

———— **Research Report** ————

**A Review of the Emotional Intelligence
Literature and Implications for Corrections**

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**A Review of the Emotional Intelligence Literature
and Implications for Corrections**

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EXECUTIVE SUMMARY

In his closing remarks at a 1999 senior management meeting concerning leadership challenges, former Commissioner of the Correctional Service of Canada Ole Ingstrup commented that the area of emotional intelligence is “something that needs to be explored a lot more”. Since that time, the construct of emotional intelligence has gained momentum in academic and applied settings. Programs to improve the emotional intelligence of organizational leaders have been designed and implemented, and courses in developing emotional intelligence have been introduced in universities throughout the United States.

This report reviews the literature surrounding emotional intelligence (E.I.). It describes the construct of E.I. by reviewing the different models of the construct, the measures used to assess them, and the relationship between these models and other similar constructs. Further, this report reviews the applicability of the E.I. construct to applied settings such as the workplace and proposes how it could be applied to various levels of the Correctional Service of Canada. The emotional intelligence construct is not without its critics, thus, criticisms and controversies surrounding E.I. will be discussed, with directions for future research suggested.

Report Highlights:

- Three main models of emotional intelligence exist. The first model by Peter Salovey and John Mayer perceives E.I. as a form of pure intelligence, that is, emotional intelligence is a cognitive ability. A second model by Reuven Bar-On regards E.I. as a mixed intelligence, consisting of cognitive ability and personality aspects. This model emphasizes how cognitive and personality factors influence general well-being. The third model, introduced by Daniel Goleman, also perceives E.I. as a mixed intelligence involving cognitive ability and personality aspects. However, unlike the model proposed by Reuven Bar-On, Goleman's model focuses on how cognitive and personality factors determine workplace success.
- Salovey and Mayer's model of E.I. is measured using the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), a performance measure which requires the participant to complete tasks associated with emotional intelligence. Both Bar-On and Goleman's models utilize self-report measures of emotional intelligence. Bar-On's model is measured using the Emotion Quotient Inventory (EQ-i) and Goleman's model is measured using the Emotional Competency Inventory (ECI), the Emotional Intelligence Appraisal (EIA), and the Work Profile Questionnaire – Emotional Intelligence Version (WPQei).
- Research has found that significant relationships exist between all three models of E.I.. In addition, emotional intelligence has been consistently compared to three other constructs: personality, alexithymia (difficulty in feeling and distinguishing emotions), and leadership. Many traits contained in the Big Five Personality Factor Model are similar to those described by Bar-On and Goleman in their models of emotional intelligence. Alexithymia has been found to be inversely related to emotional intelligence. Studies in leadership have found transformational leadership (leadership which inspires, motivates, and develops others while generating awareness of organizational goals) leads to increased employee effectiveness and

satisfaction. Studies have also found that transformational leadership is significantly related to higher E.I.

- Studies in gender differences are inconclusive. Although some research has found that women are more emotionally intelligent than men, other studies have found no significant differences between genders. More research is required in this regard.
- Emotional intelligence has been found to be a predictor of life satisfaction, healthy psychological adaptation, positive interactions with peers and family, and higher parental warmth. Lower emotional intelligence has also been found to be associated with violent behaviour, illegal use of drugs and alcohol, and participation in delinquent behaviour.
- Emotional intelligence has been extensively researched in workplace settings. It has been related to increased success among those who share similar positions (e.g., senior managers). Additionally, hiring individuals with higher levels of emotional intelligence as well as training existing staff to be more emotionally intelligent has been associated with financial gains in the private sector. Training in emotional intelligence in the workplace can occur at all levels, and several evaluated programs have found success in developing more emotionally intelligent workforces.
- The Correctional Service of Canada could potentially benefit from further E.I. research on several fronts. First, many of the core elements of emotional intelligence are reflected in the leadership competencies outlined as essential for senior executives by the Public Service Commission. Likewise, the literature surrounding effective leaders within prison institutions also corresponds to the abilities outlined in E.I. theory. Lastly, the roles and responsibilities of correctional service workers are such that increased emotional intelligence should facilitate the ease and effectiveness of their work. Thus, future research should examine to what extent E.I. theory and training can produce incremental gains over and above existing models used within a correctional context.
- Despite the extensive amount of E.I. research conducted in the last decade, E.I. remains a controversial topic. Debate exists over the legitimacy of the construct, the superiority of one type of model over another, the measurement of E.I., as well as the ability to “teach” emotional intelligence.
- The significant amount of controversy surrounding the emotional intelligence construct supports the need for further research. It is recommended that research in the area focus on three main topics. First, research should evaluate the legitimacy of each of the models of emotional intelligence. This would include distinguishing them from related concepts such as personality as well as further validating the measures used to assess each model. Second, further research should evaluate the ability to develop emotional intelligence, and in doing so, evaluate the programs designed to teach E.I. in organizations. Finally, future research should focus on the applicability of the emotional intelligence construct to the Public Service of Canada (as an organization unique from those in the private sector) and to the Correctional Service of Canada. Specifically, research should investigate whether or not E.I. has

