscale 3 emerged intact, with subscales 1 and 2 joining together and subscales 4 and 5 losing an item each. Subscales 6 gained an item from subscale 5.

Table 8.30: Varimax Rotation of Six Factor Solution Team Development $Time_2$ (N=231)

Item	Sub-scale	Component					
		1	2	3	4	5	6
1	1	.65					
3	1	.64					
6	2	.59					
4	2	.53					
5	2	.52					
12	4		.80				
11	4		.78				
9	3			.77			
7	3			.61			
8	3			.54			
18	6				.72		
14	5				.56		
10	4					.71	
2	1					.64	
13	5						.78

Note: Only loadings above .3 are displayed.

The original factor structure proposed by Rickards et al. (2001) was based on a population of 1103 participants and it was decided to retain the original structure since the measure originally contained three items per subscale which was reduced to two for subscale 5 and one for subscale 6 in the current study, which may have impacted the findings.

8.9 Multiple Regression Analyses

A standard multiple regression analysis was then undertaken to explore the predictive relationships between the independent variables (communication, trust, decision making, psychological safety and team development) and the dependent variables (self-report emotional intelligence and peer-report emotional intelligence). The difference in scores of both independent and dependent variables were calculated before regressing each of the dependent variables on the five independent variables.

8.9.1 Factors predicting Self-Report Emotional Intelligence

Hypotheses 3 to 7 state that the training intervention to increase emotional intelligence can also enhance communication, trust, decision making, psychological safety and team development. As theoretical links have been established in the literature between emotional intelligence and the five independent variables, it was expected that these variables would act as predictors of emotional intelligence.

As shown in Table 8.31, the independent variables explained only a small amount of variance (6%) in the dependent variable Self-Report Emotional Intelligence (R^2= 0.06, F = 2.78, p<.05), and two of the five variables had significant regressions coefficients (communication and trust).

Table 8.31: Regression analysis for Self-Report Emotional Intelligence

Independent Variable	β	t	Sig
Communication	.14*	2.14	.03*
Trust	.14*	2.02	.04*
Decision Making	.04	0.64	.53
Psychological Safety	.07	0.92	.36
Team Development	.02	0.33	.74

*p<.05

Jordan (2000) divided his model of emotional intelligence into two factors (factor 1, "ability to deal with own emotions", and factor 2, "ability to deal with others' emotions"). An investigation of the ability of the independent variables to predict these factors in relation to Self-Report EI scores was undertaken and results are shown in Table 8.32. The independent variables explained only a small amount of variance (9%) in the dependent variable factor 1, "ability to deal with own emotions" (R^2= 0.09, F = 4.56, p<.001), and two of the five variables had significant regressions coefficients (trust and decision making). The independent variables explained only a small amount of variance (5%) in the dependent variable factor 2, "ability to deal with others' emotions" (R^2= 0.05, F = 2.49, p<.05), and none of the five variables had significant regressions coefficients.

Table 8.32: Regression analysis for Factors of Self-Report Emotional Intelligence

Variable	Factor 1			Factor 2		
	β	t	Sig.	β	t	Sig.
Communication	.10	1.53	.13	.09	1.33	.18
Trust	.17	2.54	.01*	.10	1.45	.15
Decision Making	.15	2.19	.03*	.09	1.21	.23
Psychological Safety	.04	0.57	.57	.13	1.81	.07
Team Development	.04	0.50	.62	.02	0.21	.83

*p<.05

8.9.2 Factors predicting Peer-Report Emotional Intelligence

As shown in Table 8.33, the independent variables explained only a moderate amount of variance (21%) in the dependent variable Peer-Report Emotional Intelligence (R^2= 0.21, F = 11.87, p<.0005), and two of the five variables had significant regressions coefficients (trust and decision making). This model proved to be a better predictor of Peer-Report EI than Self-Report EI.

Table 8.33: Regression analysis for Peer-Report Emotional Intelligence

Independent Variable	β	t	Sig
Communication	.04	0.72	.47
Trust	.32	5.07	.000**
Decision Making	.22	3.41	.001*
Psychological Safety	.07	1.08	.28
Team Development	.12	1.76	.08

**p<.0005; *p<.001

An investigation of the ability of the independent variables to predict the factors of EI (Jordan, 2000) in relation to Peer-Report EI scores was undertaken and results are shown in Table 8.34. The independent variables explained a moderate amount of variance (18%) in the dependent variable factor 1, "ability to deal with own emotions" (R^2= 0.18, F = 9.52, p<.0005), and two of the five variables had significant regressions coefficients (trust and decision making). The independent variables also explained a moderate amount of variance (20%) in the dependent variable factor 2, "ability to deal with others' emotions" (R^2= 0.20, F = 10.94, p<.0005), and three of the five variables had significant regressions coefficients (trust, decision making, and team development).

Table 8.34: Regression analysis for Factors of Peer-Report Emotional Intelligence

Variable	Factor 1			Factor 2		
	β	t	Sig.	β	t	Sig.
Communication	.07	1.06	.29	.02	0.28	.78
Trust	.25	3.90	.000**	.34	5.37	.000**
Decision Making	.26	3.91	.000**	.16	2.40	.02*
Psychological Safety	.06	0.85	.40	.07	1.13	.26
Team Development	.06	0.96	.39	.15	2.24	.03*

*p<.05 **p<.0005

Chapter 9 - Discussion

9.0 Discussion

9.1 Introduction

The current study is an extension of Study 1, which outlined a training programme that successfully increased emotional intelligence in team members. Study 2 investigated the impact of the training programme on the team process variables of team communication, trust within teams, team decision making process, psychological safety within teams and, finally, team development. Many of the subscales of these team process variable measures are similar to the factors underlying the subscales represented in the emotional intelligence WEIP-5 measure (Jordan, 2000), providing independent corroboration for the results obtained in Study 1. They also test some of the ten individual aspects of the EI training programme and determine their individual success.

This chapter summarises the results obtained in Study 2 and continues with a discussion of them in the context of previous theory and research. The results for the five team process variables of communication, trust, decision making, psychological safety and team development are discussed initially in a summary of the findings, both at total scale level and at subscale level.

The reliability and factor analyses results of the measures used are then discussed. The relationships between the variables and gender, and the variables and age are then discussed in view of the findings.

These results are then placed in the context of previous research, and theoretical and practical implications are outlined. The results are also placed in the context of the increase in emotional intelligence obtained in Study 1 and the relationships between the team process variables and emotional intelligence are discussed.

Limitations are then highlighted and discussed, issues for future research are outlined and followed by concluding comments.

9.2 Summary of Findings

A statistically significant increase was found in each of the variables of team communication, trust within teams, enhanced team decision making process, psychological safety within teams and, finally, team development from $Time_1$ to $Time_2$ associated with the training intervention to increase emotional intelligence. These findings support the research hypotheses of Study 2 and each is discussed in turn.

9.2.1 Communication

Total communication scores increased significantly from $Time_1$ to $Time_2$ showing enhanced communication between team members. This finding supported hypothesis 5, which stated that the training intervention to increase emotional intelligence can also enhance team communication. Mean scores increased by 3.6 points and a moderate effect size of 0.12 (Cohen, 1988) was obtained showing the EI training intervention to have a moderate effect on increasing communication scores.

An increase in communication was expected as a result of the training intervention as communication skills were the focus of a number of training elements within the programme. These included role-play exercises (in week 3), adoption of emotionally intelligent team norms (in week 2) and continuous group discussions which were both facilitated and unsupervised, and finally, a team presentation where each team member was required to present on their experience of being in their team.

Role-play exercises were conducted to show participants the different styles of communication. During lecturette eight participants were selected to role play two team conversations. These were then scored across six categories of interaction derived from Bales' (1953) original twelve. A discussion of the likely effect of the different styles of communication on team members followed, and participants identified both styles they preferred to interact with and styles they considered difficult to work with. The emotional reactions caused by the different styles were discussed and their possible effects on team productivity discussed. Team members scored their peers for communication style during

a typical unsupervised team meeting and derived an overall communication style for the assigned peers. Each team member scored two peers under Bales six types of verbal category: (1) Proposing: putting forward new suggestions or ideas (task-relevant act); (2) Building: developing/extending existing ideas made by someone else (task-relevant act); (3) Supporting: declaring agreement with or support for ideas of others (socio-emotional positive act); (4) Disagreeing: criticism of views/ideas of others (socio-emotional negative act); (5) Giving information: giving facts, ideas or opinions, clarifying (task-relevant act); and (6) Seeking information: asking for facts, ideas or opinions from others (task relevant - asking questions). Results were compared and findings were shared between team members and discussed.

Participants were instructed to observe and record the behavioural effects of alternative communication styles within their team and to assess the practical advantages and disadvantages of different styles. This exercise increased self-awareness in participants with respect to their preferred communication style within their team. It also encouraged participants to explore alternative styles or, at the very least, to draw conclusions about the impact of alternative styles on social interaction within their team. Socio-emotional negative behaviours and an over-reliance on task relevant acts were identified as undesirable within teams (Druskat & Wolff, 2001; Parker, 1990).

The role-play exercises built on the adoption of emotionally intelligent team norms (Druskat & Wolff, 2001) which had been put in place in week 2 of the programme. Norms designed to create awareness of emotions and interpersonal understanding directed that meetings began with asking how everyone was feeling that day, and when undesirable behaviour took place, questions were asked as to why this was. Peers waited and listened to the response. Participants were encouraged to tell team members how they felt and what they were thinking. Norms designed to aid perspective taking encouraged participants to ask if everyone in the team agreed with a decision, and to wait until each peer answered. Quiet team members were asked what they thought. Norms to create resources for working with emotion required taking time to discuss difficult issues, and addressing the emotions that surrounded them. A sense of caring was established through validation of team members' contributions and letting peers know they were valued within their team. Team norms encouraging team self-evaluation required the discussion of

group moods and communication of each peer's sense of what was transpiring in their team. All of these norms require communication. It was not enough for a team member to think about these issues, they needed to be said so that they could then be discussed at team level. In Study 1, the importance placed upon emotional communication was discussed, with emphasis on facial expressions, voice tone and pitch, which allowed peers to gauge emotional reactions and the veracity of those reactions as an element of emotional intelligence. Team discussions operated at the level of task and process. Peers became aware of their inputs, and the inputs of others, on both levels as the 12-week programme progressed, which is obvious from the subscale increases in the communication scale.

All five subscales of the communication measure showed statistically significant increases from $Time_1$ to $Time_2$. Social composure (subscale 1) showed an increase in feeling relaxed in social situations. Being nervous in social situations, not sounding nervous when speaking and being relaxed when speaking to others were measured in this subscale. Participants grew accustomed to team meetings and participating and discussing task and process issues over the course of the programme. Despite the fact that the participants were known to each other prior to the training intervention, the training programme to increase EI still managed to create an increased sense of ease for participants when speaking with peers in their smaller teams. Similarly, social confirmation (subscale 2) showed an increase in maintaining the other's social image. Items in this subscale measured participant's willingness to make their peers feel important, feel good and take into account how the other person is feeling when conversing with them. As the training programme progressed, a sense of caring about peers was established within teams. This sense of caring was also an element in the emotionally intelligent team norms adopted (Druskat & Wolff, 2001). Team cohesion grew over time (Tuckman & Jensen, 1977) and team members began to see themselves as an entity and to regard other teams as outgroups. The increase in social confirmation is interesting as it touches on similar aspects measured by "empathy" (subscale 7) of the Self-Report WEIP-5 (Jordan, 2000) (e.g., "While I am talking, I think about how the other person feels"). A statistically significant increase in empathy was not reported for subscale 7 in Study 1, and this was explained by an initially high level of empathy at Time1 probably due to the fact that the participants were already known to each other.

The result here implies that empathetic concern did increase as a result of the training intervention, which again raises the question of the ability of the subscale to measure empathy in the WEIP-5, supported by problematic reliability and factor analytic results reported previously.

Social experience (subscale 3) measured enjoyment at meeting people, mixing with them and participation socially in the team. It also showed a statistically significant increase as the EI training intervention progressed. Participants increased their enjoyment of the social aspects of teamwork over the 12-week programme. This could be explained by an increase in a sense of belonging to the team (cohesion) which would support Tuckman and Jensen's (1977) model of team development from storming, through norming to performing. At the performing stage team members are happy in the team and disagreements over role and participation are resolved as the team works happily towards its mutually agreed goals.

Appropriate disclosures (subscale 4) measured participants' understanding of disclosure within their teams. Gauging the intimacy and level of disclosures, knowing when disclosures are appropriate and matching the disclosures of peers were measured and showed a statistically significant increase from $Time_1$ to $Time_2$. Emotional understanding could be seen as an aid to identifying the level of emotion behind disclosures. Recognising the emotions of others (subscale 5 of the WEIP-5) (Jordan, 2000) measured participants' ability to detect feelings in their peers. Both Self-Reports and Peer-Reports of the WEIP-5 showed a statistically significant increase. This is supported by the finding here in that participants used their ability to detect emotions to gauge their own responses. Similarly, "awareness of emotions" (subscale 1) and "ability to discuss emotions" (subscale 2) in the WEIP-5 increased significantly as a result of the training intervention in both Self-Reports and Peer-Reports. The skills gained again ensure appropriate disclosures are possible when participants recognise their own feelings and can articulate them. Appropriate articulation is a skill that can be associated with emotional intelligence as it is the intelligent communication of emotion at the right time and at the appropriate level.

Wit (subscale 5) was also measured and showed a statistically significant increase over the 12-week programme. The use of wit to ease tense situations and to cover embarrassment are included in this subscale, in addition to a participant's ability to respond to negative comments with a witty retort. An intelligent use of humour can dispel negative group moods and this skill was practised increasingly as a result of the training intervention. Participants managed their own emotions of anger and resentment at negative comments to save their self-esteem and bounced back with a witty retort, keeping the mood positive, preventing hostilities and ensuring peers liked them. This represents emotionally intelligent behaviour as it allows the group to move past potential problems and continue to interact successfully.

Previous research has identified the role of humour in communication and emotional display. The use of team norms has been identified as a vehicle for reducing and preventing negative emotionality (Yang & Mossholder, 2004). Norms that govern how members communicate and interact with one another strongly influence the display of emotions. Diffusing unacceptable emotions through the use of humour was proposed. Humour can cause amusement and help maintain positive emotional exchanges between team members. Eisenhardt, Kahwajy and Bourgeois (1997) found that humour was widely used in teams with low conflict and absent in teams identified by high levels of conflict. Avolio, Howell and Sosik (1999) suggested that humour allowed team members to feel better about the team even though they were dissatisfied with individual members, resulting in less swift retaliation and emotional escalation in team interaction. The increase in subscales 1 and 2 showed that participants relaxed and enjoyed the social aspects of team life. Some of this could potentially be attributed to the use of humour in team communication, which increased over the 12-week training intervention.

An examination of total communication scores showed that 163 participants (70.6%) self-reported an increase in their communication scores, 64 participants (27.7%) decreased their communication scores and 4 participants (1.7%) showed neither an increase nor a decrease in their scores from $Time_1$ to $Time_2$. The failure of over one-quarter of participants to increase their communication scores represents a sizeable number of team members who did not improve their communication skills . Reasons for this failure to increase communication scores could be attributed to individual failure to participate, and

also to the fact that people learn differently. Perhaps the design of the training intervention was not suited to enhancing communication in each participant. While every effort was made to include more reticent team members, and to create a caring team environment, some participants may have felt intimidated by the experience and failed to respond in the anticipated way. An exit survey would have helped to elicit some feedback from participants that might have shed light on this issue.

Looking at the participants who failed to show an increase in communication scores and comparing their total Self-Report EI scores, similar reductions were reported in only 30 participants. As 34 participants who reported a decrease in communication scores also reported an increase in emotional intelligence scores, the decrease in communication scores could not be associated with a similar decrease in emotional intelligence scores.

9.2.2 Trust

A statistically significant increase in trust scores was found between $Time_1$ and $Time_2$ supporting hypothesis 4, which stated that the training intervention to increase emotional intelligence can also increase trust between team members. Mean scores increased by 7.2 points and a large effect size of 0.27 (Cohen, 1988) was obtained showing the EI training intervention to have a large effect on increasing trust scores.

The measure of trust used in this study was a Peer-Report measure originally developed by Johnson-George and Swap (1982) and extended by McAllister (1995). Each team member scored each of their peers on eleven items. No Self-Report trust measure was used. Participants were therefore judged by their peers to have increased in their trustworthiness as a result of the training intervention. This finding is interesting in that the participants in this study were known to each other prior to the training intervention. Consequently, it could be expected that they had established some level of trust between themselves prior to the programme as a result of their interaction. As trust establishment was not prescribed as a specific aspect of the training programme, it could have been expected that levels of trust would not change greatly among participants who already knew and worked with each other.

As this was not the case, any explanation for the increase in trust scores could be more complex. A team behaviour reported to increase trust is the adoption of open communication (Boyatzis, Goleman & Rhee, 2000; Currall & Judge, 1995; Smith & Barclay, 1997). An increase in open communication was evidenced from the significant increases in the EI subscales and the communication subscales. Awareness of emotions, ability to discuss emotions, perspective taking, reading the emotions of others and controlling emotions in both oneself and in peers were measured with the WEIP-5 (Jordan, 2000) (see Study 1) and showed significant increases. Similarly, in the communication measure, social composure showed an increase in feeling relaxed in social situations. Social confirmation showed an increase in maintaining the other's social image and appropriate disclosures demonstrated an increase in participant's understanding of disclosure within their teams. Each of these subscale increases helps to reveal the level and type of communication that took place within teams. Participants communicated in an emotionally intelligent way, taking into account felt emotions within themselves and their peers. They expressed a sense of caring for peers in their communication, resulting in feelings of happiness at being part of the team. Participants felt relaxed at team meetings and confident to express their ideas. Trust involves the willingness to be vulnerable (Mayer, Davis & Schoorman, 1995) and allows individuals to manage the uncertainty or risk associated with their actions (Jones & George, 1998). Emotionally intelligent communication in this study supported vulnerability in that participants were willing to listen to, empathise with and care about peers.

Norms to induce emotionally intelligent behaviour (Druskat & Wolff, 2001) were adopted by teams as an aspect of the training intervention. Norms to facilitate perspective taking and interpersonal understanding were adopted in addition to norms to induce caring within the team and the creation of an affirmative environment where team confidence was increased through positive affirmations. These norms created a warm, caring environment in which team members felt safe (evidenced by the significant increase in psychological safety reported). Research has shown that team members make emotional investments in trust relationships, express genuine care and concern for the welfare of others in the team, believe in the intrinsic virtue of such relationships, and believe that these feelings are reciprocated (Pennings & Woiceshyn, 1987; Rempel, Holmes, & Zanna, 1985). McAllister (1995) concluded that emotional ties linking individuals

provided the basis for trust. Adoption of emotionally intelligent team norms provided the type of team environment that was conducive to establishing and increasing trust.

The nature of the EI training intervention facilitated the sharing of emotions, increased self-awareness and awareness of individual difference, in addition to the sharing of tasks. Emotionally intelligent individuals are highly self aware - aware of their behaviour, and the labels that others put on that behaviour, and they self-monitor and seek feedback in response to established norms (Heise, 1989). Self-awareness allows individuals to set priorities and to set aside inconsequential problems in favour of more pressing needs (George, 2000). This ability is most important in team interaction, where conflict can be set aside by emotionally intelligent individuals to maintain team focus on task. Self-aware individuals have the ability to alter other team members' responses to their actions (Eisenberg & Fabes, 1992) and guide interactions to meet desired goals (Miller & Leary, 1992). The increase in emotional intelligence (see Study 1) was achieved through a training intervention focused on increasing self-awareness in participants. According to Costa (2003), trust is a manifestation of behaviour towards others. With the Peer-Report trust measure used in this study, participants judged their peers to have increased in trustworthiness. Costa (ibid) defined trustworthiness as expectations about peer's motives and the intentions underlying their actions in addition to a willingness to be vulnerable. Increased self-awareness coupled with increased emotional intelligence could be seen to have an impact on trustworthiness as participants discussed feelings, intentions and motives, identified them in their peers and considered the opinions of peers at team meetings. This open communication showed vulnerability in each participant as they exposed affect-based thoughts to their peers. Management of the emotions of self and others followed, which was achieved through emotionally intelligent norms. Putting all of the aspects of these findings together, it becomes possible to understand how trust increased as a result of the training intervention since all of the requirements of increasing trustworthiness were met. Appropriate social processes are a product of trust (Jones & George, 1998). Since appropriate social processes were defined and enforced by the training intervention, the findings here show that there is possibly a reciprocal relationship between social processes and trust - trust is a product of appropriate social processes.

The flow of communication among team members is facilitated where ties between team members are built on high levels of trust (Brass, 1995). Yang and Mossholder (2004) attributed this to the reduced likelihood of misinterpretations and misattributions occurring during discussions and disagreements. When group members trust that other group members are working toward the same goals, rather than in their own interest, there is greater acceptance of critical comments as constructive and responses are co-operative rather than retributive (Yang & Mossholder, 2004).

Yang and Mossholder, (2004) suggested a theoretical model of intra-group emotional processing to reduce group conflict. The model gives a central role to communication and advises the inclusion of training in effective intra-group communication techniques to help members frame task disagreements as challenges to the whole group, rather than to individuals within the team. Singling out individuals has the result of making task level disagreement personal which results in conflict within the team (Yang & Mossholder, 2004). Lovelace, Shapiro and Weingart (2001) examined collaborative communication during intra-group disagreements and found that a collaborative style facilitated the expression of the speaker's concern and care for fellow team members (e.g., we are all part of this team and it is important that we all feel comfortable with the solution to this problem).