incremental value over and above existing leadership models currently endorsed by the Public Service of Canada.

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INTRODUCTION

Since the publication of the best selling book *Emotional Intelligence* by Daniel Goleman (1995), the topic of emotional intelligence has witnessed unparalleled interest. Programs seeking to increase emotional intelligence have been implemented in numerous settings, and courses on developing one's emotional intelligence have been introduced in universities and even in elementary schools throughout the United States. But what exactly *is* emotional intelligence? As is the case with all constructs (i.e. intelligence or personality), several schools of thought exist which aim to most accurately describe and measure the notion of emotional intelligence. At the most general level, emotional intelligence (E.I.) refers to the ability to recognize and regulate emotions in ourselves and others (Goleman, 2001). Peter Salovey and John Mayer, who originally used the term "emotional intelligence" in published writing, initially defined emotional intelligence as:

A form of intelligence that involves 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).

Later, these authors revised their definition of emotional intelligence, the current characterization now being the most widely accepted. Emotional intelligence is thus defined as:

The ability to perceive emotion, integrate emotion to facilitate thought, understand emotions, and to regulate emotions to promote personal growth (Mayer & Salovey, 1997).

Another prominent researcher of the emotional intelligence construct is Reuven Bar-On, the originator of the term "emotion quotient". Possessing a slightly different outlook, he defines emotional intelligence as being concerned with understanding oneself and others, relating to people, and adapting to and coping with the immediate surroundings to be more successful in dealing with environmental demands (Bar-On, 1997). Regardless of the discrepancies between

definitions of emotional intelligence, it is clear that what is being referred to is distinct from standard intelligence, or I.Q.

Intelligence quotients (I.Q.'s) were developed and used during the initial part of the 20th century as measures of intelligence. French psychologist Alfred Binet pioneered the modern intelligence testing movement in developing a measure of mental age in children, a chronological age that typically corresponds to a given level of performance (Myers, 1998). More modern studies linked a person's I.Q. with their potential for success in general (Wechsler, 1958) as well as with elements such as leadership success (Lord, DeVader, & Alliger, 1986). However, the **validity**¹ of the general academic measure of I.Q. was soon challenged on the grounds that it did not consider situational factors such as environment or cultural setting when predicting achievement (Riggio, Murphy, & Pirozzolo, 2002). Theorists began to hypothesize that perhaps cognitive intelligence as measured by I.Q. tests did not encompass intelligence in its entirety, but that perhaps several types of intelligences could coincide within one person.

An influential psychologist in the areas of learning, education, and intelligence, E.L. Thorndike proposed that humans possess several types of intelligence, one form being called social intelligence, or the ability to understand and manage men and women, boys and girls, and to act wisely in human relations (Thorndike, 1920). Even David Wechsler, the originator of the Wechsler Adult Intelligence Scale (WAIS) intelligence tests, referred to both non-intellective and intellective elements of intelligence. The non-intellective elements, which included affective, personal, and social factors, he later hypothesized were essential for predicting one's ability to succeed in life (Wechsler, 1940). Later in the century, Howard Gardner again raised the notion of multiple intelligences. A Harvard-educated developmental psychologist, Gardner proposed a theory of multiple intelligences which dictated that individuals possess aptitudes in several areas, including verbal, mathematical, musical, spatial, movement oriented, environmental, intrapersonal (the examination and knowledge of one's own feelings) and interpersonal (the ability to read the moods, intentions, and desires of others) spheres (Myers, 1998). These intelligences were thought by Gardner to be as important as the type of intelligence typically measured by I.Q. tests (Gardner, 1983).

This paper will review the emotional intelligence literature. A description of the three prominent models of emotional intelligence and the measures used to assess each are outlined to

¹ Bolded terms are described in Appendix A.

facilitate a more thorough understanding of the concept. The relationship between these different models will be examined, as will the relationship between emotional intelligence and other commonly related areas, namely personality, alexithymia, and leadership. Next, a review of the research on emotional intelligence in everyday life, applied settings including Correctional Service of Canada (CSC) will be discussed. Finally, this paper will delineate some of the criticisms of and controversies surrounding the construct of emotional intelligence.

EMOTIONAL INTELLIGENCE (E.I.) MODELS

Early theorists such as Thorndike and Gardner paved the way for the current experts in the field of emotional intelligence. Each theoretical paradigm conceptualizes emotional intelligence from one of two perspectives: ability or mixed model. Ability models regard emotional intelligence as a pure form of mental ability and thus as a pure intelligence. In contrast, mixed models of emotional intelligence combine mental ability with personality characteristics such as optimism and well-being (Mayer, 1999). Currently, the only ability model of emotional intelligence is that proposed by John Mayer and Peter Salovey. Two mixed models of emotional intelligence have been proposed, each within a somewhat different conception. Reuven Bar-On has put forth a model based within the context of personality theory, emphasizing the co-dependence of the ability aspects of emotional intelligence with personality traits and their application to personal well-being. In contrast, Daniel Goleman proposed a mixed model in terms of performance, integrating an individual's abilities and personality and applying their corresponding effects on performance in the workplace (Goleman, 2001).

Salovey and Mayer: An Ability Model of Emotional Intelligence

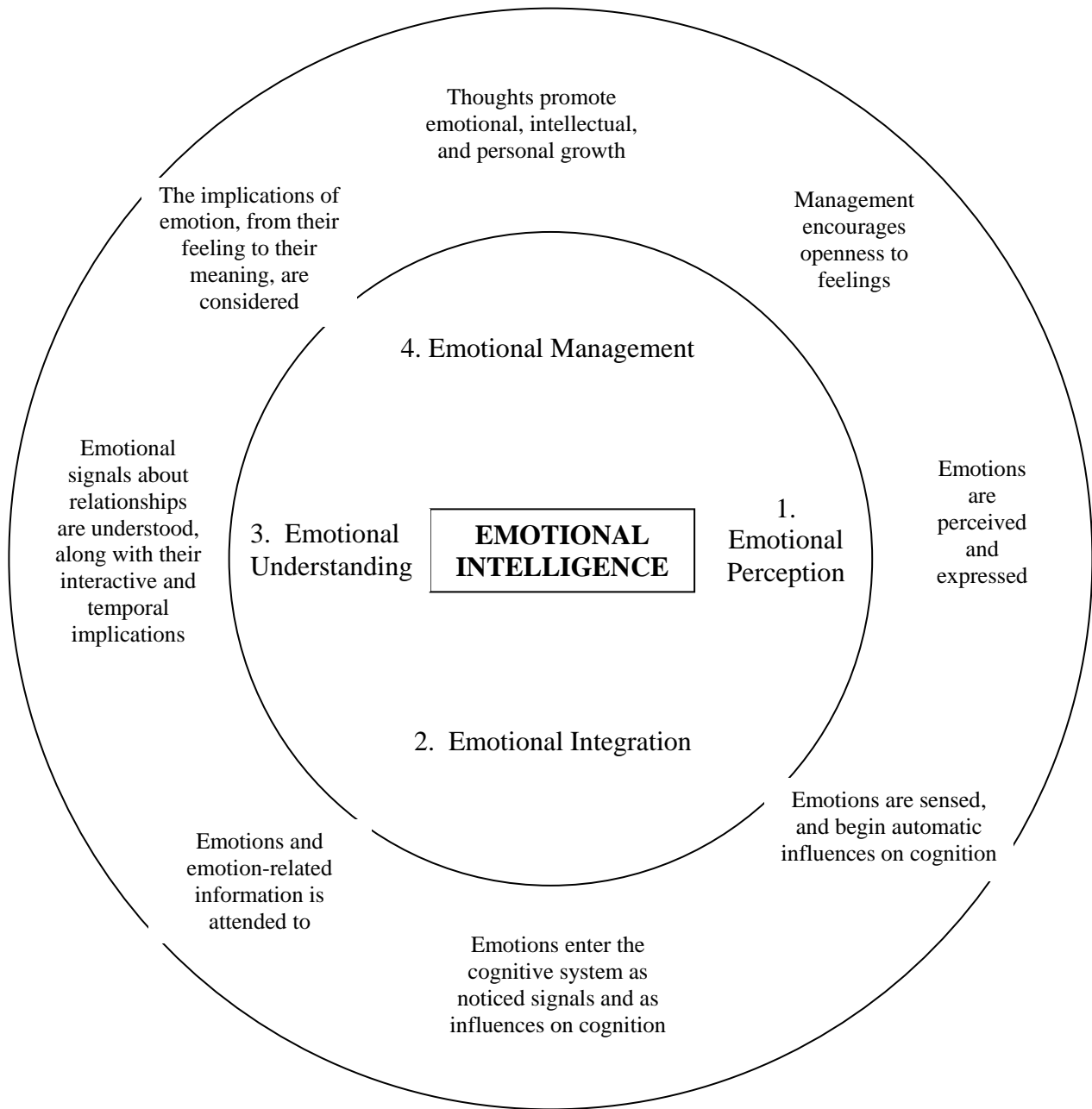
Peter Salovey and John Mayer first coined the term "emotional intelligence" in 1990 (Salovey & Mayer, 1990) and have since continued to conduct research on the significance of the construct. Their pure theory of emotional intelligence integrates key ideas from the fields of intelligence and emotion. From intelligence theory comes the idea that intelligence involves the capacity to carry out abstract reasoning. From emotion research comes the notion that emotions are signals that convey regular and discernable meanings about relationships and that at a number of basic emotions are universal (Mayer, Salovey, & Caruso, 2002). They propose that individuals vary in their ability to process information of an emotional nature and in their ability to relate emotional processing to a wider cognition. They then posit that this ability is seen to manifest itself in certain adaptive behaviours (Mayer, Salovey, & Caruso, 2000).