All three subscales of trust showed statistically significant increases from $Time_1$ to $Time_2$. Overall trust (subscale 1) encompassed general interpersonal trust and a global sense of trustworthiness and showed a significant increase as a result of the training programme. As discussed, participants felt that their peers were more trustworthy and intra-team trust developed in conjunction with increased emotional intelligence in team interaction. Overall trust measured participants' expectations that peers would play fair in team interaction, would take time to listen to their problems and worries, and that they could expect peers to listen when they needed to confide in them. Honesty was also measured in this subscale with participants expecting peers to tell them the truth.

Emotional trust (subscale 2) also increased significantly and included confiding in peers while experiencing freedom from criticism or embarrassment, and exhibiting honesty and trust in emotion-laden situations. In a sense, this subscale represents the essence of

emotional intelligence and it is obvious that it would increase as emotional intelligence increased. Emotionally intelligent norms ensured participants were free from criticism when making suggestions at team meetings (Druskat & Wolff, 2001). The role of self-awareness is also a potential factor in the increase in this subscale. Miller and Leary (1992) found evidence of the social identification and feedback process used by self-aware individuals in their study of embarrassment. Embarrassment serves as emotional feedback which results in the individual monitoring closely to identify the cause of the embarrassment, remedying the causal behaviour and adjusting future behaviour to ensure no repeat of the embarrassment. In the current study, if a participant made suggestions, which were perceived as embarrassing by their peers, it was expected that those peers would let the person know, in a caring way, that they were being inappropriate. Gender bias, for example, may have caused a participant to suggest himself as the most suitable team member to perform certain tasks. Peers would then censor this participant and point out that his thinking was flawed and unfounded and offensive to female peers. This would result in the participant realising that his bias was socially unacceptable and not making such comments in future, irrespective of whether or not it was his belief.

Reliableness (subscale 3) assessed the dependability of peers, whether or not they kept promises and commitments. At a task level, peers were assigned roles and tasks with deadlines and were expected to carry out those tasks and report back to their teams by the deadlines the team had agreed. Caring about peers, understanding perspectives and feeling a sense of cohesion within the team potentially reduced avoidance behaviours. Participants felt they had to deliver on a promise or they would let their peers down. Indeed peers were vigilant of undesirable behaviour and teams regulated the behaviour by addressing it at team meetings which was prescribed by the team norms adopted.

Prati et al. (2003) concluded that one required a high level of emotional intelligence in order to represent oneself as a trustworthy team member. While Prati et al. (ibid) provided no empirical evidence to support this proposition, it can be more clearly understood in the context of the findings of the current study. All three subscales of trust increased significantly and demonstrated the increase of trustful behaviour in participants. Increasing trust involved identifying emotions, discussing emotions, managing emotions, both one's own and those of peers, and reacting in an honest, caring and reliable fashion.

It is theoretically plausible from these findings that trust developed as a result of this emotionally intelligent behaviour, but further research would be required before this conclusion could be definitively drawn.

An examination of total trust scores showed that 170 participants (73.6%) were judged by their peers to have increased their trustworthiness scores as a result of the EI training programme. Fifty-six participants (24.2%) were judged to have decreased their scores and 5 participants (2.2%) were judged to have shown neither an increase nor a decrease in their scores as a result of the EI training intervention. Similar to the communication scores, almost one quarter of participants were judged by their peers not to have exhibited increased trustworthiness following the EI training intervention. Reasons could include a failure to participate or a requirement for an alternative training design. Exit surveys would have proved informative and should be included in future iterations. Of the 56 participants who were reported to have a reduction in trustworthiness, 26 were also judged by their peers to have reduced their emotional intelligence scores as a result of the training intervention. Conversely, 30 were judged to have increased, showing no obvious pattern or relationship between reduced trust and reduced emotional intelligence.

9.2.3 Decision Making

There was a statistically significant increase in team decision making process skills from $Time_1$ to $Time_2$. This finding supported hypothesis 5, which stated that the training intervention to increase emotional intelligence can also enhance team decision making ability. Mean scores increased by 0.49 points and a small effect size of 0.05 (Cohen, 1988) was obtained showing the EI training intervention to have had a small effect on increasing decision making scores.

Decision-making styles were addressed in the programme to increase EI and consequently, an increase in the quality of the process involved in decision making was expected. Each participant completed a Decision Making Styles Questionnaire based on the model of Rowe, (1998) and concluded that their style fitted one of four categories: Directive (factual, task focused), Analytical (analyse alternatives, autocratic), Behavioural

(people-oriented, indecisive) or Conceptual (creative, intuitive, indecisive). Armed with this self-awareness, participants discussed the meaning of a team composed of members who possessed differing decision making styles. The emotional outcomes of these differences were discussed at team meetings.

Decision-making within teams was measured using a bespoke measure of team decision making process. The instrument was an aggregate measure, with each team submitting only one completed questionnaire. The measure was aimed at assessing the ease with which teams could discuss issues and resolve them to reach a consensus. There were no subscales in this measure and it consisted of only three items. The first item measured the team's perception of their effectiveness, which included their ability to draw on and use ideas, opinions and information offered by each team member when making decisions. The second item measured the team's perception of how well the team performed its tasks. The answer options ranged from not making progress due to loafing (1) to achieving targets continually (5). The final item referred to how the team shared responsibility for work with response options ranging from nobody taking responsibility (1) to every member taking personal responsibility (5).

Examining the results showed that of a total of 52 teams participating, 23 (44.2%) showed a decrease in aggregate decision making scores as a result of the EI training intervention, while 29 (55.8%) showed an increase. The finding is surprising in that so many teams failed to increase their decision making process skills as a result of the EI training intervention. The enhanced team communication skills, increased interpersonal trust, increased psychological safety and team development all pointed towards a caring team environment where decisions are reached through consensus and each member was encouraged to make a valued contribution. Interestingly, it may have been the case that although the team decision making process included these elements, they failed to enhance the overall process. More suggestions could have resulted in more discussion, and more disagreement.

The role of feedback was important in the team decision making process in this study. Decision makers obtained direct feedback from their peers at both facilitated team meetings and informal team meetings. Zeelenberg et al. (1996) highlighted the tendency

to avoid negative feedback which results in a failure to learn, conflict and reduced team performance. Realising that this tendency could exist in participants, feedback was enforced, to some extent, by discussion of decision options, challenging of decisions and the appointment of a 'devil's advocate' in teams. The communication of disagreement was couched in language that showed caring and perspective taking. Knowledge gained through self-awareness of decision style preference ensured participants realised the impact of individual difference.

Duffy (1992) identified that the quality of a decision will depend on the shared mental model of the group and how the group operates as a system with clearly defined roles, norms, etc. Duffy proposed the casting of a situation into a commonly shared frame of reference or 'big picture' in order for successful decision making to occur. This, he concluded, was dependent on the quality of communication and the level of trust between team members, with high levels of both resulting in more successful decision making. Support has been found for this argument in the current study. Team norms (Druskat & Wolff, 2001) and team roles (Belbin, 1981) were included as elements within the EI training intervention. Facilitated team meetings ensured the adoption of both norms and roles within teams. Findings showed significant increases in both trust between peers and communication. Based on Duffy's (1992) argument, these increases, coupled with roles and norms, would result in more successful decision making which was found in the current study. Increased overall and emotional trust facilitated a team environment where participants were not afraid to make suggestions and felt their inputs were valued and that their ideas would get a fair hearing. Knowledge of communication styles provided participants with frames of reference upon which to style communication. Open communication, where participants felt relaxed, enjoyed the interaction and occasionally resorted to the use of humour, allowed for lively discussion of decision options. The increase in social confirmation ensured perspective taking and a sense of caring developed. This argument provides a link between trust, communication and decision making but omits emotional intelligence. Emotional intelligence subscale results showed an increase in awareness and discussion of emotions, and the use of this knowledge to control emotions in the self and in peers. Being able to identify and understand the emotional content of social interaction is equally important to the outcomes of increased trust, communication and enhanced decision making. Humour would have no role

without an understanding of affect. Peers would not find self-deprecating wit or the release of tension through joking amusing unless they too had identified the underlying tense feelings of threat to the team. A sense of caring could not be established without an understanding and empathy with the emotions certain comments or actions would engender in peers. Behaviour could not be predicted without a logical cognitive argument about the relationship between felt emotions and consequent behaviour. Calling on past experience would not be possible without the analysis of causation of certain behaviour in certain contexts - driven by emotion. Self-regulation of emotion requires an understanding of social expectations of actions, norms and roles within a team to ensure appropriate adaptation to the team's social context. When this is achieved, members are less stressed and react in a controlled and constructive manner in problematic situations (Eisenberg & Fabes, 1992). Although Duffy (1992) identified the link between communication, trust and decision making, he failed to include a role for emotional intelligence.

Edmondson (1999) found that teams with poor psychological safety described themselves as getting stuck in blind alleys in their decision-making processes. Using a process of perfecting one solution at a time, before getting feedback, resulted in these teams going down a certain path for a while, developing details and then abandoning that path. A lot of time was wasted, consequently, and decisions taken were of a poor quality. The teams reported that they did not rely on other team members for information. There was a distinct lack of trust involved. Decision-making was always cautious as team members were mindful of producing the solution they felt management would approve of. There was a distinct lack of questioning of decisions and team members expressed worry that management would punish them for questioning decisions or team goals. The teams who were lacking in psychological safety made poorer decisions, produced far less creativity in their product development, lacked trust and communication between team members. In the current study, teams reported increased communication, trust and psychological safety, which, taking in account the findings of Edmondson (1999), suggest that these factors interact to produce better team making decision processes. The reported increase in team decision making process quality was not as widespread as expected at 56%, based on the large numbers of teams reporting increases in the other team process variables (e.g., 74% for Trust). This finding suggests the relationship identified by Edmondson

(ibid) is more complex. It was not enough, simply, to increase trust, enhance communication, and increase psychological safety to produce enhanced decision making processes within teams. It is theoretically sound to accept they play a role, and the findings of the study conducted by Edmondson (1999) provide support for the argument, but the findings in this study seem to point to alternative explanations. The EI training intervention was designed to create collaboration within teams in order to successfully complete assignments on time. Team members reported feeling valued, trusting of their peers, psychologically safe to make suggestions and test out new behaviour, and emotionally intelligent. The adoption of emotionally intelligent team norms (Druskat & Wolff, 2001) prescribed the appointment of a 'devil's advocate' in decision making to ensure all decision options were properly and thoroughly explored. This suggests team members would contribute freely and creatively (Rickards et al. 2001), feel a sense of team efficacy, involve all members in decision making and, ultimately, achieve a better decision making process. The fact that a large number of teams reported a decrease in decision making process quality may be explained by the fact that this new process took more time. If all team members had an input, decision making was slowed down. In addition to the slowing down of the process, the process could be deemed more messy. With so many viewpoints and so much discussion, there was theoretically, more room for conflict to arise. Conflict may have been judged by team members as a negative aspect of decision making, despite the importance of conflict being highlighted in lecturette. Team members who liked directive, authoritative styles of decision making would not enjoy collaborative decision making where every member had a say. Valuing every member's opinion is difficult when there are time limits on team outputs (assignments). An exit survey may have uncovered more information around decision making within teams and provided further insight.

According to Beach and Connolly (2005), a frame is a mental construct, which consists of all of the elements that are associated with a situation that relates to a decision. Framing can lead the decision maker to draw on private theories of how people tend to behave, stored knowledge from past experience and knowledge of how to achieve results. The complexity of the process, built over time suggests that a 12-week intervention may be insufficient to result in changes in framing. Emotional intelligence could impact on how participants communicate their frames, but would probably require much longer training

in order to directly impact the process, which may suggest an explanation for the fact that only slightly over half of the teams in this study reported an increase in team decision making process quality.

Cannon-Bowers and Salas (1990) suggested that shared mental models, or the sharing of perspectives, is key to understanding group processes in decision making and that framing impacts on perspective taking. Avoidance of conflict could be a motivator for changes in framing. As decisions become collective and open to discussion within teams, more careful thought has to be put into reaching decisions. When decisions are questioned by peers, there is an emotional reaction. That reaction can be positive if the initial decision is retained, perhaps resulting in a sense of pride and vindication. When the initial decision is overturned, there may be a loss of face, or embarrassment when some omitted aspects are highlighted (Zeelenberg et al. 1996). Emotional intelligence has a role then for both the decision maker and their fellow team members (Cooper, 1997; Duffy, 1992). Acceptance and praise for good decisions ensures the decision maker feels valued for their input. When initial decisions are discredited, it should be achieved in a caring manner. Empathy and perspective taking would ensure that the dignity of the decision maker remains intact (Akerjordet & Severinsson, 2004). Norms adopted by teams were designed to increase emotional intelligence (Druskat & Wolff, 2001) but included caring and perspective taking, creating an affirmative environment and solving problems proactively. Anticipation of problems before they occurred, using initiative to understand and obtain what is needed to be effective and relying on oneself if others failed to respond were proposed as proactive problem solving behaviours. According to Druskat and Wolff (2001), these norms built a team's ability to deal with emotionally challenging situations. The role of communication is also highlighted when group emotions can be regulated through communication by fostering an affirmative environment devoid of complaining and blaming. Communication of frames, emotions and decision options are all elements of team decision making. It would, therefore, be expected that emotional intelligence would underlie these processes and as emotional intelligence increased, so too did decision making process quality. The significant result obtained supports this. The number of teams who failed to report an increase in decision making process quality is a reminder that the relationship is complex. According to Druskat and Wolff (2001) emotionally intelligent teams are aware of their own individual members emotions, needs

and perspectives, the emotions, needs, and perspectives of their team as a whole, and also the ability to recognise the emotions, needs and perspectives of other teams. Even if this argument is accepted, the causal relationship between emotional intelligence and enhanced decision making is not clarified. It is not possible to identify whether emotional intelligence resulted in enhanced decision making, which is theoretically justified, or whether enhanced decision making resulted in increased emotional intelligence from the design of the current study. There is an association, however, and future research may elucidate the causal relationship involved.

9.2.4 Psychological Safety

There was a statistically significant increase in total psychological safety scores from $Time_1$ to $Time_2$. This finding supported hypothesis 6, which stated that the training intervention to increase emotional intelligence can also increase psychological safety within teams. Mean scores increased by 7.4 points and a large effect size of 0.62 (Cohen, 1988) was obtained showing the EI training intervention to have had a large effect on increasing psychological safety scores (62% of variance).

Druskat and Wolff (2001) identified team norms to produce emotionally intelligent teams. As part of the training programme to increase EI, teams implemented these norms. The norms facilitated the creation of a psychologically safe team environment in which team members felt they could contribute without the fear of censure from their peers. This safety, according to Edmondson (1999), results in increased learning and performance in teams. This is in evidence from the increase in scores obtained.

All four subscales scores of the Psychological Safety measure increased significantly from $Time_1$ to $Time_2$. Clear direction (subscale 1) included items that measured how clearly each team member saw the team's accomplishments and goals and if the team had spent time making sure each team member understood the team objectives. Repeated team meetings and discussions focused on both team process and team content issues. Team content issues required the setting of goals, assigning deadlines in order to achieve those goals and the division of tasks between team members as the overall task set was

too large to be achieved alone by any member. Emotionally intelligent team norms (Druskat & Wolff, 2001) required that teams create and measure task and process objectives and to check that time is being used effectively at team meetings. Each team member was invited to comment on every issue. In order to achieve a clear direction for the team many team process issues came into play. Team roles would have to have been assigned which would have involved discussion and reflection by team members on their strengths and weaknesses. Conflict resolution would have been required to ensure the team reached consensus on goals and deadlines and division of work. Leadership style would have been important with teams deciding which style they would adopt - alternating leadership at different stages, or shared leadership between all team members, or adoption of one competent leader who motivated their followers, or a choice between a task-focused or person-focused leader. Setting goals and ensuring each team member understood and subscribed to them is an important element in successful and effective team operation (Parker, 1990). The training intervention succeeded in increasing this skill among most participants (92%), establishing a theoretical link between increased emotional intelligence, increased psychological safety and increased team effectiveness.

Team efficacy (subscale 2) measured the confidence each team member felt that the team would achieve its goals and that it could do so without requiring unreasonable time or effort from the team members. It would be very difficult to feel motivated to give full participation to a project if it was felt it was doomed to fail from the outset. In order for members to give of their best, they had to be convinced they would be successful. Participants felt confident they would succeed in their tasks and that it was possible to do so without too much of a personal cost to them in terms of time and effort. To some extent, this demonstrates the team spirit or inter-reliance of participants on their team members. They would need members' co-operation to achieve all of their goals and this belief and confidence increased significantly as they worked together over the 12-week programme. Again team norms (Druskat & Wolff, 2001) ensured the creation of an affirmative team environment which reinforced team optimism and confidence at meetings. Pointing out that the team would get through difficult issues and solve problems proactively together represented norms adopted. Belief in success was nurtured by the team members through repeated interaction and as each team member reported back on completed tasks assigned. Socio-emotional positive acts of communication

(Bales, 1953) would also have been important in building confidence within teams (Afolabi & Ehigie, 2005). Supporting and giving information at team meetings would have ensured a positive team atmosphere conducive to achieving goals co-operatively (Van Offenbeek, 2001).

Increased trust between team members could also be seen to underpin team efficacy. As trust grew between team members a sense of feeling supported and valued would have developed. A sense of reciprocal trust, where participants also recognised and managed both their own emotions and their peers' emotions, would engender a collective strength within teams (Argryis & Schon, 1996; McAllister, 1995). This strength would result in increased confidence in the team's abilities and potential to fail would be greatly diminished. This is a possible explanation for the increase in team efficacy scores as a result of the emotional intelligence training intervention.

Team psychological safety (subscale 3) measured the climate within the team and how tolerant it was if members made mistakes, identified problems, or took risks. Also included were the ease with which peers could be asked for help, whether peers would undermine other peers' efforts and whether unique skills and talents were valued and utilised. People are very attentive to the tone and quality of social processes and are more willing to comply with these when they feel valued in a team (Tyler & Lind, 1992). Increased trust and socio-emotional positive communication show that teams became supportive environments (Costa, 2003). Adoption of emotionally intelligent team norms ensured perspective taking, interpersonal understanding, caring and acceptance of emotion in team members (Druskat & Wolff, 2001). The training intervention encouraged participants to reflect on their own emotions and the emotions of others, the reasons behind these emotional reactions and beneficial ways to control them. This training results in challenges to previous behaviour which, in turn, require new reactions and behaviour patterns. This is the essence of learning and individuals who understand their own emotions can more accurately identify and alter responses (Mayer & Salovey, 1997) to ensure a psychologically safe team environment.

Internal motivation (subscale 4) examined whether participants felt their opinion of themselves went up when they completed tasks well and, conversely, if they felt unhappy

if they had performed poorly. The design of the study forced participants to rely on their team members in order to obtain a collective team grade. It could be expected that within teams there would have been differing levels of motivation to obtain high grades and to put additional effort into the training to ensure those grades were obtained. The potential for conflict is again obvious as a result of this difference between peers. The aspect of the programme identifying differing levels of commitment and motivation to the team scores was not addressed in training and was left to participants to address at team meetings. The increase in this subscale shows that the issue was communicated within teams. It is not clear whether this communication was conscious or unconscious from the score, but the message that team members were relying on participants was clearly communicated and resulted in a sense of responsibility within participants to do their best. When participants performed well they felt good about themselves and, conversely, poor performance resulted in feelings of inadequacy. The role of trustworthiness (Costa, 2003), communication of expectations and team roles, tasks and deadlines, team norms of caring and perspective taking are all elements that could have engendered this sense of responsibility in participants. Censorship by team members, and increased pressure from them, could be powerful motivators to ensure participants worked hard to achieve the team goals (Druskat & Wolff, 2001).

The increase in all four subscales of psychological safety support previous findings in relation to differing levels of emotional intelligence. Due to the increased self-awareness in emotionally intelligent people of their strengths and limitations (Scott-Ladd & Chan, 2004), they are more confident, optimistic, flexible, innovative and willing to try new ideas (Bellack, 1999; Edmondson, 1999; Goleman, 1995; Mayer & Salovey, 1997). The increase in emotional intelligence as a result of the training intervention showed an associated increase in psychological safety within teams indicating that teams were developing as nicer environments to work in. This increase in psychological safety showed an increase in confidence felt by participants, increased motivation, increased team efficacy and a sense of clear direction. While any link between enhanced performance and these outcomes was not measured in this study, previous research suggests such a link exists. The current study supports the argument that increased emotional intelligence is associated with these outcomes by being associated with increased psychological safety.

Edmondson (1999) concluded that team psychological safety impacted learning behaviour, which in turn impacted team performance. Teams measuring high in psychological safety reported constant new ideas and suggestions on how things should be done. The team continually challenged themselves and team members undertook several different roles at the same time as the team tried many things quickly and often simultaneously. Team members described their team as able to make the right decisions: "I trust the people here that they're making the right decision for the function and for the team, and they feel the same way about me" (Edmondson, 1999, p. 375). Edmondson described psychological safety and trust within the team as the belief that facilitated the rapid, low-stakes experimentation behaviour the team exhibited. In contrast, teams with poor psychological safety made poorer decisions, produced far less creativity in their product development, and lacked trust and communication between team members.