Mayer and Salovey's conception of emotional intelligence is based within a model of intelligence, that is, it strives to define emotional intelligence within the confines of the standard criteria for a new intelligence (Mayer, Salovey, Caruso, & Sitarenios, 2003). It proposes that emotional intelligence is comprised of two areas: experiential (ability to perceive, respond, and manipulate emotional information without necessarily understanding it) and strategic (ability to

understand and manage emotions without necessarily perceiving feelings well or fully experiencing them). Each area is further divided into two branches that range from basic psychological processes to more complex processes integrating emotion and cognition. The first branch, *emotional perception*, is the ability to be self-aware of emotions and to express emotions and emotional needs accurately to others. Emotional perception also includes the ability to distinguish between honest and dishonest expressions of emotion. The second branch, *emotional assimilation*, is the ability to distinguish among the different emotions one is feeling and to identify those that are influencing their thought processes.

The third branch, *emotional understanding*, is the ability to understand complex emotions (such as feeling two emotions at once) and the ability to recognize transitions from one to the other. Lastly, the fourth branch, *emotion management*, is the ability to connect or disconnect from an emotion depending on its usefulness in a given situation (Mayer & Salovey, 1997). A depiction of this four-branch model is illustrated in Figure 1, which outlines the four branches and the corresponding stages in emotion processing associated with each branch.

Figure 1: Mayer and Salovey's (1997) Four-Branch Model of Emotional Intelligence



Measures of Mayer and Salovey's Model

Mayer and Salovey began testing the validity of their four-branch model of emotional intelligence with the Multibranch Emotional Intelligence Scale (MEIS). Composed of 12 subscale measures of emotional intelligence, evaluations with the Multibranch Emotional Intelligence Scale indicate that emotional intelligence is a distinct intelligence with 3 separate sub factors: emotional perception, emotional understanding, and emotional management. The Multibranch Emotional Intelligence Scale found only limited evidence for the branch of emotional intelligence related to integrating emotions. Additionally, examination of the Multibranch Emotional Intelligence Scale found evidence for **discriminant validity** in that emotional intelligence was independent of general intelligence and self-reported empathy, indicating its ability to measure unique qualities of an individual not encompassed by earlier tests. There were, however, certain limitations to the Multibranch Emotional Intelligence Scale. Not only was it a lengthy test (402 items) but it also failed to provide satisfactory evidence for the integration branch of the Four Branch Model (Mayer, Salovey, & Caruso, 2002). For these and other reasons, Mayer and Salovey decided to design a new ability measure of emotional intelligence.

The current measure of Mayer and Salovey's model of emotional intelligence, the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) was normed on a sample of 5,000 men and women. The MSCEIT is designed for individuals 17 years of age or older and aims to measure the four abilities outlined in Salovey and Mayer's model of emotional intelligence. Each ability (perception, facilitation of thought, understanding, and regulation) is measured using specific tasks. Perception of emotion is measured by rating the extent and type of emotion expressed on different types of pictures. Facilitation of thought is measured by asking people to draw parallels between emotions and physical sensations (e.g., light, colour, temperature) as well as emotions and thoughts. Understanding is measured by asking the subject to explain how emotions can blend from other emotions (e.g., how emotions can change from one to another such as anger to rage). Regulation (or management) of emotions is measured by having people choose effective self and other management techniques (Brackett & Mayer, 2003).