The findings reported by Edmondson (1999) were largely supported by the findings of the current study. The increase in team decision making was related to the increase in psychological safety. In team decision making, advice is often sought, and feedback is given (Beach & Connolly, 2005). Emotionally intelligent teams spend time confronting, caring, creating an affirmative environment, and solving problems proactively (Druskat & Wolff, 2001; Goleman, 1998). As these skills are learned in the course of the EI development programme, teams became psychologically safer environments in which opinions were expressed and discussed. As trust was established between team members a more trusting environment was established into which risk taking was introduced without fear of recrimination (Edmondson, 1999). Finally, as intra-team communication became more effective, through interpersonal understanding, perspective taking, seeking feedback, caring and confronting in emotionally intelligent ways (Druskat & Wolff, 2001), a psychologically safer environment was established (Edmondson, 1999).

An examination of scores showed that 214 participants (92.6%) self-reported an increase in their psychological safety scores, 12 participants (5.2%) decreased their psychological safety scores and 5 participants (2.2%) showed neither an increase nor a decrease in their scores as a result of the EI training intervention. The large percentage of increases in psychological safety was higher than anticipated in light of the other percentage increases

in communication, trust, and decision making. The EI training intervention obviously impacted heavily on psychological safety.

Comparing the 12 participants who reported reduced psychological safety with participants who self-reported a decrease in emotional intelligence, there was an overlap of 5 participants. Conversely, 7 participants who reported a reduction in psychological safety also self-reported an increase in emotional intelligence. There is no obvious pattern or relationship between reduced psychological safety and reduced EI scores.

9.2.5 Team Development

Using Rickards, Chen and Moger's (2001) self-report instrument measuring factors essential to team development, participants showed significant increases in total scores and subscale scores. The statistically significant increase in total team development scores from $Time_1$ to $Time_2$ supported hypothesis 7, which stated that the training intervention to increase emotional intelligence can also enhance team development. Mean scores increased by 4.8 points and a large effect size of 0.51 (Cohen, 1988) was obtained showing the EI training intervention to have had a large effect on increasing team development scores.

Rickards et al. (2001) concluded from their study that team effectiveness, including team creativity, could be interpreted as a product of the impact of transformational leadership on a set of theoretically derived team development factors. Six of these factors (subscales) were measured pre and post-training.

An element of the training intervention included the use of Tuckman and Jensen's (1977) five-stage model of team development. Teams, according to the model, move through forming, storming, norming, performing and adjourning stages over the course of their working lives. As team members overcame conflicts, learned to appreciate individual difference and discussed the emotional aspects of their team life, teams were expected to progress towards the performing stage of the model in the current study. The performing stage denotes the team at its most productive, with every member fully engaged in

achieving the team goals. Participants completed self-report questionnaires on Tuckman and Jensen's (1977) model in weeks 4 and 12 of the EI training intervention. The purpose of this exercise was to facilitate participants in focusing on how their team was moving through the development process. In the storming stage members are unclear about team goals, member roles, leadership, and they lack trust. In the forming stage, members discuss how they can play a part in achieving goals, set targets and argue about how to achieve those goals. At the norming stage, members share information, work for the team, establish trust and support and develop amicable relationships with peers. The performing stage finds the group solving problems as a team, developing creative solutions, members are taking risks and expressing new ideas, share leadership and feel able to express disagreement with the team when warranted. The adjourning stage marks the end of the lifetime of the team and members go their separate ways. The results of these two questionnaires were not included in the study, but were used as part of the self-awareness development aspect of the programme. The instrument devised by Rickards et al. (2001) was used to measure any change in team development.

All six of the subscales of team development showed statistically significant increases from $Time_1$ to $Time_2$. Creative climate (subscale 1) evaluated the team climate and whether it was positive, interesting, challenging and whether team members trusted and supported one another to stimulate creativity in work situations. Trust and psychological safety increased significantly in teams as members worked towards common goals, experienced interdependence and became more emotionally intelligent. These changes occurred in tandem with an increase in creative climate. Team members felt they could take risks in their suggestion and be more creative without censorship from peers. They also felt valued in their teams. It was considered appropriate to disagree whenever a suggestion needed to be considered. Shared vision (subscale 2) measured if team members felt there was a sense of shared team purpose, and loyalty to that purpose without any sense of confusion. Cohesion within the team was evidenced by the increase in shared vision. Each team member felt included and valued as teams strove to achieve their goals. This subscale is very similar to clear direction (subscale 1) in Edmondson's (1999) measure of psychological safety which also showed a significant increase. It also measured how clearly each team member saw the team's accomplishments and goals and if the team had spent time making sure each team member understood the team

objectives. Repeated team meetings and discussions focused on both team process and team content issues and ensured that team members subscribed to a shared vision. Without a shared sense of purpose it is possible that some team members may inadvertently waste time going off on tangents. Confusion can similarly waste the resources of the team by distracting members from a desired path aimed at achieving goals. Loyalty of purpose among team members signifies that the team reached the performing stage of Tuckman and Jensen's (1977) model of team development. This stage of the model represents the most productive, with every team member focused on achieving team goals.

Resilience (subscale 3) measured the ability of team members to collectively solve problems when they arose, and to assess if team members had confidence in their own abilities to meet goals and recover from setbacks. Again this is similar to Edmondson's (1999) team efficacy (subscale 2) which measured the increase in confidence each team member felt that the team would achieve its goals and that it could do so without requiring unreasonable time or effort from the team members. Team motivation would be reduced by negative feelings of inability to solve problems or to reach goals. If a team got bogged down in problem solving due to the dominance of a single member, or a fear of being made to look foolish when making suggestions, valuable time would be wasted pursuing a direction which would not result in goal achievement or success. In addition, when that solution was abandoned, another solution would have to be tested, again requiring time and effort. The current study required a team project and a team presentation by a deadline and each team member was required to have an input in order to achieve those goals. The quality and standard of the work was left to the team to decide. This design tested the resilience of team members as each member was required to make an input and to do so in an emotionally intelligent fashion. Fears, worries and doubts had to be overcome in the supportive and psychologically safe team environment. Trust ensured that team members could rely on peers and positive communication style helped to lend support to weaker, fearful team members (Driver et al. 2000).

Ideas owners (subscale 4) measured how willing participants felt their team was to suggest and try new ideas and to take responsibility for making new ideas work. In a trusting, psychologically safe team environment it is safe to take risks. Emotionally

intelligent behaviour demands that risks must be owned and consequences faced in a mature way. If a suggestion appears to fail, the team member who suggested it must be willing to admit defeat and follow an alternative suggestion. This subscale is an indirect test of creativity within teams (Rickards et al. 2001) and shows that the ingredients necessary for creativity were present - trust, psychological safety, clear goals, a willingness to question decisions, and emotionally intelligent team norms. The increase in this subscale shows that the potential for creativity increased as a result of the EI training intervention by providing the background team factors necessary. Learning from experience (subscale 5) examined whether team members felt their team learned from mistakes, talked over what had gone wrong and then moved onto new ideas collectively. The increase in this subscale shows a maturity of team function, which again appears at the performing stage (Tuckman & Jensen, 1977). Feeling too much ownership of one's own decision can result in a sense of resentment when that decision is overturned in light of new facts. A willingness to learn ensures that there is an acknowledgement that the decision option is no longer appropriate and there exists a need to generate new options. This is emotionally intelligent behaviour. The emotions associated with losing out can be acknowledge, even communicated to peers, but must then be overcome for the benefit of the team in order to refocus on goal attainment. Feelings of resentment cannot be allowed to linger and disrupt the function of the team.

The final subscale, platform of understanding (subscale 6), measured participants' sense of understanding of the personal needs of their peers. The significant increase in this subscale shows an increased understanding of and respect for peers' viewpoints. Sharing knowledge, beliefs and assumptions create a shared sense of understanding within a team (Rickards et al. 2001). The design of the EI training intervention increased self-awareness among participants. The personality types, team role preferences, conflict handling styles, communication styles and decision-making styles of each participant was assessed using self-report measures. The results were then discussed at both facilitated team meetings and at informal team meetings. Team members compared their own results to those of their peers and discussed the potential impact of those differences on team functioning. It was expected that this increase in personal awareness would provide increased insight into diversity between team members. In turn, this diversity would lead to increased understanding. The significant increase in this subscale as a result of the EI training

intervention goes some way towards supporting this line of argument. Care must be taken not to draw too firm a conclusion though, as the subscale was only measured by one item in the abbreviated version of the scale used in this study.

An examination of scores showed that 212 participants (91.8%) self-reported an increase in team development scores, 16 participants (6.9%) decreased their team development scores and 3 participants (1.3%) showed neither an increase nor a decrease in their scores as a result of the EI training intervention. A very large percentage of participants reported an increase in team development scores, similar to psychological safety findings. The EI training intervention again impacted heavily on team development scores. This finding was expected due to the design of the training intervention which facilitated increased trust, enhanced communication, a psychologically safe environment, increased self-awareness, respect for diversity, and the intelligent use of emotion. These elements ensure teams function well and are effective (Druskat & Wolff, 2001; Edmondson, 1999; Jordan et al. 2002; Parker, 1990). They are also elements of a well developed team which has reached a high level of productivity (Tuckman & Jensen, 1977).

Of the 16 participants who reported a decrease in team development scores, 5 also self-reported a decrease in emotional intelligence scores. There is no obvious relationship here, as 11 of the participants who reported a decrease also self-reported an increase in EI.

9.3 Team Process Variables and Age

There were no significant relationships found between age and communication, decision making, psychological safety, or team development. A small, positive correlation was found between Trust $Time_2$ and age ($r = .14$, $N = 231$, $p<.05$). The result associated increased age with increased peer-reported trust in team members, but a similar result was not found for $Time_1$ data. Significant relationships between the team process variables and age was not expected as previous research has also failed to find any such relationship.

9.4 Team Process Variables and Gender

No gender difference was found for any of the team process variables of team communication, trust within teams, team decision making process, psychological safety within teams, or team development at either $Time_1$ or $Time_2$.

Baxter (2002) reported that males in the groups increased their "wit" levels significantly more than the females, since males have been known to employ this tactic more than females, particularly in mixed gender groups (Baxter, 2002). The current study failed to find support for Baxter's (ibid) claim as no significant difference was found between genders for the communication subscale measuring wit.

9.5 Reliability of measures

In general, all five scales used in Study 2 to measure changes in communication, trust, decision-making, psychological safety and team development proved reliable with high internal consistencies obtained.

9.5.1 Reliability of Communication measure

The Communicative Adaptability Scale (CAS) (Duran & Kelly, 1998) was reliable (Nunnally, 1978) and showed higher internal consistency at both $Time_1$ and $Time_2$ than previously reported, indicating that all items contributed in a useful way to the scale and that the scale acted as a consistent measure over time. Total scale Cronbach's Alpha Coefficient for $Time_1$ was .82 and .84 for $Time_2$ compared with .81 obtained by Cupach and Spitzberg (1983). Subscale Cronbach's Alpha Coefficients for $Time_1$ and $Time_2$ were also generally higher than previously reported by Duran (1992) and showed increases from $Time_1$ to $Time_2$ with one exception for subscale 1 (social composure), showing a reduction from .81 at $Time_1$ to .71 at $Time_2$. The paired-samples t-test using this subscale did show a significant increase, similar to the other four subscales so it was assumed that this reduction did not represent a flaw with the items but was more likely to be

attributable to the size of the sample. The subscale internal consistency reported by Duran (1992) was based on a very large sample size of 4,000 as opposed to the sample used in the current study of 231 participants.

9.5.2 Reliability of Trust measure

The Trust Scale (Johnson-George & Swap, 1982) proved reliable and showed considerably higher Cronbach's Alpha Coefficients for $Time_1$ and $Time_2$ than were previously reported for the overall scale and for all three subscales. Overall scale reliability reported by Johnson-George and Swap (ibid) using a sample of 435 participants was 0.83. In the current study Cronbach's Alpha Coefficients for $Time_1$ and $Time_2$ were 0.87 and 0.89 respectively. Similarly, Overall trust (subscale 1) increased from 0.69 to 0.93 and 0.94, Emotional trust (subscale 2) increased from 0.64 to 0.85 and 0.88 and Reliableness (subscale 3) increased from 0.70 to 0.79 and 0.83. $Time_2$ Cronbach's Alpha Coefficients were higher in all cases than $Time_1$ Coefficients indicating greater internal consistency at $Time_2$. Each item contributed in a useful way to the measurement of trust.

9.5.3 Reliability of Decision Making measure

The bespoke measure of decision making quality used in the current study yielded a Cronbach's Alpha Coefficient of 0.39 for $Time_1$ and 0.63 for $Time_2$. Both of these figures are below the desired level of 0.70 (Nunnally, 1978). The scale consisted of only three items, (loading onto one factor, trust) which could have been an issue in the low internal consistency results (Pallant, 2001). The scale item-total statistics did not identify the absence of any one of the three items causing an increase in Cronbach's Alpha Coefficients. It can be concluded that the measure was inconsistent when used with the current sample with such differences between $Time_1$ and $Time_2$ findings. In addition, the low result for $Time_1$ seems to indicate an inability of the measure to assess trust. This conclusion is, however, somewhat overturned by the findings for $Time_2$. Further development and testing of items should be undertaken before the measure is used in future studies. The addition of items may serve to increase the internal consistency and

the use and reuse of the scale across larger populations may serve to improve the instrument's reliability.

Paired-samples t-tests performed using the measure showed a significant increase in decision making process quality despite the poor reliability obtained at $Time_1$. This measure showed the smallest increase in mean scores in Study 2 and detected increases in only 29 (55.8%) of the 52 teams participating. This result was lower than expected and some of the cause may rest with the poor internal consistency of the instrument. This is worth baring in mind when interpreting the overall findings.

9.5.4 Reliability of Psychological Safety measure

Psychological Safety was measured using sixteen items from Edmondson's (1999) Psychological Safety and Learning Behaviour in Work Teams Instrument which contains 38 items in total. The subscales that were used were used intact. Edmondson (ibid) failed to report an overall scale reliability for the measure but Cronbach's Alpha Coefficients of 0.73 and 0.49 were obtained for $Time_1$ and $Time_2$ respectively in the current study. The $Time_2$ result was below the acceptable limit of 0.70 (Nunnally, 1978) indicating poor internal consistency and reliability over time.

Subscale reliabilities reported by Edmonson (1999) were based on a sample size of 496 participants. $Time_1$ results were lower than those reported by Edmonson (ibid) and $Time_2$ were much lower. Clear direction (subscale 1) was reported at 0.80 by Edmondson (1999) but a coefficient of 0.65 was obtained at $Time_1$ and only 0.18 $Time_2$ in the current study. Similarly, team efficacy (subscale 2) was reported at 0.63 (Edmondson, 1999) but a coefficient of 0.35 was obtained at $Time_1$ and 0.15 at $Time_2$. The remaining subscales did not exhibit such dramatic reductions from $Time_1$ to $Time_2$, although they did show reductions. Team psychological safety was reported by Edmondson (1999) to have produced a Cronbach's Alpha Coefficient of 0.82 but coefficients of 0.75 for $Time_1$ and 0.49 for $Time_2$ were obtained in this study. Finally, internal motivation (subscale 4) reduced from Edmondson's (1999) reported 0.64 to 0.53 at $Time_1$ and 0.38 at $Time_2$. The subscale item-total statistics identified that item 30 ("I feel bad and unhappy when I

discover that I have performed less well than I should have in my job/task") from subscale 4 (internal motivation) caused a reduction in reliability. Its removal at $Time_1$ would have increased the coefficient to 0.75 and to 0.50 at $Time_2$. The fact that $Time_1$ data produced an acceptable overall coefficient suggests that the instrument may be reliable in general. Further use of the measure with larger samples may provide clarity.

The lower Cronbach's Alpha Coefficients reported for $Time_2$ suggest the measure was not consistent at both times. Lack of internal consistency suggests the findings cannot be as confidently accepted for $Time_2$ as $Time_1$. The paired-samples t-tests performed using the measure yielded significant results both at total scale and subscale level so it is disappointing that some subscales produced such low coefficients which makes interpretation of those results less robust.

9.5.5 Reliability of Team Development measure

Team development was measured using fifteen items from the Self-Report Instrument for Exploring Team Factor, Leadership and Performance Relationships (Rickards, Chen & Moger, 2001) which contains a total of 21 items divided into 7 subscales with 3 items per subscale. Rickards et al. (ibid) failed to report overall scale reliability and no published results were found. Overall scale reliability of 0.76 was found at $Time_1$ and 0.68 at $Time_2$ in the current study. $Time_1$ results are high and indicate good internal consistency. However, $Time_2$ results are just below the acceptable level of 0.70 (Nunnally, 1978) and point to some problems with the measure when applied to the $Time_2$ data set.

Rickards et al. (2001) provided subscale Cronbach's Alpha Coefficients based on a sample of 1103 participants. In the current study, lower internal consistency was consistently found at $Time_1$ and at $Time_2$ than reported by Rickards et al. (ibid) and all values fell below the acceptable limit of 0.70 (Nunnally, 1978). The $Time_2$ findings were lower in four of the five subscales analysed than $Time_1$ findings as indicated by the overall coefficient of 0.68 for $Time_2$. Creative climate (subscale 1) was reported by Rickards et al (2001) at 0.79 but showed 0.68 at $Time_1$ and 0.55 at $Time_2$. Subscale 3

(resilience) reduced from a reported 0.73 to 0.59 at $Time_1$ and 0.44 at $Time_2$. Ideas owners (subscale 4) also reduced from a reported 0.74 to 0.48 at $Time_1$ and 0.39 at $Time_2$.

Shared vision (subscale 2) reduced from a reported 0.78 to 0.40 at $Time_1$ and 0.47 at $Time_2$ but was the only subscale to increase its coefficient at $Time_2$. Learning from experience (sub-scale 5) reduced from a reported 0.77 for the three item subscale to 0.56 at $Time_1$ and a very low coefficient of 0.25 at $Time_2$. In the current study only two items from this subscale were included, which may account for the reduction in coefficient. This does not explain, however, the large decrease from $Time_1$ to $Time_2$. It was not possible to calculate a coefficient for Platform of understanding (sub-scale 6) as only one item was included from the scale.

The subscale item-total statistics failed to identify any item which, by its removal, would increase the overall Cronbach's Alpha Coefficient at either $Time_1$ or $Time_2$. While the overall coefficient shows good internal consistency and was reliable over time, the subscale coefficients were very low in some cases, particularly at $Time_2$. The original coefficients reported by Rickards et al. (2001) were based on a large population of 1103 and suggest the measure performs well generally. The low subscale coefficients suggest caution should be taken before drawing firm conclusions from the findings. The paired samples t-tests undertaken at overall and subscale level showed significant increases from $Time_1$ or $Time_2$. Theoretically this result was expected, so the performance of the subscales is somewhat disappointing in light of the findings. Low consistency suggests the measure did not sufficiently differentiate similar high scoring participants at $Time_1$ and $Time_2$ from low scoring participants which causes some doubt in the overall findings.

9.6 Factor analyses of measures

Of the four scales used to measure communication, trust, psychological safety and team development, factor analysis of three of the four supported the factor structure previously outlined by their authors. The team development measure showed some difficulty with factor structure in the current data set. Decision making, which was measured using a

bespoke three-item measure loaded onto a single factor. Each measure is discussed in more detail.

9.6.1 Factor analysis of Communication measure

A varimax rotation (loadings > .3) was performed using five factors which explained 56% of the variance. The rotated solution showed support for the structure of the CAS presenting the five subscales. Subscales 1 (social composure), 4 (appropriate disclosures) and 5 (wit) emerged intact, while items from subscales 2 and 3 were mixed across the two factors. These subscales represented "social confirmation" and "social experience" respectively. Theoretically these items represent quite different constructs with social confirmation involving maintaining the other's social image and social experience referring to enjoying and participating socially. $Time_2$ results were not as supportive of the 5-factor structure as $Time_1$ results with just two factors retaining their items. Subscale 5 lost just one item and subscales 1 and 3 mixed across 2 factors. Given that the original measure factor-structure proved stable on a sample of 4,000 participants, the findings here do not warrant an exploratory factor analysis as they are judged to be close enough to the proposed structure.

9.6.2 Factor analysis of Trust measure

A varimax rotation (loadings > .3) was performed using three factors. The rotated solution showed strong support for the structure of the Trust Scale. Results supported the expected three-factor solution (McAllister, 1995) on both the $Time_1$ and $Time_2$ data, with the division of items over the subscales matching the subscale structure previously reported by McAllister (1995). Overall trust contained items 1-4, emotional trust contained items 5-7 and reliableness contained items 8-11 as expected. These findings coupled with the very high Crobach's Alpha Coefficients obtained for internal consistency show the measure as stable and robust ensuring interpretation of the results are similarly robust.

9.6.3 Factor analysis of Psychological Safety measure

A varimax rotation (loadings > .3) was performed using four factors. The rotated solution showed strong support for the structure of the scale proposed by Edmondson (1999), keeping all four subscales intact with the exception of item 23, which moved from subscale 3 to subscale 2. Each factor shared items from different subscales in the $Time_2$ data, with subscale 3 losing two items (items 23 and 27) to factors 2 and 3 (respectively). Item 23 ("Members of this team are able to bring up problems and tough issues") is very central to subscale 3 "psychological safety" theoretically, as it ensures the climate within the team is supportive enough to facilitate constructive criticism among members for the achievement of team goals and more efficient functioning. Its movement across factors in this study may not be conclusive, despite happening effectively on a sample of 462 (2 x 231) compared with the original sample of 496 used by Edmondson (1999). Further use of the scale may prove more conclusive in the future since low Cronbach's Alpha Coefficients (especially at $Time_2$) indicated some difficulties with the current data set including low internal consistency.

9.6.4 Factor analysis of Team Development measure

An exploratory factor analysis with varimax rotation (loadings > .3) showed some support for a six-factor solution, although there was some movement of items across subscales in both the $Time_1$ and $Time_2$ data. The original scale factor structure was based on a sample size of 1103 participants (Rickards et al. 2001) and each subscale consisted of three items. In the current study, subscale 5 ("learning from experience) was reduced to two items and subscale 6 ("platform of understanding") was measured using only a single item. This reduction in items may have weakened those subscales in the factor analysis.

The Cronbach's Alpha Coefficients for the subscales produced very low values, especially at $Time_2$, which indicated low internal consistency and reliability with the current sample. Again this may have been due to the reduction in items and repeated use with larger sample sizes of the entire measure may prove the measure to be more consistent and reliable.

9.6.5 Factor analysis of Decision Making measure

An exploratory factor analysis revealed one component with an eigenvalue exceeding one and all three items loaded onto this single factor at both $Time_1$ and $Time_2$. The single factor represented the "quality of the decision making process" within teams.

9.7 Multiple Regression Analyses

While causal relationships between increased EI and changes in the team process variables as a result of the training intervention cannot be concluded from the study design employed, results were examined to determine whether changes in these variables were associated with changes in EI.

A standard multiple regression analysis showed that the five team process variables only accounted for 6% of the variance in self-report emotional intelligence. Communication and trust were the only variables to show significant regression coefficients.

Druskat and Wolff (2001) established a clear theoretical link between emotional intelligence and trust through the adoption of emotionally intelligent team norms. Trust, a sense of identity, and a feeling of efficacy rely on emotions as they arise in environments where emotion is handled well so that groups benefit by building their emotional intelligence (Druskat & Wolff, 2001). Team norms engendering interpersonal understanding, caring, perspective taking and creating an affirmative environment within teams, ensure that team members feel safe in the team and this sense of safety results in increased trust. The findings here add empirical weight to their claims. Interpersonal trust increased and had a significant relationship with the increase in emotional intelligence.

Cooper (1997) posited that as one increased their emotional intelligence, there was a corresponding increase in intuition, leadership effectiveness, the capacity to trust and be trusted, a sense of integrity and authenticity, an appreciation of constructive discontent within the team, and the ability to find breakthrough solutions in difficult circumstances and make sound decisions. He did not provide empirical evidence for his views but cited

many anecdotal examples from work teams. The findings in this study show support for his arguments. Interpersonal trust measured the capacity to trust and be trusted, and, whether peers felt a team member possessed a sense of integrity (reliableness). As emotional intelligence increased as a result of the training intervention, trust also increased. Furthermore, the increase in trust showed a significant relationship to the increase in emotional intelligence.

Prati et al. (2003) proposed that EI and trust work together to ensure enhanced functioning in their conceptual model of enhanced team performance. Trust develops as a result of sharing of emotion-laden situations, for example, taking team members into one's confidence without the feelings of embarrassment or likely criticism (Johnson-George & Swap, 1982). This type of trust has been shown to be influenced by frequency of contact between team members and assistance behaviours such as sharing useful information and listening to team members' problems (McAllister, 1995). The design of the training intervention used in Study 1 to increase emotional intelligence ensured participants had to work together to achieve their goals. Individual difference was respected and a psychologically safe environment established which ensure team members felt valued and respected. Supporting, caring and listening were adopted as team norms from week 2 of the 12-week intervention, which encouraged trust between team members.

According to Prati et al. (2003), the dynamic nature of trust is created through team members' shared values, attitudes, moods and emotions, which results in behavioural expectations of team members to act in a trustworthy fashion. These expectations arise from intimate interactions between team members and continually serve to reinforce the trust network. Importantly, these interactions require team members to be aware of their responses, and to remain sensitive to how their responses are received by fellow team members (Jones & George, 1998). Prati et al. (2003) concluded that one required a high level of emotional intelligence in order to represent oneself as a trustworthy team member. The nature of emotional intelligence (measured in Study 1) showed increased ability to identify and control emotions in the self (factor 1) and in others (factor 2). This awareness of the emotional impact of both verbal and non-verbal communication on peers ensured that participants were careful in how they acted in team meetings. This care and attention subsequently ensured they appeared more trustworthy to their peers, supporting the conclusion of Prati et al. (ibid) that increased emotional intelligence resulted in greater

trustworthiness. This study provided further support for this conclusion in that increased peer-report emotional intelligence in participants was correlated with increased peer-report trustworthiness. As peers judged participants to have increased their EI levels, they also judged them to have increased their trustworthiness.

The flow of communication among team members is facilitated where ties between team members are built on high levels of trust (Brass, 1995). This is explained by Yang and Mossholder (2004) by the reduced likelihood of misinterpretations and misattributions occurring during discussions and disagreements. When group members trust that other group members are working toward the same goals, rather than in their own interest, there is greater acceptance of critical comments as constructive and responses are co-operative rather than retributive (Yang & Mossholder, 2004). Findings in the current study supported this argument. A climate of psychological safety, with the use of emotionally intelligent norms ensured that constructive criticism was valued within teams.

The use of team norms that govern how members communicate and interact with one another strongly influence the display of emotions (Yang & Mossholder, 2004). Suggested norms included openness that encourages members to express their opinions without fear of reproach. The emotionally intelligent team norms (Druskat & Wolff, 2001) adopted in the current study were similar and ensured participants felt valued and psychologically safe within their teams. While no measure of the success of these norms to induce emotional intelligence in participants was taken, the participant group showed increased trust, communication, psychological safety and team development. Theoretically these norms contributed to these outcomes by regulating team behaviour, interaction and communication, supporting the proposal by Yang and Mossholder (2004).

Lovelace, Shapiro and Weingart (2001) examined collaborative communication during intra-group disagreements and found that a collaborative style facilitated the expression of the speaker's concern and care for fellow team members. Feeling relaxed and accepted within the team, making appropriate disclosures and resorting to wit to diffuse tense situations were outcomes of the EI training intervention beyond increased EI. Participants identified their own preference for conflict handling and also the styles of their peers. They observed styles of team communication in role-play exercises and it

could be argued, theoretically, that both of these aspects of the training programme resulted in a more collaborative approach to team communication at team meetings. The increase in team psychological safety ensured team members felt comfortable making suggestions and opposing others' opinions. The adoption of a devil's advocate in decision making which was required by team norms (Druskat & Wolff, 2001) ensured healthy conflict occurred and decisions were fully explored before solutions were agreed. The sense of caring shown to peers was evidenced by the increased trustworthiness scores obtained. Despite disagreement, participants understood that the process of disagreement was essential to team functioning. Disagreeing in an emotionally intelligent way, using appropriate communication styles, maintaining trust and authenticity, ensured constructive conflict resolution.

The multiple regression analysis showed that the five team process variables only accounted for 9% of the variance in Factor 1, "ability to deal with own emotions" (Jordan, 2000) of self-report emotional intelligence. Decision making and trust were the only variables to show significant regression coefficients. Duffy (1992) concluded that successful decision making was dependent on the quality of team communication and the level of trust between team members, with high levels of both resulting in more successful decision making. Building on his ideas, it can be seen that the ability to identify and control one's own emotions would be vital aspects of communicating positively and in a trustworthy manner in a team setting. Taking criticism personally, bearing grudges and maintaining one's own goals separate from the team goals would become evident to peers through communication. This, in turn would possibly result in decreased trust and have a negative impact on team decision making. Team members would not feel safe suggesting new ideas or questioning the proposals of a team member who abhorred criticism and took it personally. Emotionally intelligent behaviour demands that a team member is able to bounce back from criticism, remain positive and accepting of new ideas. This explains the link between EI and trust and decision making.

The five team process variables accounted for 21% of the variance in Peer-Report EI and trust and decision making showed significant regression coefficients. As discussed, displaying emotionally intelligent behaviour engendered trust in peers and resulted in enhanced team decision making. Similar to self-report EI, trust and decision making showed significant regression coefficients with both factors of peer-report EI. Again, this

supports the conclusion of Prati et al. (2003) that one required a high level of emotional intelligence in order to represent oneself as a trustworthy team member. This trust, in turn, resulted in better team decision making.

9.8 Implications

The findings of the current study have both theoretical implications and practical implications. These implications are now discussed in the context of previous research and theory.

9.8.1 Theoretical Implications

There is general agreement that human emotions and qualities are developed through participation in social contexts (Argyris & Schon, 1981; Bruner, 1990; Lave & Wenger, 1991; Mole, Griffiths & Boisot, 1996; Nonaka, 1991; Polanyi, 1958; Van Offenbeek, 2001; Vygotsky, 1985). Group-based work has been described as the perfect opportunity for individuals to practice interpersonal skills, and therefore develop their emotional intelligence (Goleman, 1995, 1998). Study 1 outlined a training programme which successfully increased emotional intelligence in participants. While not specifically measured, it can be suggested that the placement of participants into teams afforded them the opportunities to develop the skills associated with emotional intelligence - the ability to deal with their own emotions and the ability to deal with others' emotions (Jordan, 2000). Similarly, the team setting facilitated the enhancement of team communication, the building of interpersonal trust, the enhancement of decision making processes, the development of psychologically safe team environments and overall team development which were measured in Study 2. It would not be possible to develop any of these skills either alone, or in the context of a very large group, where repeated interaction with the same individuals was absent or occasional. Repeated interaction with the same peers established patterns of behaviour which could be reflected upon and changed over the 12-week training intervention. The team, therefore, facilitated social learning (Bandura, 1977).

Team members are known to quickly build up stores of knowledge about fellow team-members through cues from interaction (Goleman, 1998). How this information is processed, and how it manifests itself through behaviour, at the level of the individual, ultimately depends on how sense is made of the inputs. This cognitive sense-making process is greatly influenced through knowledge of the self (Goleman, 1998). It is only

when equipped with this knowledge that introspection occurs, which, in turn, may alter behaviour (Weisinger, 1998). Emotionally intelligent behaviour, and the competencies involved therein, can then be acquired, practised and learned (Goleman, 1998). The EI training intervention placed strong emphasis on increasing self-awareness in participants through exercises and discussions at facilitated team meetings. Introspection was encouraged through the use of a diary. The success of these facets of the programme were reflected in the emotionally intelligent outcomes reported in Study 2. Participants communicated better through feelings more relaxed, enjoying interaction, making appropriate disclosures and using wit to deflect awkward social situations. Interpersonal trust increased which could be an outcome of the adoption of emotionally intelligent team norms (Druskat & Wolff, 2001) and open communication. Team psychological safety provided safe environments in which team members could alter behaviour, make suggestions and feel free from criticism and remain optimistic about their success (Edmondson, 1999). Teams developed to offer creative climates where members took responsibility for ideas, shared a team vision for task achievement and were resilient in the face of setbacks (Rickards et al. 2001). These outcomes mirror many of the traits of an effective work team (Parker, 1990). The findings support the claim that emotional abilities are important when developing effective team-working skills (Druskat & Wolff, 2001; Goleman, 1995; Mayer & Salovey, 1997).

The current study provided theoretical links between increased emotional intelligence, increased trust and psychological safety and enhanced team development. The training intervention that successfully increased emotional intelligence in participants included training elements to enhance communication and to improve decision making process quality. The increases in trust, psychological safety and team development were additional outcomes. They have been linked theoretically and practically to team function (Druskat & Wolff, 2001; Jordan & Troth, 2004; Goleman, 1998) and team performance (Edmondson, 1999; Parker, 1990; Rickards et al. 2001; Slaski & Cartwright, 2003). Links to emotional intelligence have been theoretical (Druskat & Wolff, 2001) with an absence of empirical evidence. The findings in this study provide a basis for future exploration of these links, which would bolster the reputation of emotional intelligence as being beneficial to team working.

9.8.1.1 Communication

Goleman (1998, p.174) defined communication as "listening openly and sending convincing messages". He proposed that people with competence in communication were effective in give-and-take scenarios, registered emotional cues in attuning their message, and dealt with difficult issues in a straightforward manner. Furthermore, they listened well, sought mutual understanding and welcomed shared information. They fostered open communication and stayed receptive to bad news as well as good news, which ensured a firm basis in reality. Goleman pointed out that being an adept communicator was the keystone of all social skills. Criticism has been levelled at Goleman (1995, 1998) for presenting claims in relation to emotional intelligence without empirical evidence. Findings from the current study provide support for his claims in relation to communication in the context of increased emotional intelligence. In Study 1 participants underwent a 12-week training programme which resulted in increased EI. In Study 2, five team process variables were measured simultaneously during the training programme. One of the variables measured included communication within teams and showed a significant increase as a result of the training intervention. While it cannot be claimed that increased emotional intelligence resulted in increased communication due to the design of the study, findings indicate that emotional intelligence has a role to play in enhancing communication.

Stewart and Barrick (2000) outlined how the type of task a team is set influenced the level of communication required to complete it. Stewart and Barrick (ibid) found that teams that were not highly dependent on each other to complete a task required lower levels of communication, and, therefore, experienced less opportunity for conflict. Teams who faced a task that called for higher interdependence of members necessitated higher levels of communication and this increased the potential for conflict in the group. Conflict was not measured in Study 2, but the design of the EI training intervention deliverables ensured interdependency among team members and a need for communication. Communication increased as a result of the EI training intervention supporting the proposal by Steward and Barrick (2000) that a team report and a team presentation would account for greater team communication. Task division, role assignment, problem solving, and motivation were important aspects of the tasks set. Successful achievement

of the tasks could not be achieved if each team member completed a part of the work. Collaboration was required to ensure the report flowed properly and all aspects of the solution were included. Similarly, the team presentation required collaboration. Collaboration, in turn, required communication. Simply increasing the amount of intra-team communication did not necessarily result in success. Open, caring communication in a psychologically safe team environment with trust and emotionally intelligent team norms present ensured each team member was motivated to give their best in a collaborative fashion. Oetzel (2001) found a link between enhanced communication processes and interdependence of team members which was again supported by the findings in the current study. Team members were interdependent due to the design of the EI training intervention and findings showed enhanced communication between participants as they needed to rely on each other.

Enhanced communication findings also support the theoretical model proposed by Sy and Côte (2004). Adopting the ability model of EI (Mayer & Salovey, 1997) and its four branches, Sy and Côte (2004) explained that to manage emotions in oneself and others, high EI individuals repair unpleasant emotions, enhance pleasant emotions, and employ strategies to alter emotions. This is achieved through communication and requires an emotional vocabulary. As participants increased their EI, they identified and regulated their own emotions and the emotions of their peers. This was achieved largely through communication. The use of wit to censure social loafing in teams is an example of the use of communication to control both emotions in peers and peer behaviour. Similarly, speaking in a caring manner ensured reticent team members were more inclined to participate in team decisions by overcoming their fear of embarrassment.

Afolabi and Ehigie (2005), in an examination of team interaction processes, found a positive correlation between EI and communication. This result was reflected in the current study. A significant positive correlation was found between communication and Self-Report emotional intelligence. In order to express emotionally intelligent behaviour, it is obvious that communication has a role to play. Perspective taking, caring, and influencing all take place through communication and, in turn, influence the behaviour of peers. Afolabi and Ehigie (2005) concluded that high EI individuals engaged in activities

that were both pro-individual and pro-social and felt emotions flexibly and appropriate to a situation, resulting in the link between EI and team communication.

Similarly, Rode et al. (2007) found a link between effective communication and EI. They explained this link existed for two reasons. Firstly, the ability to understand how environmental influences (e.g., message content, verbal and non-verbal cues) facilitate the transition from one emotional state to another is a central aspect of the Understanding Emotions dimension of EI (Salovey, Mayer & Caruso, 2002). This, combined with the ability to manage one's own emotional state (Managing Emotions dimension), should result in the display of appropriate passion and restraint when speaking, a key characteristic of effective oral communication (Walker, 2005). Secondly, EI is related to individual adaptive coping behaviours (Jordan, Ashkanasy & Hartel, 2002) which may influence communicative effectiveness. In addition, one of the defining abilities of the Managing Emotions dimension of EI is the capacity to connect or disconnect when feeling an emotion depending on its usefulness in the situation (Mayer & Salovey, 1997). This aspect of EI was expected to be relevant to oral communication in a team setting, given that public speaking and the expression of personal opinions was an essential component. The positive finding suggests support for these reasons, coupled with increased feelings of trust, psychological safety and more inclusive decision making. Emotionally intelligent communication assisted the development of these team process variables.

A significant correlation was not found between communication and Peer-Report emotional intelligence in the current study, suggesting that increased EI, as judged by peers, was not related to increased communication. This result is somewhat contradictory in that the relationship between communication and Self-Report EI was explained by the necessity for communication in order to demonstrate emotional intelligence. Possible explanations are that participants who increased their communication did not increase their emotional intelligence, or participants who increased their emotional intelligence exhibited this in ways other than through communication. Alternatively, changes in communication style and content may have been more obvious in the context of Self-Report EI than to peers. The finding suggests that the relationship between Peer-Report EI and communication is more complex than originally thought. The study design did not

facilitate the exploration of causal relationships, so further explanation of the finding is hampered. Future studies may provide greater explanation for this finding.

9.8.1.2 Trust

The reciprocal relationship between trust and emotional intelligence has been alluded to in much of the literature (Cooper, 1997; Druskat & Wolff, 2001; George, 2000; Goleman, 1995, 1998). There was, however, a distinct lack of empirical evidence to support this hypothesised relationship. The current study identified a direct link between increased EI and increased trust. It was not possible from the design of this study to identify whether the trust developed over the 12-week programme preceded or followed the increase in emotional intelligence. Trust was not an overt element of the training intervention in which participants were trained. However, trust increased between team members as a result of the training intervention that successfully increased emotional intelligence. This can be inferred from the fact that the participants already knew each other prior to the training, and had opportunity to develop trust. Cooper (1997) posited that over time, as trust deepens, other team members reciprocate and become more attentive to how people around them feel valued. This may not be the case based on the findings in this study. The use of a comparison or control group would have elucidated this point. According to Cooper (ibid), when team members trust themselves, extend trust to others and receive it in return, it becomes the glue that holds relationships together. It also frees up honest dialogue. A lack of trust prompts members to spend a lot of time and effort protecting, inspecting, doubting, checking, and weighing instead of doing work that is creative, collaborative, and value-added. Trust is achieved primarily on making emotional contact with people. Trust, for Cooper (1997), is one of the key characteristics of emotional intelligence without which emotional intelligence could not take place. Cooper did not provide empirical evidence for his beliefs. The current study supports to some extent Cooper's (ibid) proposal that trust is a key characteristic of emotional intelligence. However, it is not yet clear whether it is essential for trust to be present in order for emotional intelligence to increase or whether increased emotional intelligence causes increased trust. Further examination of the cause and effect relationship is required before a definitive answer can be found.

Prati et al. (2003) identified that emotional intelligence reflects the ability to read and understand others in social contexts, to detect the nuances of their emotional reactions, and then to use this knowledge to influence others through emotional regulation and control. This, according to Prati et al. (ibid), ensures EI is essential for effective leadership and team performance. In their conceptual model of enhanced team performance, EI and trust work together to ensure enhanced functioning. In this model, trust develops as a result of sharing of emotion-laden situations (e.g., taking team members into one's confidence without the feelings of embarrassment or likely criticism) (Johnson-George & Swap, 1982). This type of trust is termed "affect-based trust" (McAllister, 1995, p. 24) and it has been shown to be influenced by frequency of contact between team members and assistance behaviours (e.g., sharing useful information; listening to team members' problems). The increased scores in the subscales of emotional intelligence and trust provide support for the sharing of emotion-laden situations in a psychologically safe, caring team environment. Trust increased between team members and the proposal that trust and EI work together to ensure enhanced team functioning is conceptually possible. The removal of threat and conflict (Amason, 1996; Yang & Mossholder, 2004), the establishment of a caring environment and the use of open communication where each peer is valued can only serve to ensure each team member gives of his/her best (Abraham, 1999). Affect-based trust (McAllister, 1995) (measured here by subscale 2), was afforded an opportunity to increase through facilitated team meetings, informal team meetings and shared team tasks which created a sense of interdependency within teams. The tasks assigned to teams were suitably large that they could not successfully be completed without the input of each team member by the deadline provided, thus necessitating team co-operation. Oetzel (2001) found a positive relationship between co-operation and participation of group members and that communication processes in a group were dependent on the self-construal of the group as independent or interdependent. The focus on interdependency in this study worked in tandem with team norms and facilitated team communication to ensure participation of each team member so that co-operation could flourish.

Members of successful teams feel they can trust one another (Goleman, 1998) and Goleman (1998) defined trustworthiness and conscientiousness as maintaining integrity and taking responsibility for personal performance. Goleman (ibid) found that people

with this competence acted ethically and were above reproach. They built trust through their reliability and authenticity. They admitted their own mistakes and confronted unethical actions in their peers and subordinates. They were able to take tough, principled stands even if they were unpopular. The current study shows that increased trust is based on reliability (subscale 3) and authenticity and provides empirical evidence of this proposal. Emotionally intelligent norms adopted by teams ensured a psychologically safe, caring environment where participants could admit mistakes. Team environments also ensured errant behaviour was censured in participants. Personal responsibility had to be taken and ownership of duties was demanded by the design of the programme as each participant was required to contribute to both aspects of assessment (i.e., team presentation and team report) and failure of any participant to comply placed the entire team in jeopardy. Integrity was valued as participants learned to read false displays of emotion as they got to know their peers on an emotional level.

Prati et al. (2003) concluded that one required a high level of emotional intelligence in order to represent oneself as a trustworthy team member. This study provided support for this conclusion in that increased peer-report emotional intelligence in participants was correlated with increased peer-report trustworthiness.

Role-play exercises have been identified as a valuable component in EI training. They can provide insight into personal values, beliefs, expectations, goals and self-image (Slaski & Cartwright, 2003). The communication role-play exercises used in the training intervention to increase EI (outlined in Study 1) is also likely to have contributed to an increase in communication skills. While the contribution of role-play exercises was not measured directly, it could be suggested that the exercises provided a practical display of team roles, communication style, the emotional impact of the style on peers and on the functioning of the team. In particular, socio-emotional negative acts (Bales, 1953) were identified as undesirable in teams and the role-plays highlighted communication that fell into that category (e.g., disagreeing, criticising). Participants became aware that their team would censure this kind of communication and delve into the reasons for it. Participants were then forced to confront their feelings and adopt alternative styles or suffer the disapproval of peers. This study supported the assertion of Slaski and

Cartwright (2003) that role-play exercises would provide insight into beliefs, expectations and self-image.

9.8.1.3 Decision Making

Findings in the current study support the claim by Beach and Connolly (2005) that decision making in groups is very complex. The use of frames and private theories were probably reasons for the relatively low initial score in the quality of the decision making processes in teams at the beginning of the EI training intervention. Team members had not yet become emotionally intelligent and called on their stored knowledge of previous interactions to guide their team interaction. Participants were known to each other previously, but it could be safely concluded that they had not previously worked in small, intimate team settings. They would not, therefore have possessed a detailed knowledge of each other. As participants increased their emotional intelligence they learned to identify and regulate both their own emotions and the emotions of peers. They also learned to take other perspectives, to care, to listen and to respect their peers (Druskat & Wolff, 2001). Cannon-Bowers and Salas (1990) suggested that shared mental models, or the sharing of perspectives, is key to understanding group processes in decision making and that framing impacts on perspective taking. As team members contributed at team meetings, a shared sense of understanding developed. This was evidenced by the increase in the subscales of psychological safety and team development (clear direction, shared vision, platform of understanding, psychological safety, creative climate, and internal motivation). This supports previous findings by Scherer and Tran (2001) which identified the importance of the group as an information processor and the relevance of group processing to the occurrence of both collective emotions and learning. Orasanu (1990) proposed that shared problem models included common understanding of the problem, goals, information cues, strategies, and member roles, all of which are based upon the team's mental model of the task and the team. This ensures a context exists in which communication can be interpreted, and a basis for predicting the behaviour and needs of other team members (Orasanu, 1990). The development of a sense of cohesion within teams was evidenced by the increase in trust and team efficacy. These developments, in turn, suggest movement towards cognitive consensus in teams and similarity among members regarding how key matters are conceptualised supporting the findings of

members regarding how key matters are conceptualised supporting the findings of Mohammed and Ringseis, (2001). Less time is spent in conflict, and decision making becomes easier, if team members frame decisions in a similar manner. This was evidenced by shared goal focus, shared vision, team efficacy and trust. Bettenhausen (1991) similarly described the development of a team's shared understanding as an essential group process and support is provided by the findings in relation to decision making process.

These findings also lend some support to the claim by Druskat and Wolff (2001) that proactive problem solving was one of the most powerful norms for building a team's ability to deal with emotionally challenging situations. The rationale outlined included a sense of power felt by the team, which resulted in control of team emotions and stronger team focus on task accomplishment. Each team member worked to bring out the best in their fellow team members by avoiding blame, inviting ideas, and retaining a sense of being able to overcome obstacles together. In this study team decision making afforded participants the opportunity to put into practice a lot of the learning outcomes of the EI training intervention. Emotionally intelligent norms had to be adopted, communication needed to be open to engender trust in peers, and psychological safety was required to ensure each peer participated fully in decision making. The task focus pressure ensured that communication was not simply around emotions but had an emotional content due to the deadlines imposed. Some participants wanted to obtain high grades in the assignments and this decision required negotiation and discussion with peers. Peers who had no interest in high grades needed to be motivated or, conversely, high achieving peers needed to lower their expectations to resolve team conflict.

Van Dijk and Zeelenberg (2005) identified regret as a comparison-based emotion associated with poor decision processes and bad decision choices. Some evidence to support this emotional outcome to poor decision performance was found by the increase in internal motivation. Participants reported feeling their opinion of themselves went up when they completed tasks well and, conversely, they felt unhappy if they had performed poorly. Participants made decision choices that resulted in task and performance outcomes. They then made judgements about this performance in light of team goals and decided whether or not they had performed well. The increase in scores in this subscale

of psychological safety suggests that participants took responsibility for their performance and felt regret when they did not perform well. This motivation was probably engendered in participants through team meetings where goals were discussed. A sense of responsibility towards task accomplishment developed in team members which resulted in internal motivation.

The fact that 44% of teams reported a decrease in decision making process quality, despite increases in trust, communication and psychological safety suggests a more complex relationship between decision making and these team process variables than suggested by Edmondson (1999). Further examination of the decision making process undergone by teams would yield more information and possible explain this finding. Future research involving exit surveys and eliciting qualitative feedback of intra-team processes could reveal additional aspects of this complex relationship.

9.8.1.4 Psychological Safety

Edmondson (1999) found links between enhanced decision making and increased psychological safety. A similar relationship was found in the current study, which supports these findings. Edmondson (ibid), more importantly, identified that an absence of psychological safety within a team resulted in failure to explore decision options comprehensively, and adoption of single decision options and pursuit of those options alone until failure was admitted. Teams then retraced their steps and tried another solution, which resulted in loss of time and resources. This represents an interesting and useful finding, but it was not as clearly established in the current study. While 55% of teams reported enhanced decision making process quality, 93% of participants reported an increase in psychological safety. A higher percentage of teams would have been expected to report enhanced decision making process quality based on the findings of Edmondson (1999). A tentative explanation could be methodological in that team decision making quality was an aggregate measurement, while psychological safety was a self-report measure. This explanation does not account for the huge discrepancy. Further research into decision making within teams and its reliance on psychological safety is required to provide a better explanation for these findings.

9.8.1.5 Team Development

Findings in the current study suggest a relationship between team development, psychological safety and communication within teams. Theoretically, this is possible as open communication ensures that teams communicate effectively. Psychological safety ensures team members feel safe enough within their teams to make creative suggestions, feel valued and share a vision of how the team should achieve its goals. Rickards et al. (2001) theoretically linked team development factors to transformational leadership and productivity. It is probable that these factors result in a highly developed team capable of enhanced productivity, but further research is required to establish that link definitively.

9.8.2 Practical Implications

The findings from the current study suggest that placing participants in teams for training purposes provided benefits beyond those expected. The training programme which increased emotional intelligence included training in communication and decision making process skills. Findings show that participants also developed interpersonal trust. Trustworthiness increased through a sense of mutual dependency within teams in order to complete team assignments. Psychological safety also increased within teams, making teams safer environments for participants to take risks with their behaviour and to grow. Finally, team development was also enhanced with participants exhibiting ownership of ideas and taking responsibility for meeting goals. These additional findings can be directly attributed to the intra-team interaction afforded by the placement of participants into teams. In teams social interaction was essential. Members who may have ordinarily favoured low levels of social interaction were forced to play an equal part in the function of their team. The additional benefits beyond those overtly included in the training intervention support the use of teams in training involving social interaction and social learning.

The findings suggest it would not be sufficient to place participants into teams and leave them to their own devices. In the current training programme, teams were facilitated

throughout the programme. Facilitation ensured teams addressed process issues and were equipped to deal with them as they arose. When using teams in training interventions of any sort, it would be essential to spend time addressing team process issues from the outset so that they can be addressed openly and allow the team to progress towards maximum performance.

Adoption of emotionally intelligent team norms (Druskat & Wolff, 2001) ensured that team members knew the types of behaviour that were acceptable within their team and, equally, the types of behaviour that would not be tolerated. This sense of clarity ensured that team members made less social mistakes in their teams. Norms were not established through trial and error but laid down definitively from the outset. The results suggest that the statement of both acceptable and unacceptable team behaviour from the outset reduces the time spent in the initial phases of team development identified as 'Forming', 'Storming' and 'Norming' (Tuckman & Jensen, 1977). When team norms are stated and adopted by team members, they can, potentially, progress to the 'Performing' stage (Tuckman & Jensen, 1977) of team life at a faster rate. Stating and adopting team norms that govern team behaviour from the outset represent a beneficial initial stage to team use.

Self-awareness was an important element in the EI training intervention employed in this study. Participants learned their own and their peers' styles of communicating, dealing with conflict, decision making, and personality diversity. They also learned the potential impact of these differences on their team and on team output. This knowledge underpinned acceptance of team members and decisions to change behaviour (Goleman, 1998; Weisinger, 1998). Highlighting the role of self-awareness in personal development when using teams in training again suggested additional benefits to participants. When team members accept that it is permissible for team members to interact differently, adopt differing styles of task achievement and to place differing levels of emphasis on aspects of team life, there is potentially greater acceptance of fellow team members. This acceptance of individual difference underpins growth and development within the team, evidenced by the increases in psychological safety and team development (Edmondson, 1999; Rickards et al. 2001). Taking time to assess the reason for individual difference within teams is potentially a worthwhile exercise, as is identification of one's own

preferences. It is a simple element of team training to introduce, and could be included in a diary designed to aid reflection.

9.9 Limitations

The design of the study was such that it was not possible to identify the order of relationships between emotional intelligence and the team process variable of trust, communication, decision making, psychological safety and team development. Correlations were found identifying relationships but cause and effect could not be identified due to the design. The claim that emotional intelligence results in enhanced performance in teams cannot be supported empirically by the study design because performance was not measured, even though the team process variables measured have been directly linked to enhanced team performance (Costa, 2003; Dionne, 1998; Edmondson, 1999; Jordan et al. 2002; McAllister, 1995; Parker, 1990; Rickards et al. 2001).

The single most significant limitation of this study is the absence of a matched control group, or a suitable comparison group. It was not possible to measure the team process variables of communication, trust, decision making, psychological safety and team development in the comparison group (used in Study 1) because these participants did not work in teams. It would be important to obtain measures of each in a control group of people working in teams at the beginning and the end of a 12-week period to ensure the increases recorded were attributable to the EI training intervention alone.

In Study 2, as in Study 1, knowledge of how long participants had existed in their larger work-based teams prior to the EI training intervention would have been beneficial. Some understanding of the possible effects of previous acquaintance on the team process variables of communication, trust, decision-making, psychological safety and team development could have been explored and discussed.

Time pressure did not allow the calculation and comparison of total scores for participants before they completed the training intervention. If this had been possible, it would have

been useful to conduct an exit survey on participants, particularly those who failed to show an increase on some of the team process variables as a result of the EI training intervention. Feedback on potential improvements to the programme would have been beneficial, particularly to future designs.

9.10 Future Research

The use of a more equivalent control or a comparison condition would add weight to future findings. It is strongly advised to employ an appropriate control group in future studies to ensure any increases in team process variables are due to the training intervention alone.

Appropriate social processes are a product of trust (Jones & George, 1998). Findings here show that there is possibly a reciprocal relationship between social processes and trust - trust is a product of appropriate social processes. Future research should examine this relationship. The use of a more detailed measure of trust is advised in order to include more aspects of social processes within teams.

Exit surveys should be conducted on participants to obtain feedback on the training intervention when participants leave the programme. Information from these surveys should then be incorporated, if possible, into future designs.

Decision making is a complex process which becomes even more complex in teams (Beach & Connolly, 2005). The current study included a simple aggregate measure of team decision making quality which improved as a result of the EI training intervention. As decision making is such a complex process, future studies should endeavour to discover more about the relationship between emotional intelligence and decision making in teams. The current study took the approach that the increase in EI would result in enhanced decision making processes. Future studies would increase knowledge around emotions and decision making by measuring the effectiveness of the decision choice which teams opted for. If a link to increased productivity could also be established, by

having a performance measure, it would represent important advances in the study of emotional intelligence in teams.

A significant relationship was found between Self-Report emotional intelligence and communication as expected in the current study. However, this relationship did not exist for Peer-Report emotional intelligence and communication, which appears contradictory. Future studies should seek further explanation for this finding. Study designs which permit causality relationships to be identified would benefit any further explanations. If communication was necessary to demonstration emotional intelligence, it seems reasonable to ask why peers did not evaluate emotional intelligence through communication skills.

The inclusion of a measure of team performance would have been beneficial to examine any differences in performance between low and high EI teams and the effects of low and high levels of communication, trust, decision-making, psychological safety and team development and overall team performance. Future studies should, where possible, design their study to take team performance into account.

9.11 Conclusions

A sense of team interaction which was dynamic and supportive was evidenced from the significant increases in all of the team process variables, suggesting teams became more effective (Parker, 1990). The EI training programme contained elements focused at enhancing team communication and decision making. Increases in the other three variables of trust, psychological safety and team development which were not specific elements of the EI training programme, shows the additional benefits of emotional intelligence training to participants and teams. The literature provides links between these variables and enhanced team functioning, which ultimately, theoretically links emotional intelligence to enhanced team performance.

The absence of a control or comparison group in this study reduces the impact of the findings (compared with Study 1). It would be important to include this safeguard in

future studies to ensure the results are a result of the EI training intervention only. This would afford the conclusion that the training programme that successfully increased emotional intelligence in team members, also enhanced team process variables. These variables were enhanced communication, increased interpersonal trust, enhanced team decision making processes, increased psychological safety within teams and enhanced team development. Each of these variables has been associated with enhanced team performance in the literature (Afolabi & Ehigie, 2005; Boyatzis et al. 2000; Costa, 2003; Dionne, 1998; Druskat & Wolff, 2001; Edmondson, 1999; Goleman, 1998; Jordan et al. 2002; Rickards et al. 2001; Rode et al. 2007), and suggests that the training programme which increased emotional intelligence, and also increased these team process variables, establishes a theoretical link between increased emotional intelligence and enhanced performance. Future studies should examine this link and provide definitive empirical evidence to support the many claims made that increasing emotional intelligence results in enhanced performance (Bar-On, 1997; Druskat & Wolff, 2001; Goleman, 1995, 1998; Jordan & Troth, 2004; Lopes et al. 2004; Rickards et al. 2001).

Chapter 10 - General Discussion

10.0 General Discussion

This thesis consisted of two studies conducted simultaneously on a sample of 251 participants who were divided into teams and assigned tasks to be completed by a deadline, together with a comparison group (N = 100) who were taught the same concepts through passive lecture format. Study 1 involved a 12-week training intervention, which successfully increased emotional intelligence in the programme participants. Self-Report and Peer-Report emotional intelligence both increased. The peer result lends weight to the self report result, which could have been biased, with participants simply reporting increases as a result of participating. Peer results show that team members noted increased emotionally intelligent behaviour in their peers. Further empirical evidence of the effectiveness of the EI training intervention was evidenced by a lack of increase in emotional intelligence in the comparison group who attended lectures on similar topics to the experimental group for a 12-week period.

The design of the training intervention was based on a novel combination of ten previously successful techniques employed to increase emotional intelligence, which had largely been applied individually. They included increasing self-awareness through practical exercises, creating a need in participants to develop their emotional intelligence, placing participants in teams, using role-play exercises, using diaries to aid introspection, and adopting emotionally intelligent team norms. Learning was facilitated through brief lecturettes containing theoretical models, and the use of team homework to deepen learning. Feedback was provided to participants on their self-awareness exercises and they discussed the implications of style diversity for their team functioning at group discussions.

Study 2 measured five team process variables simultaneously with emotional intelligence measurement. Findings demonstrated enhanced communication in teams, increased interpersonal trust between team members, enhanced decision making process quality, increased psychological safety and enhanced team development. The training programme which successfully increased emotional intelligence in participants, also produced increases in each of the five team process variables.

10.1 Linking emotional intelligence and team process variables

Findings in the current studies suggest that working in teams facilitated the development of emotional intelligence in participants, but also increased the team process variables of communication, trust, decision making, psychological safety and team development. Trust was a peer-report measure of interpersonal trust which could only have been increased through repeated interaction between the same team members. Open communication was possible in a psychologically safe team environment, which also resulted in team development with each member focused and participating. Underlying the team process variables were a set of team norms which directed behaviour within teams and the use of both facilitated and informal team discussions ensured teams interacted continually. The teams were required to produce a team report and a team presentation for assessment which required input for each team member. One overall team score was assigned, which ensured interdependency within teams.

Teams were generally balanced for gender but female participants self reported higher levels of emotional intelligence than their male counterparts and were also judged by their peers to have higher emotional intelligence in peer-reported scores. This finding suggests that females possess and display higher levels of emotionally intelligent behaviour than males, and supports earlier findings by Ciarrochi, Chan and Caputi (2000) and Ciarrochi, Chan and Bajgar (2001).

Previous research findings supported the link between increased team process variables and increased emotional intelligence scores (Afolabi & Ehigie, 2005; Boyatzis et al. 2000; Druskat & Wolff, 2001; Goleman, 1998; Jordan et al. 2002; Prati et al. 2003; Rode et al. 2007; Sy & Côte, 2004; van Dijk & Zeelenberg, 2005). Correlational analysis showed significant relationships between emotional intelligence and each of the team process variables, supporting earlier findings.

Increased Self-Report emotional intelligence was strongly associated with enhanced communication between team members and increased Peer-Report emotional intelligence also showed a link with enhanced communication. The subscale analysis showed that participants felt more relaxed when communicating in their team, enjoyed participating

socially, maintained their peers' social images when communicating, adopted disclosures to appropriate levels and used wit to diffuse tense situation. These increases resemble the practical application of many aspects of emotional intelligence. Feeling relaxed and finding enjoyment arise when participants can discuss emotions comfortably, recognise emotions, control their emotions, and control others' emotions. The ability to read false displays of emotion would aid social confirmation (a subscale of communication), which measured maintaining a peer's social image. The adoption of the norm of caring (Druskat & Wolff, 2001) ensured team members took notice of the feelings and emotional displays of their peers. Saving face is important socially so that continued interaction is possible. The use of wit to dispel potential embarrassment or conflict situations shows an emotional maturity within teams. Adapting disclosures to the appropriate level of intimacy for the social exchange show an awareness of the emotions of peers and a willingness to control those emotions by considering them before making disclosures.

Enhanced communication was also associated with increased trust, increased psychological safety and team development. Communication could be seen to facilitate trustworthiness if it was emotionally intelligent. Peers would become more trusting when communication was enhanced because they would know what to expect from peers at team meetings, which contributed to the sense of reliability reported. They relaxed and participated and enjoyed the exchange because confrontation and attacks were kept to a minimum when team members exhibited caring behaviour. This sense of trust and enhanced communication was associated with increased team psychological safety, which resulted in motivated team members with clear direction towards their goals, and feelings of being valued, and able to contribute creatively to their team (Edmondson, 1999). The team developed to become creative, resilient, goal focused and confident (Rickards et al. 2001). Regression analysis showed a relationship between Self-Report emotional intelligence, communication and trust, further supporting the link between these three constructs.

Increased Self-Report emotional intelligence and Peer-Report emotional intelligence were also associated with trust. The subscale analysis of the peer-report interpersonal trust findings demonstrated that participants felt they could confide in peers about general and emotive situations, without fear of criticism or embarrassment. A sense of reliableness

was reported which showed a sense that peers would keep promises and commitments. Finally, participants felt their peers were honest and would play fair. Emotional intelligence equipped participants with the ability to identify and discuss emotions and to detect false displays of emotions. These abilities resulted in greater awareness of peers and the ability to behave in an emotionally intelligent way even in the face of potentially upsetting circumstances. Similarly, increased emotional intelligence ensured participants could identify, discuss and control emotions in their peers, potentially ensuring their peers felt better as a result of interacting with them. These feelings, in turn, resulted in an increased sense of trustworthiness between peers, evidenced by the findings.

Increased Self-Report emotional intelligence was associated with increased psychological safety within teams. Participants reported feelings of knowing the direction their team had to take to achieve their goals, confidence they could achieve those goals, a sense of motivation to achieve them and a feeling of safety around their participation in their team. Over ninety per cent of participants reported increased psychological safety as a result of the EI training intervention, which was a very high number. The relationship between emotional intelligence and psychological safety represents a novel finding. These two concepts have not been linked together in the literature previously. The link can be explained by the skills acquired in identifying emotions, discussing emotions and managing emotions, both in the self, and in others. As participants interacted in a more emotionally intelligent way, each team member felt they could contribute fully to the team and that their contribution would be valued. Emotionally intelligent team norms ensured each team member was valued and respected, cared about and invited to participate. This sense of inclusion, coupled with an intelligent use of emotions created cohesion within the team and a sense of motivation to work together to achieve the team's full potential. Increased psychological safety was also associated with enhanced decision making process quality and team development. When each member felt valued and motivated, they would contribute more fully, resulting in more decision choices and more discussion around decision options without fear of censorship. The ability to make mistakes and recover from them to facilitate learning is also an element of emotionally intelligent team norming (Druskat & Wolff, 2001). When participants felt psychologically safe, emotionally intelligent and motivated to fully participate in decision making, their teams developed. Team development was identified through increased

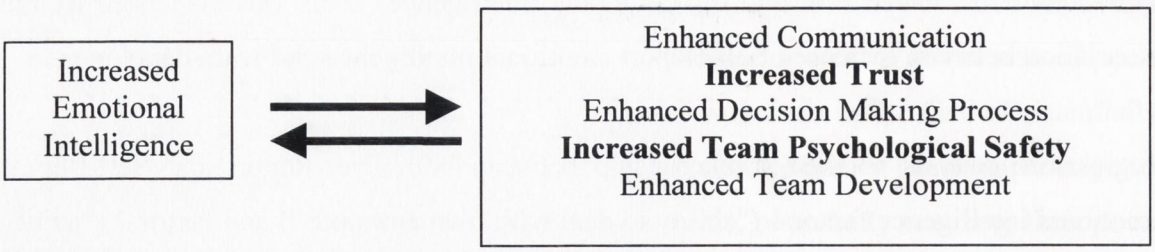
creativity, shared vision, resilience, ownership and responsibility for decisions and a sense of learning from experience. The team developed to a high level of competence and operational skill which was built on emotional intelligence. This was evidenced by the association between increased Self-Report emotional intelligence and team development.

Regression analysis showed a relationship between both Peer-Report and Self-Report emotional intelligence factor 1 ("ability to deal with own emotions") and factor 2 ("ability to deal with others' emotions") (Jordan, 2000) and trust and decision making. An awareness of one's emotions, the ability to discuss them and to apply them to thinking ensured that a participant appeared trustworthy to peers. Recognising emotions and controlling them in others also ensured that the participant took part in decision making as they behaved in an emotionally intelligent way at team meetings. Peers would welcome their inputs and have no reason to fear emotional outbursts. A link between Peer-Report emotional intelligence factor 2 ("ability to deal with others' emotions") (Jordan, 2000) and trust, decision making and team development was also found. Being able to recognise and manage the emotional states of peers contributed to team development supporting the theory that emotions play a critical role in developing and maintaining social relationships (Ashkanasy, 2003). Emotional intelligence is the key ingredient in the process of developing social relationships and working with other people in groups (Lopes & Salovey, 2001) and it also results in increased team development.

10.2 Team Performance

Results from both studies suggest links between emotional intelligence and the five team process variables of enhanced communication, increased trust, enhanced decision making process quality, increased psychological safety and enhanced team development. The design of the current research did not allow conclusion of causality to be drawn or to identify whether the increase in team process variables occurred as a result of the increase in emotional intelligence. Findings do suggest a relationship, however, which future research should explore. The findings from the current studies have been summarised diagrammatically in Figure 10.1 as a precursor to Figure 10.2.

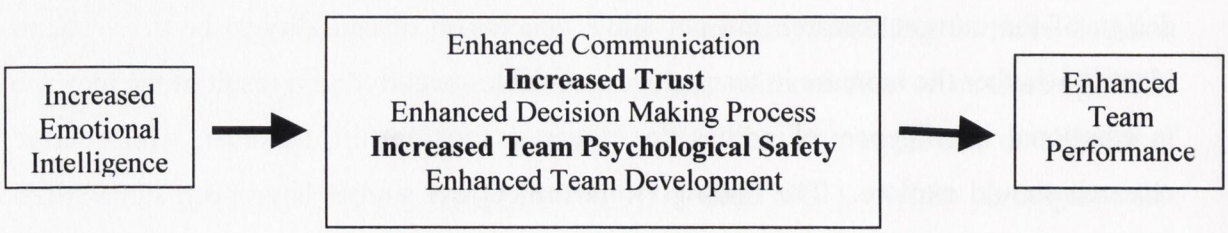
Figure 10.1: Linking emotional intelligence and team process variables



A tentative link between team process variables and performance has been established in some research (Afolabi & Ehigie, 2005; Boyatzis et al. 2000; Edmondson, 1999; Jordan et al. 2002; Rode et al. 2007), while other studies point to a theoretical link (Druskat & Wolff, 2001; Goleman, 1998; Rickards et al. 2001). While team performance was not measured in this study, this study was intended to lay solid foundations for future research into the link between increased EI, enhanced team process variables and team performance.

The link between increased emotional intelligence and enhanced performance has not been definitively or empirically established. Study 1 study provides a model of EI which is considered robust, a measure of EI relevant to teams and a training programme outline which resulted in significantly increased EI. At the same time study 2 provides evidence of the programme which increased EI also increasing team process variables of trust, communication, decision making, psychological safety and team development.

Figure 10.2: Proposed model of input-output relationship between emotional intelligence, team process variables and team performance



The next stage of the research process will need to establish links between emotional intelligence, team process variables which are known to enhance performance, and performance or productivity. Figure 10.2 depicts a theoretical representation of the anticipated relationship that would exist between the variables.

10.3 General Conclusions

The findings from study 1 provided strong support for the hypothesis that emotional intelligence can be increased through training. The Ability Model of emotional intelligence (Mayer & Salovey, 1997) has been identified as the most empirically robust model of emotional intelligence. The measure of emotional intelligence in work teams, WEIP-5, devised by Jordan (2000), provided a reliable measure of emotional intelligence in this study and is based on the Ability Model. This model of emotional intelligence has been considered the most accurate measure of emotional intelligence (Ashkanasy & Daus, 2005; Mayer & Salovey, 1997) in the face of many competing models and measures of the construct.

The findings from study 2 highlighted increases in team process variables in the participants in the emotional intelligence training intervention. Team process variables of enhanced team communication, increased trust between peers, enhanced team decision making process quality, increased psychological safety and enhanced team development showed significant increases. These increases occurred in conjunction with increased emotional intelligence suggesting links between emotional intelligence and these team process outcomes. Further research is required to empirically determine these links.

Increasing emotional intelligence can be considered a worthwhile endeavour in work teams. It not only increases the ability to identify, discuss and control emotions in oneself and one's peers, but also produces a creative team climate where each member is focused on success, can communicate openly, feels they can trust their peers and develops team motivation and team efficacy. Team decision making process quality is also enhanced as each team member is valued and contributes fully, taking personal responsibility for ideas. The findings provide a basis for the future examination of links between increased

emotional intelligence and enhanced team performance as theoretical links between the team process variables and performance already exist.

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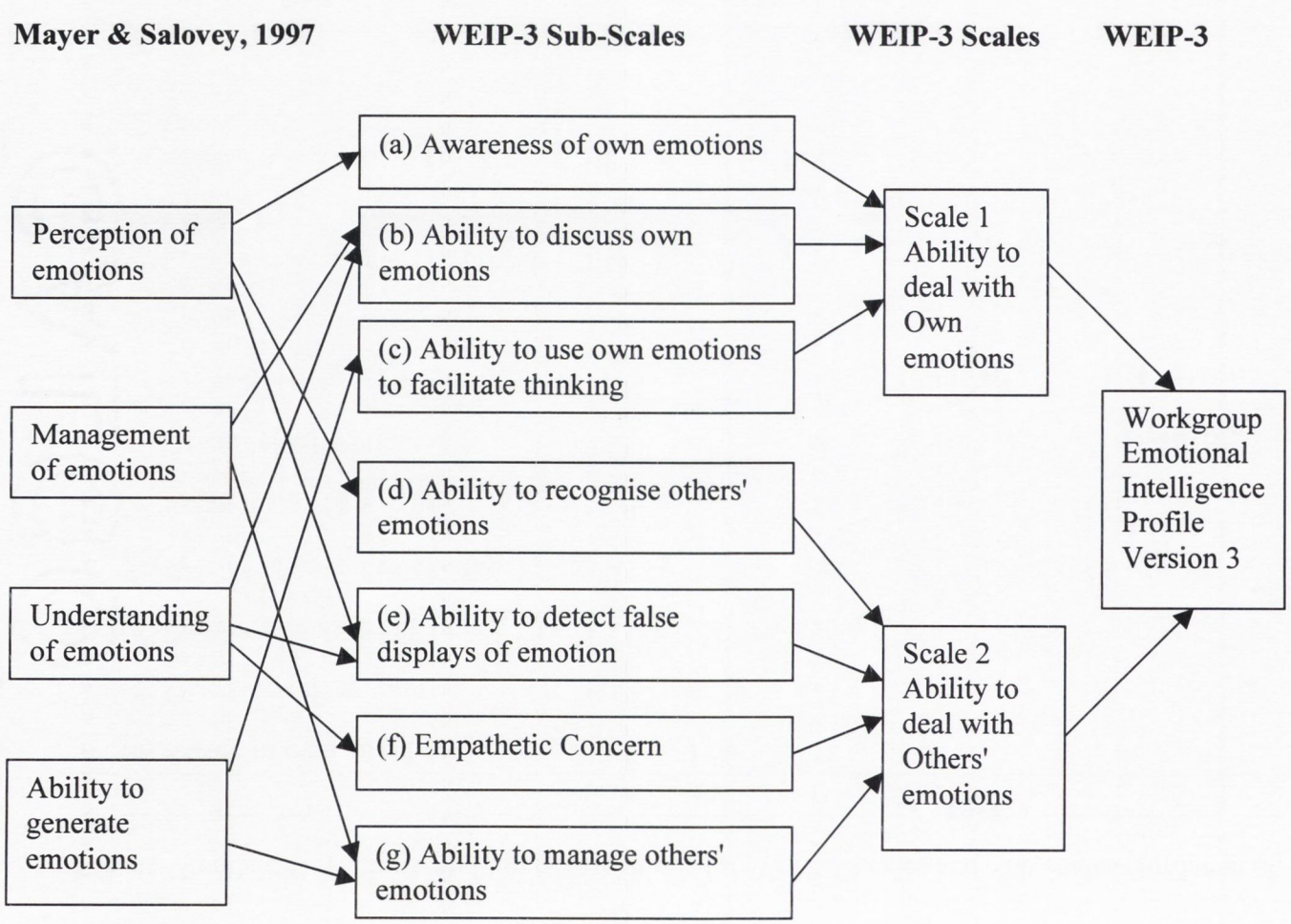
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Appendices

Appendix A

Comparison of Mayer & Salovey's (1997) MEIS and WEIP-3 Constructs (Jordan et al. 2002)



Appendix B

Means, Standard Deviations, and Inter-correlations for WEIP-3 Scales and Sub-scales (Jordan et al, 2002)

	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. (a) Aware of own emotion	11.01	1.66	.58									
2. (b) Discuss own emotion	16.15	4.76	.24	.75								
3. (c) Emotions facilitate thinking	36.13	5.86	.24	.35	.78							
4. Scale 1: Deal with own emotion	63.23	9.40	.46	.77	.84	.79						
5. (d) Recognise others' emotions	16.56	2.39	.31	.15	.24	.28	.83					
6. (e) Detect false emotions	10.03	2.01	.20	.10ns	.21	.22	.31	.63				
7. (f) Empathy	21.81	3.50	.23	.21	.34	.36	.25	.07ns	.71			
8. (g) Manage others' emotions	23.72	4.51	.28	.43	.41	.52	.23	.23	.36	.79		
9. Scale 2: Deal with others' emotions	72.16	8.47	.38	.40	.48	.57	.58	.48	.70	.80	.79	
10. Overall WEIP-3 score	135.49	15.97	.48	.67	.75	.89	.48	.39	.59	.74	.87	.86

Notes: Figures on diagonal are Cronbach alpha reliability coefficients.

All correlations significant at $p < .01$ unless otherwise indicated.

Appendix C

Correlations Between WEIP-3 and Validation Measures (Jordan et al. 2002)

	Ability to deal with own emotions	Ability to deal with others' emotions	Overall WEIP-3
Revised Self-monitoring Scale			
Acquisitive self-monitoring	.25**	.40**	.36**
Modify self-presentation	.22**	.33**	.31**
Sensitivity to others	.18**	.32**	.28**
Protective self-monitoring	-.17**	-.09	-.15*
Cross-situation variability	-.10	-.03	-.08
Attention to social comparison	-.20**	-.13*	-.19**
Trait Meta Mood Scales			
Attention to moods	.03	.08	.06
Clarity of moods	.25**	.17**	.24**
Repair of moods	.28**	.22**	.28**
Interpersonal Reactivity Index			
Perspective-taking	.43**	.27**	.40**
Empathetic concern	.08	.15*	.13*
Fantasy	-.05	.03	-.01
Personal distress	-.25**	-.29**	-.31**
Job Associate-Bisociate Review Index			
Associate	.09	.04	.07
Bisociate	.32**	.29**	.34**
Emotional Control Scale	.24**	.27**	.29**

*p< .05
**p< .01

Appendix D

Correlations Between WEIP-5 and other Measures (Jordan, 2000)

	Scale 1 Ability to deal with own emotions	Scale 2 Ability to deal with others' emotions	Self WEIP-5
Barratt Impulsivity Scale - 11 (BII11)			
Attentional Impulsivity	-0.23	0.06#	-0.18
Motor Impulsivity	0.09#	0.06#	0.03#
Non Planning Impulsivity	-0.22	-0.27	-0.27
Total Impulsivity	-0.23	-0.13*	-0.21
Need for Emotion Scale	*0.35*	*0.29*	*0.36*
Positive Affect Negative Affect Scale (PANAS)			
Positive Affect	0.29	0.34	0.34
Negative Affect	-0.24	-0.18	-0.25

Notes: All correlations ($p<.01$) unless otherwise stated; * = ($p>.05$) # = ($p<.05$)

Appendix E

SELF REPORT

WORKGROUP EMOTIONAL INTELLIGENCE PROFILE VERSION 5 (Jordan, 2000)

SCALE 1. ABILITY TO DEAL WITH OWN EMOTIONS

SUB-SCALE 1 - AWARENESS OF EMOTIONS

Constructs: Awareness of emotions.

1. I am aware of my feelings when working in my team

7. I am aware of the emotions I experience in my team.

17. I am not sure what emotions I experience when working with my team. (R)

34. When working in my team, I can easily identify which emotions I experience.

39. I'm not usually aware of my feelings when working in my team. (R)

SUB-SCALE 2 - ABILITY TO DISCUSS EMOTIONS

Construct: Ability to articulate emotions

8. I can explain the emotions I feel to team members.

24 If I feel down, I can tell team members what will make me feel better.

46. I find it difficult to tell fellow team members how I feel (R).

11. I can discuss the emotions I feel with other team members.

38. I can talk to other members of the team about the emotions I experience.

SUB-SCALE 3 - USING EMOTIONS TO PRIORITISE THINKING

Construct: Use of first impressions

10. When discussing issues in my team I usually draw on my first impressions.

30.. I draw on intuition and instinct when discussing issues within my team.

40. My first impression about issues are a starting point for me when working in my team.

19. First impressions form part of my opinion when discussing issues with team members.

Appendix E

SELF REPORT

WORKGROUP EMOTIONAL INTELLIGENCE PROFILE VERSION 5 (Jordan, 2000)

SCALE 1. ABILITY TO DEAL WITH OWN EMOTIONS

SUB-SCALE 1 - AWARENESS OF EMOTIONS

Constructs: Awareness of emotions.

1. I am aware of my feelings when working in my team

7. I am aware of the emotions I experience in my team.

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34. When working in my team, I can easily identify which emotions I experience.

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38. I can talk to other members of the team about the emotions I experience.

SUB-SCALE 3 - USING EMOTIONS TO PRIORITISE THINKING

Construct: Use of first impressions

10. When discussing issues in my team I usually draw on my first impressions.

30.. I draw on intuition and instinct when discussing issues within my team.

40. My first impression about issues are a starting point for me when working in my team.

19. First impressions form part of my opinion when discussing issues with team members.

2. I seldom have an initial feeling that something is right or wrong when working in my team (R).

SUB-SCALE 4 - APPLICATION OF OWN EMOTIONS TO FACILITATE THINKING

Construct: Ability to control emotional states
Construct: Perspective taking

3. When I am angry with a member of my team, I can overcome that emotion quickly.

4. I respect the opinion of team members, even if I think they are wrong.

12. When I am frustrated with fellow team members, I can overcome my frustration.

44. If a team member comes to me with a problem, I can listen to them without judging.

16. When deciding on a dispute, I try to see all sides of a disagreement before I come to a conclusion.

32. I am not very good at controlling my emotions when working with my team.

28. When talking to team members, I find it difficult to see the other side of an argument (R)

47. I am able to "bounce back" from an awkward situation with my team members.

FACTOR 2 ABILITY TO DEAL WITH OTHERS EMOTIONS

SUB-SCALE 5 - ABILITY TO RECOGNISE THE EMOTIONS OF OTHERS
Construct: Reading Others Emotional Displays

21. When I talk to a team member I can gauge their reaction from their facial expression.

22. When I talk to a team member I can gauge their reaction from the tone of their voice.

23. When I talk to a team member I can gauge their reaction from their body language.

42. I am aware of how others in the team are feeling.

13. I am able to describe accurately the way others in the team are feeling

27. I take notice of the mood my fellow team members are in.

48. I tend to be attentive to the reactions of my fellow team members.

SUB-SCALE 6 - ABILITY TO READ OTHERS FALSE DISPLAYS OF EMOTION
Construct: Ability to detect false displays

9. I can read my fellow team members "true" feelings, even if they try to hide them.

14. Fellow team members are able to conceal how they feel about issues from me (R).

31. I can tell when team members only pretend to be happy.

26. I can tell when team members don't mean what they say.

43. I find it difficult to tell when team members are not being sincere about how they feel (R).

SUB-SCALE 7 - EMPATHY
Construct: Empathetic Concern

15. I feel happy when fellow team members are treated well.

25. I am protective of team members who are being taken advantage of.

33. I feel angry when fellow team members are treated badly.

5. It is of little concern to me how other members of my team are treated (R).

37. How my fellow team members are treated is of concern to me.

SCALE 8 - MANAGING OTHERS EMOTIONAL STATES
Construct: Ability to encourage positive emotions in others
Assisting others to control emotional states

6. I am able to identify for team members the positive side of negative events.

20. If a team member gets angry, I find it difficult to calm him/her down (R).

18. My enthusiasm can be contagious for members of my team.

45. I can provide the "spark" to get fellow team members enthusiastic.

36. I am able to cheer team members up when they are feeling down.

29. I am able to influence other team member's attitudes and actions.

35. If a team member becomes frustrated, I can usually help them overcome this feeling.

41. Even if I am keen about a job, I find it difficult to get my fellow team members to share my keenness (R).

FINAL NUMBER OF ITEMS – 48

PEER REPORT WORKGROUP EMOTIONAL INTELLIGENCE PROFILE VERSION 5 (Jordan, 2000)

SCALE 1. ABILITY TO DEAL WITH OWN EMOTIONS
SUB-SCALE 1 - AWARENESS OF EMOTIONS
Construct: Awareness of emotions.

CAN BE TESTED THROUGH THEIR ABILITY TO DISCUSS EMOTIONS

SUB-SCALE 2 - ABILITY TO DISCUSS EMOTIONS
Construct: Ability to articulate emotions

6. This person finds it difficult to tell fellow team members how s/he feel (R).

12. This person can discuss the emotions she/he feels with other team members.

20. This person can talk to other members of the team about the emotions he/she experience.

SUB-SCALE 3 - USING EMOTIONS TO PRIORITISE THINKING
Construct: Use of first impressions

21. When discussing issues this team member usually draws on his/her first impressions.

7. This person draws on intuition and instinct when discussing issues with the team.

14. First impressions form part of this person's opinion when discussing issues in the team.

2. This person seldom mentions that she/he have an initial feeling that something is right or wrong when working with our team (R).

SUB-SCALE 4 - APPLICATION OF OWN EMOTIONS TO FACILITATE THINKING Construct: Ability to control emotional states
Construct: Perspective taking

3. When this person is angry he/she can overcome that emotion quickly.

22. When this person is frustrated with fellow team members, s/he can overcome their frustration.

26. This person is good at controlling his/her emotions when working in our team.

13. If a team member comes to this person with a problem, she/he can listen to them without judging.

15. When deciding a dispute between team members, this person tries to see all sides of a disagreement before coming to a conclusion.

8. When talking to team members, this person finds it difficult to see the other side of an argument (R)

FACTOR 2 ABILITY TO DEAL WITH OTHERS EMOTIONS
SUB-SCALE 5 - ABILITY TO RECOGNISE THE EMOTIONS OF OTHERS
Construct: Reading Others Emotional Displays

9. This person is aware of how others in the team are feeling.

16. This person is able to describe accurately the way others are feeling

23. This person takes notice of the mood I am in.

SUB-SCALE 6 - ABILITY TO READ OTHERS FALSE DISPLAYS OF EMOTION Construct: Ability to detect false displays

4. This person can read other team members "true" feelings, even if they try to hide them.

10.Fellow team members are able to conceal how they feel about issues from this person (R).

24. This person finds it difficult to tell when team members are not being sincere about how they feel (R).

SCALE 8 - INFLUENCING OTHERS EMOTIONS TO FACILITATE THINKING Constructs: Ability to encourage positive emotions in others
Assisting others to control emotional states

11. If a team member gets angry, this person finds it difficult to calm him/her down (R).

25. This person's enthusiasm can be contagious for members of my team.

5. This person can provide the "spark" to get fellow team members enthusiastic.

18. This person is able to cheer team members up when they are feeling down.

17. This person is able to influence other team member's attitudes and actions.

1. If a team member becomes frustrated, this person can usually help them overcome this feeling.
19 Even if this person is keen about a job, she/he finds it difficult to get his/her fellow team members to share their keenness (R).

FINAL NUMBER OF ITEMS - 26

Appendix F

Emotionally Intelligent Norms (Druskat & Wolff, 2001)

Individual, Group and Cross-Boundary Norms

1. Norms that create awareness of emotions

Interpersonal Understanding

1. Take time away from group tasks to get to know one another.
2. Have a "check in" at the beginning of the meeting, ask how everyone is doing.
3. Assume that undesirable behaviour takes place for a reason. Find out what that reason is. Ask questions and listen. Avoid negative attributions.
4. Tell team members what you are thinking and how you are feeling.

Perspective Taking

1. Ask whether everyone in the team agrees with a decision.
2. Ask quiet members what they think.
3. Question decisions that come too quickly.
4. Appoint a devil's advocate.

Team Self-Evaluation

1. Schedule time to examine team effectiveness.
2. Create measurable task and process objectives and then measure them.
3. Acknowledge and discuss group moods.
4. Communicate your sense of what is transpiring in the team.
5. Allow members to call a "process check" (e.g., asking if this is the most effective use of our time right now?).

Seeking Feedback

1. Ask your customers how you are doing. (In this case other teams and/or facilitator)
2. Post/share your work and invite comments.
3. Benchmark your process (against other teams).

Organisational Understanding

1. Find out the concerns and needs of others in the organisation.
2. Consider who can influence the team's ability to accomplish its goals.
3. Discuss the culture and politics in the organisation.
4. Ask whether proposed team actions are congruent with the organisations culture and politics.

Norms that help regulate emotions

Confronting

1. Set ground rules and use them to point out errant behaviour.
2. Call/confront members on errant behaviour.
3. Create playful devices for pointing out such behaviour - these often emerge from the group spontaneously. Reinforce them.

Caring

1. Support members; volunteer to help them if they need it, be flexible, and provide emotional support.
2. Validate member's contributions. Let members know they are valued.
3. Protect members from attack.
4. Respect individuality and differences in perspectives. Listen
5. Never be derogatory or demeaning.

Creating Resources for Working with Emotion

1. Make time to discuss difficult issues, and address the emotions that surround them.
2. Find creative, shorthand ways to acknowledge and express the emotion in the group.
3. Create fun ways to acknowledge and relieve stress and tension.
4. Express acceptance of members' emotions.

Creating an Affirmative Environment

1. Reinforce that the team can meet a challenge. Be optimistic (e.g., saying that the team will get through difficult issues; or that nothing will stop this team).
2. Focus on what you can control.

3. Remind members of the group's important and positive mission.
4. Remind the group how it solved a similar problem before.
5. Focus on problem solving, not blaming.

Solving Problems Proactively

1. Anticipate problems and address them before they happen.
2. Take the initiative to understand and get what you need to be effective.
3. Do it yourself if others are not responding. Rely on yourself, not others.

Building External Relationships

1. Create opportunities for networking and interaction.
2. Ask other teams about their needs.
3. Provide support for other teams.
4. Invite others (non-team members) to team meetings if they might have a stake in what you are doing.

Appendix G

Aggregate Team Decision Making Process Questionnaire

Directions: Team Number: _____

Read and consider the three items below. Discuss them as a team about your own team and how you have worked together. When you have come to a team decision about what answer your team (and not yourself) will give to each of the items, circle the option (1-5) that your team has decided upon.

Item 1

How effective is our team? Can we draw on and use the ideas, opinions and information of every one of the team members when making our team decisions?

1 We don't really encourage every member of the team to share their ideas, opinions and information with the rest of the team.
2 Only the ideas, opinions, and information given by a few team members are really known and used when we make our team decisions.
3 Sometimes we hear the opinions of most team members before we take a decision, but sometimes we disregard most members in the team.
4 A few team members can occasionally be hesitant to share their opinions, but generally most members participate in our team decision-making.
5 Every team member feels their ideas, opinions and information is given a fair hearing before team decisions are made.

Item 2

How well does your team perform its tasks?

1 We don't make any progress from meeting to meeting, there is a lot of loafing.
2 We make a little progress but most team members don't take it seriously.
3 Progress is mostly slow, but occasionally we get a good flow of effective work.
4 Our team performs above average in performance and speed of work.
5 Our team works very well and achieves targets continually.

Item 3

How does your team share responsibility for work?

1 Nobody really takes responsibility for ensuring work is done in our team.
2 Only one or two members take responsibility for getting work done.
3 At least half the team take responsibility for teamwork, but the other half do not take any responsibility.
4 Most of our team members take responsibility for ensuring the work gets done.
5 Every member of the team takes personal responsibility for ensuring the work gets done.

Appendix G

Trust Questionnaire (Johnson-George & Swap, 1982; McAllister, 1995)

Team No___ **ID No** _____

Scoring: Strongly agree ⟶ Strongly disagree

1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10

Directions: 1. Assign a letter to each of your team members, and write in their initials.

A___ **B**___ **C**___ **D**___ **E**___

2. Give a score between 1-10 for each team member on each of item.

		Peer A	Peer B	Peer C	Peer D	Peer E
	Overall Trust:					
	I can expect this person to play fair.					
2	I can confide in this person and know that s/he desires to listen.					
3	I can expect this person to tell me the truth.					
4	This person takes time to listen to my problems and worries.					
	Emotional Trust:					
5	This person would never intentionally misrepresent my point of view to other people.					
6	I can confide in this person and know that s/he will not discuss it with others.					
7	This person responds constructively and caringly to my problems.					
	Reliableness:					
8	If this person has promised to do me a favour, s/he would carry out that promise.					
9	If I had an appointment with this person, I could count on him/her to turn up.					
10	I could lend this person money and count on getting it back as soon a possible.					
11	I do not need a backup plan because I know this person will come through for me.					
	Total Score					

Scoring: 77-100 = High
45-76 = Medium
11-44 = Low

Appendix G

Communicative Adaptability Scale (Duran, 1992; Duran & Kelly, 1988)

There are no right or wrong answers, it is only your opinion that matters. Examine each statement and in the appropriate box beside each item, please place the number of the phrase that best captures how much you agree/disagree with the statement. Only tick **ONE** box.

		1 Never true of me	2 Rarely tru of me	3 Sometimes true of me	4 Often true of me	5 Always true of me
1	People think I am witty.					
2	In most social situations I feel tense and constrained.					
3	I enjoy meeting new people.					
4	My voice sounds nervous when I talk with others.					
5	I am verbally and non-verbally supportive of other people.					
6	I like to be active in different social groups.					
7	I try to make the other person fell good.					
8	When I embarrass myself, I often make a joke about it.					
9	When talking, my posture seems awkward and tense.					
10	I am relaxed when talking with others.					
11	When someone makes a negative comment about me, I respond with a witty comeback.					
12	I enjoy socialising with various groups of people.					
13	I do not 'mix' well at social functions.					
14	I feel nervous in social situations.					
15	I find it easy to get along with new people.					
16	I try to make the other person feel important.					
17	I try to be warm when communicating with other people.					
18	While I'm talking, I think about how the other person feels.					
19	When I am anxious, I often make jokes.					
20	I often make jokes when in tense situations.					
21	When I self-disclose, I know what I am revealing.					
22	I know how appropriate my self-disclosures are.					
23	I disclose at the same level that others disclose to me.					
24	I am aware of how intimate the disclosures of others are.					
25	I am aware of how intimate my disclosures are.					

Appendix G

Team Development Factors & Team Psychological Safety Scale (Edmondson, 1999; Rickards, Chen & Moger, 2001)

There are no right or wrong answers, it is only your opinion that matters. Examine each statement and in the appropriate box beside each item, please place the number of the phrase that best captures how much you agree/disagree with the statement. Only tick **ONE** box.

		1 Strongly Disagree	2 Disagree	3 Neither agree/disagree	4 Agree	5 Strongly Agree
1	The team climate was warm and positive.					
2	The team environment was interesting and challenging.					
3	The team members trusted and supported one another.					
4	The team tended to have a shared view ('vision') of team purpose.					
5	The team had strong loyalty to its team purpose.					
6	Team members had no confusion over team purpose.					
7	If we hit an unexpected problem, we pulled together to deal with it.					
8	If we hit a problem we had confidence in our own abilities to sort things out.					
9	We were able to bounce back after any setback to our plans.					
10	People in the team often suggested ideas and then ran with them.					
11	There were willing volunteers to try out new ideas.					
12	People in the team were willing to take responsibility for making new ideas work.					
13	We were good at learning from mistakes.					
14	We talked things over when things went wrong.					
15	It is clear what this team is supposed to accomplish.					
16	This team spent time making sure every member understands the team objectives.					
17	The team has invested plenty of time to clarify our goals.					
18	While I'm talking, I think about how the other person feels.					
19	Achieving this team's goals is well within our reach.					
20	This team can achieve its task without requiring us to put in unreasonable time or effort.					

21	With focus and effort, this team can do anything we set out to accomplish.					
22	If you make a mistake on this team, it is often held against you.					
23	Members of this team are able to bring up problems and tough issues.					
24	People on this team sometimes reject others for being different.					
25	It is safe to take a risk on this team.					
26	It is difficult to ask other members of this team for help.					
27	No one on this team would deliberately act in a way that undermines my efforts.					
28	Working with members on this team, my unique skills and talents are valued and utilised.					
29	My opinion of myself goes up when I do my job well.					
30	I feel bad and unhappy when I discover that I have performed less well than I should have in my job/task.					
31	I feel a great sense of personal satisfaction when I do my job well.					

Appendix H

EI Training Programme Delivery Schedule

Semester Week Number	Training Programme Activity
Week 1	*Orientation* Outline of EI programme. Team member assignment. Programme assessment outline.
Week 2	$Time_1$ EI measurement occurred in Week 2 of semester (Packs distributed in lectures 3 & 4) Team Norms lecturette. Team norms exercise; EI Team Norms (Druskat & Wolff, 2001) distributed and discussed. Diary work.
Week 3	Communication lecturette and exercises. Bales' (1953) Interaction Process Analysis distributed for completion at next team meeting. EI packs returned. Diary work.
Week 4	Team Development lecturette and exercises. Team Development Stages Questionnaire (Tuckman & Jensen, 1977) completed. Diary work.
Week 5	DVD for assessment shown in class and made available in library.
Week 6	Decision-Making Styles lecturette. Decision-Making Styles questionnaire. Diary work.
Week 7	Leadership Styles lecturette and link to Decision-Making Styles questionnaire results. Leadership Styles questionnaire (Marcic, 1992). Electronic link provided to on-line MBTI. Diary work.
Week 8	Personality Types lecturette.

	Results of MBTI shared and discussed in teams. Diary work.
Week 9	Conflict lecturette. Conflict Handling Styles Questionnaire (Thomas, 1976). Diary work.
Week 10	Team roles lecturette. Belbin's (1996) Team Role Inventory. Diary work.
Week 11	Team roles continued. Team roles summary and discussion per team. Diary work.
Week 12	Team Development Stages Questionnaire (Tuckman & Jensen, 1977) (Repeat). Discussion of changes in team development stage since week 4. Diary work.
Week 13	$Time_2$ EI measurement occurred in Week 13 of semester (Packs distributed in lectures 23 & 24). Diary work.
Weeks 14-15	*Assessment weeks* ➢ Assessment of Group Presentations ➢ Assessment of Group Report EI packs returned.

Appendix I

Team Content and Process issues identified by Experimental Group.

Content:

- Goal setting - deadlines, targets
- Goal reaching - order of goals, milestones
- Problem solving - continually resolving issues as they arise to keep momentum
- Collecting information - research, compilation, writing
- Work distribution - who will do what? Assigning tasks
- Deadlines - milestones along the way, completion dates, individual assignments
- Quality - who will compile and check everything

Process:

- Me/I - what do I know about myself already? What will I learn about myself from this experience? Am I open to learning? How do I feel? What emotions are evoked? How will I deal with those emotions as they arise? What are my coping strategies for felt emotions?
- Introspection - diary. How will different issues make me feel? What emotions will be evoked? Should I reveal everything to my group members or keep it to myself? Do I agree with what I see and perceive?
- Role play - What are my strengths and weaknesses? What are the strengths and weaknesses of my team members? How can we ensure we all play to our strengths and have someone to compensate for our weaknesses? Which role do I naturally fit? Can I change between roles? What emotions arise in me?
- Motivation - Will I do my fair share of the work? Will I coast/loaf on team members? Do I care how my team performs? Does it matter whether or not my team members like me? Will I lead or will I follow? What emotions are evoked?
- Self concept vs what is reflected back. Am I really the person I think I am? Do my team members see the real me? Do I agree with how they perceive me? Can I change or influence how they perceive me? How does that make me feel? Is this something I should communicate?
- Conflict - how do I deal with conflict? Should there be any conflict? What is causing the conflict? Will I work with my team to resolve the conflict? Will I rely on the team leader to resolve the conflict? How will I feel if I show/hide my emotions? How will I cope?

- Communication style - how do I tend to communicate in teams? Do I accurately communicate both verbally and non-verbally? How do others communicate? Can I change my communication style or the communication style of my team members? Can I communicate intelligently emotionally? Am I aware of appropriate levels of disclosure in emotions? Can I influence how others feel and how they communicate?

Appendix J

Results of Exercise on How best to Ensure a Team Failed to Function

- Failure to turn up for team meetings (Norm: Turning up on time for all team meetings or contacting team in advance to explain absence.)

- Non-completion of assigned tasks (Norm: Completing the tasks assigned to me to the best of my ability and reporting back to the team on time).

- Failure to speak/participate at meetings (Norm: Speaking up and offering opinions at team meetings; Participating fully at meetings while listening to the opinions of other team members).

- Disruptive behaviour (Norm: Being considerate of and courteous to other team members by listening, providing feedback, and displaying positive body language).

- Constantly questioning decisions (Norm: Expressing opposing opinions in a constructive manner; seeking clarification and consensus when my own opinion was not supported by other team members).

- Fighting about leadership (Norm: Accepting leadership and direction of team members who have the most to offer for any given problem even if they are not your favourite person in the team).

- Dominance by vocal person (Norm: When taking decisions, allowing all team members to voice their opinion and giving each member the opportunity to have an input into discussions).

A loose set of team norms were derived from this exercise by reversing the sentiment contained in each point e.g. Failure to turn up for team meetings established a norm of turning up on time for all team meetings or contacting team in advance to explain absence.

Appendix K

Team Norms: Results of Exercise

- Turning up on time for all team meetings or contacting team in advance to explain absence.

- Completing the tasks assigned to me to the best of my ability and reporting back to the team on time.

- Speaking up and offering opinions at team meetings; Participating fully at meetings while listening to the opinions of other team members.

- Being considerate of and courteous to other team members by listening, providing feedback, and displaying positive body language.

- Expressing opposing opinions in a constructive manner; seeking clarification and consensus when my own opinion was not supported by other team members.

- Accepting leadership and direction of team members who have the most to offer for any given problem even if they are not your favourite person in the team.

- When taking decisions, allowing all team members to voice their opinion and giving each member the opportunity to have an input into discussions.

Appendix L

Characteristics of Effective Teams (Parker, 1990)

1. Clear purpose	The vision, mission, goal or task of the team has been defined and is now accepted by everyone. There is an action plan.
2. Informality	The climate tends to be informal, comfortable, and relaxed. There are no obvious tensions or signs of boredom.
3. Participation	There is much discussion, and everyone is encouraged to participate.
4. Listening	The members use effective listening techniques such as questioning and summarising to get ideas out.
5. Civilised disagreement	There is disagreement, but the team is comfortable with this and shows no signs of avoiding, smoothing over, or suppressing conflict.
6. Consensus decisions	For important decisions, the goal is substantial but not necessarily unanimous agreement through open discussion of everyone's ideas, avoidance of formal voting, or easy compromising.
7. Open communication	Team members feel free to express their feelings on the tasks as well as on the group's operation. There are few hidden agendas. Communication takes place outside of meetings.
8. Clear roles and work assignments	There are clear expectations about the roles played by each team member. When action is taken, clear assignments are made, accepted, and carried out. Work is fairly distributed among team members.
9. Shared leadership	While the team has a formal leader, leadership functions shift from time to time depending on the circumstances, the needs of the group, and the skills of the members. The formal leader models the appropriate behaviour and helps establish positive norms.
10. External relations	The team spends time developing key outside relationships, mobilising resources, and building credibility with important players in other parts of the organisation.
11. Style diversity	The team has a broad spectrum of team-player types including members who emphasise attention to task, goal setting, focus on process, and questions about how the team is functioning.
12. Self-assessment	Periodically, the team stops to examine how well it is functioning and what may be interfering with its effectiveness.

Appendix M

Robert Bales (1953) Interaction Process Analysis (IPA)

- based on observations of 24 groups on 96 different occasions.
- 12 original categories to code the content of verbal communication.

1. Shows solidarity	
2. Shows tension release	***(socio-emotional***
3. Shows agreement	***positive acts)***
4. Gives suggestions	***(task- relevant***
5. Gives opinion	***acts)***
6. Gives Information	
7. Asks for information	***(task-relevant -***
8. Asks for opinion	***asking questions)***
9. Asks for suggestions	
10. Shows disagreement	
11. Shows tension	***(socio-emotional***
12. Shows antagonism	***negative acts)***

Appendix M

Bales' Interaction Process Analysis Score Sheet

Team No: _____ My name: _____ Peer's name: _____

This chart looks at how team members communicate at typical team meetings.

Instructions:
Take a typical 10 minute part of a typical team meeting conversation and analyse sequentially the contribution of two of your team peers under the following six categories. Enumerate and record how many times they performed any of the types of communication and put the number in the box opposite. (It is not necessary to score under every heading, as people may have one dominant style).

Verbal Category	Style	Occurrence	Notes
1. Proposing: ***putting forward new suggestions or ideas***	Task relevant act		
2. Building: ***developing/extending existing ideas made by someone else***	Task relevant act		
3. Supporting: ***declaring agreement with or support for ideas of others***	Socio-emotional positive act		
4. Disagreeing: ***criticism of views/ideas of others***	Socio-emotional negative act		
5. Giving information: ***giving facts, ideas or opinions, clarifying***	Task relevant act		
6. Seeking information: ***asking for facts, ideas or opinions from others***	Task relevant asking questions		

Appendix M

Tuckman & Jensen's (1977) Group Development Phases Questionnaire

Instructions: Complete the following questionnaire with reference to your team. Circle one response - either true or false - for each statement.
On completion of the questionnaire, it should show that several statements are true in one stage. This indicates the stage your team has reached. Occasionally teams may be between stages which will show overlap between stages.

Stage 1: Storming

1. Members are unclear as to what the group's goals are.	True	False
2. At each meeting there is always a lot of talk about who is supposed to do what.	True	False
3. Members frequently look to the official chairperson or informal leader for guidance.	True	False
4. There is rarely, if ever, any discussion of how members feel about things.	True	False
5. When direction is provided by someone in the group, the others are reluctant to follow.	True	False
6. Members seem reluctant to tell others what they really think about things.	True	False

Stage 2: Forming

7. People are discussing what part each will play in meeting the goal.	True	False
8. The group has developed a 'game plan' for achieving its priority objectives.	True	False
9. Measures are being produced to allow the checking of progress.	True	False
10. Group members look to others for direction as to what to do next.	True	False
11. Members argue a lot about what the group should be doing.	True	False
12. There are at least two people who want to be the group leader.	True	False

Stage 3: Norming

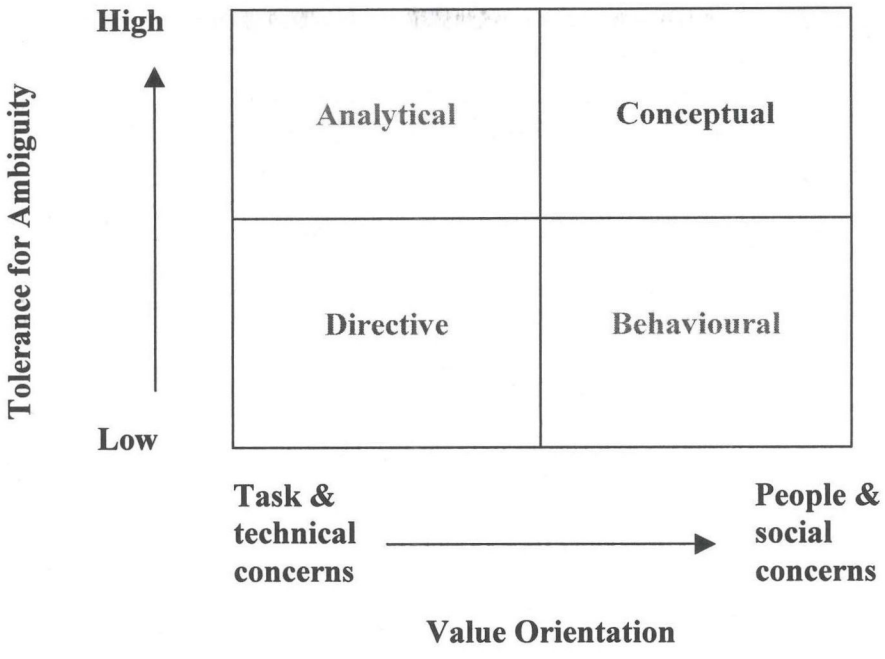
13. Members comment intermittently on how well or how badly the group is operating.	True	False
14. Information relevant to the task at hand is widely shared; little is kept hidden by individuals.	True	False
15. Most people are working for the group, rather than themselves.	True	False
16. There is a sense of 'togetherness' among the group.	True	False
17. Members trust and support each other.	True	False
18. Relationships between group members are, for the most part, amicable.	True	False

Stage 4: Performing

19. The group is becoming good at identifying obstacles to achieving its goal.	True	False
20. We can diagnose problems in the way we work as a team and fix them.	True	False
21. We often develop creative solutions to achieve our objectives in different ways.	True	False
22. In this group, I feel able to risk expressing new ideas.	True	False
23. I feel able to express my disagreement within the group, without others taking it personally.	True	False
24. Members take the lead as the situation requires it.	True	False

Appendix M

Decision Making Styles Orientation (Rowe & Mason, 1987)



Decision Making Styles (Rowe, 1998)

Directive: People of this style are oriented towards the job in hand and technical considerations. They are efficient, logical, practical and systematic in their approach to solving problems. Directive decision-makers like to focus on facts. In their pursuit of speed and results they can appear autocratic, controlling and focus on the short run.

Analytical: People with this style have a higher tolerance for ambiguity - they like to analyse more information and alternatives. Analytical decision makers are careful decision makers who take longer to make decisions. They can be autocratic but respond well to new situations.

Behavioural: People with this style are the most people-oriented. They work well with others, are supportive, and receptive to suggestions. They like to avoid conflict, and like to hold meetings but tend not to write things down. Can be a bit 'wishy-washy' in decision-making by not being able to say 'no' to people and not liking to make difficult decisions.

Conceptual: People with this style like ambiguity, but also like people. They like a broad perspective to problems and consider many options. Conceptual decision makers adopt long-term perspectives, and rely on intuition and discussion. They take risks and are creative problem-solvers. They can, however, be a bit indecisive.

Appendix M

Decision Making Styles Questionnaire

Directions

1. To discover your decision making style, read each of the 20 statements in Column A. You are provided with four possible responses in Columns B-E. Consider each possible response to a question and then rank them according to how much you prefer each response. Use either 1, 2, 4 or 8. No other numbers are permitted.

8 = most like you
4 = moderately like you
2 = slightly like you
1 = lease like you

There are no 'right' or 'wrong' answers here, just your preference. Write your preference in the blank box after each statement.
Use each number only once in response to a question, do not repeat the same number. Do not leave any boxes blank, fill them all in.

2. When you have completed all 4 boxes for each of the 20 statements, add the columns downwards to give a total for each column.

3. When you have finished, check your score for each style as follows:

Column B = Directive
Column C = Analytical
Column D = Conceptual and
Column E = Behavioural.

Column A	Column B		Column C		Column D		Column E	
1. My prime objective in life is to:	Have a position with status		Be the best in whatever I do		Be recognised for my work		Feel secure in my job	
2. I enjoy work that:	Is clear and well defined		Is varied and challenging		Lets me act independently		Involves people	
3. I expect people to be:	Productive		Capable		committed		responsive	
4. My work lets me:	Get things done		Find workable approaches		Apply new ideas		Be truly satisfied	
5. I communicate best by:	Talking with others		Putting things in writing		Being open with others		Having a group meeting	
6. My planning focuses on:	Current problems		How best to meet goals		Future opportunities		Needs of people in the organisation	
7. I prefer to solve problems by:	Applying rules		Using careful analysis		Being creative		Relying on my feelings	
8. I prefer information that is:	Simple and direct		Complete		Broad and informative		Easily understood	
9. When I'm not sure what to do, I:	Rely on my intuition		Search for alternatives		Try to find a compromise		Avoid making a decision	
10. Whenever possible, I avoid:	Long debates		Incomplete work		Technical problems		Conflict with others	
11. I am really good at:	Remembering details		Finding answers		Seeing many options		Working with people	
12. When time is important, I:	Decide and act quickly		Apply proven approaches		Look for what will work		Refuse to be pressurised	
13. In social settings, I:	Speak to many people		Observe what others are doing		Contribute to the conversation		Want to be part of the discussion	
14 I always remember:	People's names		Places I have been		People's faces		People's personalities	
15. I prefer jobs where I:	Receive high rewards		Have challenging assignments		Can reach my personal goals		Am accepted by the group	
16. I work best with people who are:	Energetic and ambitious		Very competent		Open minded		Polite and understanding	
17. When I am under stress I:	Speak quickly		Try to concentrate on the problem		Become frustrated		Worry about what I should do	
18. Others consider me:	Aggressive		Disciplined		Imaginative		Supportive	

19. My decisions are generally:	Realistic and direct		Systematic and logical		Broad and flexible		Sensitive to the other's needs	
20. I dislike:	Losing control		Boring work		Following rules		Being rejected	
TOTAL SCORE:								

Score Results:

When you have totalled all four columns, compare them with the following norms:

Directive - 75
Analytical - 90
Conceptual - 80
Behavioural - 55

Scores above these marks show that you are strongly adhering to that style. Scores below these marks indicate that you are moderately adhering to that style, and may also combine with another style.

Appendix M

Self-Diagnosis: Conflict Handling Styles (Baskerville, 1993)

Instructions: Each numbered item contains two statements that describe how people deal with conflict. Distribute five points between each pair of statements e.g. five and zero; or two and three; etc). The statement that more accurately reflects your likely response should receive the higher number of points.

			Score
1	a	I am most comfortable letting others take responsibility for solving a problem	
	b	Rather than negotiate differences, I stress those points upon which agreement is obvious	
2	a	I pride myself in finding compromise solutions	
	b	I examine all the issues involved in any disagreement	
3	a	I usually persist in pursuing my side of an issue	
	b	I prefer to soothe others' feelings and preserve relationships	
4	a	I pride myself in finding compromise solutions	
	b	I usually sacrifice my wishes for the wishes of a peer	
5	a	I consistently seek a peer's help in finding solutions	
	b	I do whatever is necessary to avoid tension	
6	a	As a rule, I avoid dealing with conflict	
	b	I defend my position and push my view	
7	a	I postpone dealing with conflict until I have had some time to think it over	
	b	I am willing to give up some points if others give up some too	
8	a	I use my influence to have my views accepted	
	b	I attempt to get all concerns and issues immediately out in the open	
9	a	I feel that most differences are not worth worrying about	
	b	I make a strong effort to get my way on issues I care about	
10	a	Occasionally I use my authority or technical knowledge to get my way	
	b	I prefer compromise solutions to problems	
11	a	I believe that a team can reach a better solution than any one person can working independently	
	b	I often defer to the wishes of others	
12	a	I usually avoid taking positions that would create controversy	
	b	I'm willing to give a little if a peer will give a little too	
13	a	I generally propose the middle ground as a solution	
	b	I consistently press to "sell" my viewpoint	
14	a	I prefer to hear everyone's side of an issue before making judgements	
	b	I demonstrate the logic and benefits of my position	
15	a	I would rather give in than argue about trivialities	
	b	I avoid being put on the spot	
16	a	I refuse to hurt a peer's feelings	
	b	I will defend my rights as a team member	
17	a	I am usually firm in pursuing my point of view	
	b	I'll walk away from disagreements before someone gets hurt	
18	a	If it makes peers happy, I will agree with them	
	b	I believe that give-and-take is the best way to resolve any disagreement	
19	a	I prefer to have everyone involved in a conflict generate alternatives together	
	b	When the team is discussing a serious problem, I usually keep quiet	
20	a	I would rather openly resolve conflict than conceal differences	
	b	I seek ways to balance gains and losses for equitable solutions	
21	a	In problem solving, I am usually considerate of peers' viewpoints	
	b	I prefer a direct and objective discussion of any disagreement	
22	a	I seek solutions that meet some of everyone's needs	
	b	I will argue as long as necessary to get my position heard	
23	a	I like to assess the problem and identify a mutually agreeable solution	
	b	When people challenge my position, I simply ignore them	
24	a	If peers feel strongly about a position, I defer to it even if I don't agree	
	b	I am willing to settle for a compromise solution	

25	a	I am very persuasive when I have to be to win in a conflict situation	
	b	I believe in saying "Kill your enemies with kindness"	
26	a	I will bargain with peers in an effort to manage disagreement	
	b	I listen attentively before expressing my views	
27	a	I avoid taking controversial positions	
	b	I'm willing to give up my position for the benefit of the group	
28	a	I enjoy competitive situations and play hard to win	
	b	Whenever possible, I seek out knowledgeable peers to help resolve disagreements	
29	a	I will surrender some of my demands, but I have to get something in return	
	b	I don't like to air differences and usually keep my concerns to myself	
30	a	I generally avoid hurting a peer's feelings	
	b	When a peer and I disagree, I prefer to bring the issue out into the open so we can discuss it	

Scoring

Record your responses (number of points) in the space next to each statement number below and then sum the points in each column.

Column 1 Forcing		**Column 2 Compromising**		**Column 3 Avoiding**		**Column 4 Accommodating**		**Column 5 Collaborating**	
3a		2a		1a		1b		2b	
6b		4a		5b		3b		5a	
8a		7b		6a		4b		8b	
9b		10b		7a		11b		11a	
10a		12b		9a		15a		14a	
13b		13a		12a		16a		19a	
14b		18b		15b		18a		20a	
16b		20b		17b		21a		21b	
17a		22a		19b		24a		23a	
22b		24b		23b		25b		26b	
25a		26a		27a		27b		28b	
28a		29a		29b		30a		30b	
Total		**Total**		**Total**		**Total**		**Total**	

36-45 indicates a strong preference for that style
19-35 indicates a moderate preference for that style
0-18 indicates little preference for that style

Appendix M

Leadership Style Preferences (Marcic, 1992)

A = Always B = Often C = Sometimes D = Seldom E = Never

	Leader behaviours	A	B	C	D	E
1	I would always act as the spokesperson for my group					
2	I would allow subordinates complete freedom in their work					
3	I would encourage overtime working					
4	I would let subordinates use their judgement to solve problems					
5	I would encourage the use of standard procedures					
6	I would needle members for greater effort					
7	I would stress being ahead of competing groups					
8	I would let subordinates work the way they thought best					
9	I would speak as representative for subordinates					
10	I would be able to tolerate postponement and uncertainty					
11	I would try out my ideas on subordinates					
12	I would turn subordinates loose on a job and let them go at it					
13	I would work hard for promotion					
14	I would get swamped by details					
15	I would speak for subordinates when visitors were around					
16	I would be reluctant to let subordinates have freedom of action					
17	I would keep the work pace moving rapidly					
18	I would give some subordinates authority that I should keep					
19	I would settle conflicts which occur between subordinates					
20	I would let subordinates have a high degree of initiative					
21	I would represent subordinates at external meetings					
22	I would be willing to make changes					
23	I would decide what will be done and how it will be done					
24	I would trust subordinates to exercise good judgement					
25	I would push for increased production					
26	I would refuse to explain my actions to subordinates					
27	Things usually turn out as I predict					
28	I would let subordinates se their own work pace					
29	I would assign subordinates to specific tasks					
30	I would be able to act without consulting subordinates					
31	I would ask subordinates to work harder					
32	I would schedule the work that had to be done					
33	I would persuade others that my ideas were to their advantage					
34	I would urge subordinates to beat their previous records					
35	I would expect subordinates to follow set rules and regulations					

Scoring

Employee-centred or consideration score

You get one point if you ticked either A or B in response to these questions:

2 ____	10 ____	22 ____
4 ____	12 ____	24 ____
6 ____	18 ____	28 ____
8 ____	20 ____	

And you get one point if you ticked either D or E in response to these questions:

14 ____ 16 ____ 26 ____ 30 ____

Total employee-centred score is: ____

Job-centred or initiating structure score

You get one point if you ticked either A or B in response to these questions:

1 ____	13 ____	25 ____	34 ____
3 ____	15 ____	27 ____	35 ____
5 ____	17 ____	29 ____	11 ____
7 ____	19 ____	31 ____	23 ____
9 ____	21 ____	32 ____	33 ____

Total job-centred score is: ____

Interpretation

Employee-centred score	Job-centred score	Your leadership style
0-7	0-10	You are not involved enough with either the work or with your employees
0-7	10-20	You are autocratic, a bit of a slave driver; you get the job done but at an emotional cost
8-15	0-10	People are happy in their work under your leadership, but sometimes at the expense of productivity
8-15	10-20	People enjoy working for you and are productive, naturally expending energy because they get positive reinforcement for good work

Appendix M

The Myers-Briggs Type Indicator (MBTI) profiles (Myers and McCaulley, 1998)

The four dominant functions and their associated characteristics, are summarised below:

(1) Sensing.

* Focus on immediate experience.

* Often develop characteristics such as enjoying the present moment; realism; acute powers of observation; memory for details and practicality.

* Direct conscious mental activity towards seeking the fullest possible experience of what is immediate and what is real.

(2) Intuition:

* Focus on possibilities, meanings and relationships.

* Often intuitions arrive from the unconscious. Spot patterns in unrelated events.

* Direct conscious mental activity towards seeking the furthest reaches of the possible and imaginative.

(3) Thinking:

* Impersonal, logical focus.

* Often develop characteristics such as analytical ability, objectivity, concern with justice and fairness, criticality and building from past to future.

* Direct conscious mental activity to seek order and plan according to impersonal logic.

(4) Feeling:

* Focus on values.
* Develop understanding of personal and group values, subjectivity, people focus, desire for harmony.

* Direct conscious mental activity to seeking rational order according to harmony among subjective values.

Belbin's Team Role Inventory

Instructions:

1. For each set of statements, labelled (a) to (i), distribute a total of 10 points. Distribute them on the basis of how true they are for you. Note there are no right or wrong answers, just what you feel is relevant to you. Take a few seconds to judge each statement. When distributing the 10 points you may wish to spread them between several of the statements depending on your judgement, or you may find just one or two statements are more accurate for you. Enter the points in the space provided beside each statement.

2. Work through each set of statements. When you reach the end move on to the Summary Table. Write in the scores you have allocated opposite each statement. Please take care to note that these statements are NOT in the same order in the table as they are in the sections.

3. When you have written in all of your scores, check that each line adds up to 10 across the table from left to right.

4. Total each set of figures downwards to receive a total score for each column heading (e.g., IM, CO, etc).

5. Identify the one or two columns which you have scored highest. Make a note of these.

6. Identify the one or two columns which you have scored lowest. Make a note of these also.

Section I: What I believe I can contribute to a team:

(a) ____ I think I can quickly see and take advantage of opportunities.

(b) ____ I can work well with a very wide range of people.

(c) ____ I can usually sense what is realistic and likely to work.

(d) ____ My capacity to follow through has much to do with my personal effectiveness.

(e) ____ My ability rests in being able to draw people out whenever I detect they have something of value to contribute to group activities.

(f) ____ My technical knowledge and experience is usually my major asset.

(g) ____ I can offer a reasoned case for alternative courses of action without introducing bias or prejudice.

(h) ____ Producing ideas is one of my natural assets.

(i) ____ I am ready to face temporary unpopularity if it leads to worthwhile results in the end.

Section II: If I have a possible shortcoming in teamwork, it could be that:

(a) ____ I am not at ease unless meetings are well structured and controlled and generally well-conducted.

(b) ____ My objective outlook makes it difficult for me to join in readily and enthusiastically with colleagues.

(c) ____ I find it difficult to lead from the front, perhaps because I am over-responsive to group atmosphere.

(d) ____ I am apt to get too caught up in ideas that occur to me and so lose track of what is happening.

(e) ____ My colleagues tend to see me as worrying unnecessarily over detail and the possibility that things may go wrong.

(f) ____ I am sometimes seen as forceful and authoritarian if there is a need to get something done.

(g) ____ I am inclined to be too generous towards others who have a valid viewpoint that has not been given a proper airing.

(h) ____ I am reluctant to contribute, unless the subject being discussed deals with an area I know well.

(i) ____ I have a tendency to talk too much once the group gets on to new ideas.

Section III: When involved in a project with other people:

(a) ____ I can be counted on to contribute something original.

(b) ____ My general vigilance prevents careless mistakes and omissions being made.

(c) ____ I have an aptitude for influencing people without pressurising them.

(d) ____ I am keen to look for the latest in new ideas and developments.

(e) ____ I try to maintain my sense of professionalism.

(f) ____ I believe that my capacity for judgements can help to bring about the right decisions.

(g) ____ I am always ready to back a good suggestion in the common interest.

(h) ____ I am ready to press for action to make sure that the meeting does not waste time or lose sight of the main objective.

(i) ____ I can be relied upon to see that all essential work is organised.

Section IV: My characteristic approach to group work is that:

(a) ____ I have a quiet interest in getting to know colleagues better.

(b) ____ While I am interested in all views, I have no hesitation in making up my mind once a decision has to be made.

(c) ____ I am not reluctant to challenge the views of others or to hold a minority view myself.

(d) ____ I think I have a talent for making things work once a plan has to be put into operation.

(e) ____ I have a tendency to avoid the obvious and I come out with the unexpected.

(f) ____ I am ready to make use of contacts outside of the group itself.

(g) ____ I bring a touch of perfectionism to any job I undertake.

(h) ____ I can usually find a line of argument to refute unsound propositions.

(i) ____ I contribute when I know what I'm talking about.

Section V: I gain satisfaction in a job because:

(a)____ I enjoy analysing situations and weighing up all the possible choices.

(b)____ I feel that I am using my special qualifications and training to advantage.

(c)____ I like to find a field that stretches my imagination.

(d)____ I feel in my element when I can give a task my full attention.

(e)____ I am interested in finding practical solutions to problems.

(f) ____ I like to feel I am fostering good working relationships.

(g)____ I can meet people who may have something new to offer.

(h)____ I can get people to agree on a necessary course of action.

(i) ____ I can have a strong influence on decisions.

Section VI: If I am suddenly given a difficult task with limited time and unfamiliar people:

(a)____ I tend to read up as much as I conveniently can on the subject.

(b)____ I would retain a steadiness of purpose in spite of the pressures.

(c)____ I would open up discussions with a view to stimulating new thoughts and getting something moving.

(d)____ I believe that I would keep cool and maintain my capacity to think straight.

(e)____ I would find some way of reducing the size of the task by establishing what different individuals might best contribute.

(f) ____ I would feel like retiring to a corner to devise a way out of the impasse before developing a line.

(g)____ I would be prepared to take a positive lead if I felt the group was making no progress.

(h)____ My natural sense of urgency would help ensure that we did not fall behind schedule.

(i) ____ I would be ready to work with the person who showed the most positive approach.

Section VII: With reference to the problems to which I am subject to in working in groups:

(a) ____ I am apt to show my impatience with those who are obstructing progress.

(b) ____ I hesitate to get my points across when I run up against real opposition.

(c) ____ I am inclined to feel I am wasting my time and would do better on my own.

(d) ____ I am conscious of demanding from others the things I cannot do myself.

(e) ____ I tend to get bored rather easily and rely on one or two stimulating members to spark me off.

(f) ____ My desire to ensure that work is properly done can hold up proceedings.

(g) ____ Others may criticise me for being too analytical and insufficiently intuitive.

(h) ____ I find it difficult to get started unless the goals are clear.

(i) ____ I am sometimes poor at explaining and clarifying complex points that occur to me.

Summary Table : Belbin's Team Role Inventory

Bring forward your results from each section and fill them in here. Be careful to note that the statements are not in the same order here.

Section		IM		CO		SH		PL		RI		ME		TW		CF		SP	
I	c		e		i		h		a		g		b		d		f		=10
II	a		g		f		d		i		b		c		e		h		=10
III	i		c		h		a		d		f		g		b		e		=10
IV	d		b		c		e		f		h		a		g		i		=10
V	e		h		i		c		g		a		f		d		b		=10
VI	b		e		g		f		c		d		i		h		a		=10
VII	h		d		a		i		e		g		b		f		c		=10
Total																			=70

My **highest** scores are: _____ and _____.

My **lowest** scores are: _____ and _____.

Appendix M

Belbin's (1996) Nine Team Roles

Team Role	*Strengths*	*Allowable Weaknesses*
Plant	Creative, imaginative, unorthodox. Solves difficult problems.	Can ignore details. Is often too preoccupied to communicate effectively.
Resource Investigator	Extrovert, enthusiastic, communicative. Explores opportunities. Develops contacts.	Over-optimistic often. Loses interest once initial enthusiasm has passed.
Co-ordinator	Mature, confident, a good chairperson. Clarifies goals, promotes decision-making, delegates well.	Can be seen as manipulative. Delegates personal work to fellow team members.
Shaper	Challenging, dynamic, thrives on pressure. Has the drive and courage to overcome obstacles.	Can be a provoking influence on others and hurtful of the feelings of others.
Monitor-Evaluator	Sober, strategic and discerning. Sees all options. Judges accurately.	Tends to lack drive and ability to inspire team members. Can be overly critical of others.
Teamworker	Co-operative, mild perceptive and diplomatic. Listens, builds, averts friction, calms the waters.	Indecisive in tough situations. Can be easily influenced by others.
Implementer	Disciplined, reliable, conservative and efficient. Turns ideas into practical actions.	Can be inflexible. Slow to respond to possibilities.
Completer	Painstaking, conscientious, anxious. Searches out errors and omissions. Delivers on time.	Inclined to worry unduly. Reluctant to delegate to others. Can be a nit-picker.
Specialist	Single-minded, self-starting, dedicated. Provides knowledge and skills in rare supply.	Contributes on only a narrow front. Dwells on technicalities. Overlooks the 'big picture'.