With less than a third of the items of the original Multibranch Emotional Intelligence Scale, the Mayer-Salovey-Caruso Emotional Intelligence Test is comprised of 141 items. The scale yields six scores: an overall emotional intelligence score (expressed as an emotional

intelligence quotient, or EIQ), two area scores (Experiential Emotional Intelligence, or EEIQ and Strategic Emotional Intelligence, or SEIQ) and four branch scores corresponding to the four branches of emotional intelligence. Each score is expressed in terms of a standard intelligence with a mean score of 100 (average score obtained in the general population) and a standard deviation of 15. Additionally, the manual provides qualitative ratings that correspond to each numeric score. For example, an individual who receives an overall EIQ of 69 or less would be rated 'considerable development' whereas someone scoring 130 or more would be rated 'significant strength' (Mayer, Salovey, & Caruso, 2002). Table 1 outlines the structure of the Mayer-Salovey-Caruso Emotional Intelligence Test and the scores attained.

Table 1: Structure and Levels of Feedback from the Mayer-Salovey-Caruso Emotional Intelligence Test

Overall Score	Area Scores	Branch Scores	Tasks Associated With Each
Emotional Intelligence (EIQ)	Experiential Emotional Intelligence (EEIQ)	Perceiving Emotions (PEIQ)	Faces
			Pictures
	Strategic Emotional Intelligence (SEIQ)	Facilitating Thought (FEIQ)	Facilitation
			Sensations
	Strategic Emotional Intelligence (SEIQ)	Understanding Emotions (UIEQ)	Changes
			Blends
	Strategic Emotional Intelligence (SEIQ)	Managing Emotions (MEIQ)	Emotional Management
			Emotional Relations

Mayer-Salovey-Caruso Emotional Intelligence Test: Reliability and Validity

The Mayer-Salovey-Caruso Emotional Intelligence Test was normed on 5000 respondents from 50 research sites worldwide. The majority of the normative sample were white females under the age of 30 years of age (Mayer et al., 2002). **Stability** estimates of the Mayer-Salovey-Caruso Emotional Intelligence Test (in the form of **test-retest reliability** after 3 weeks) were reported as $r(59) = .86$ (Brackett & Mayer, 2003). The authors report **internal consistency** (in the form of split half **reliability**) as ranging from $r = .80$ to $.91$ for the four branches and $r = .91$ for the entire test (Mayer et al., 2003). Inter-rater reliabilities are not reported as all response sheets are processed and scored by the test publisher.

The Mayer-Salovey-Caruso Emotional Intelligence Test is a complete test in that it can classify each respondent within the range of EIQ scores and can be used in a multitude of settings and situations, including corporate, educational, clinical, correctional, research, and

preventative settings (Mayer, Salovey, & Caruso, 2002). **Content validity** is reported by the authors as being good, with two subtasks of the Mayer-Salovey-Caruso Emotional Intelligence Test being dedicated to measuring each of the four branches of the emotional intelligence model. **Structural validity** was established through factor analysis with multiple criteria used for goodness of fit (GFI). Analyses supported the eight subscales (GFI = .97), the four branch scores (GFI = .99), the two area levels (GFI = 1.00), and the total score (GFI = .96; Mayer, Salovey, & Caruso, 2002). Criterion related validity (expressed through **concurrent** and **predictive validity**) was found to be good, with scores correlating significantly with job performance ($r = .28$), higher levels of customer service ($r = .46$), ranking's of team leader effectiveness ($r = .51$), and parental warmth ($r = .23$) (Pusey, 2000; Rice, 1999; Mayer et al., 1999).

Construct validity was illustrated through measures of **convergent** and discriminant validity. The Mayer-Salovey-Caruso Emotional Intelligence Test was found to correlate only mildly with measures of intelligence (IQ), with **correlations** ranging from $r = .05$ (Ciarrochi, Chan, & Caputi, 2000) to $r = .38$ (Mayer et al., 1999), depending on the measure of intelligence. Likewise, the Mayer-Salovey-Caruso Emotional Intelligence Test has been found to be only modestly correlated to measures of psychological well-being ($r = .28$) and to two of the Big Five personality factors as measured by the NEO Personality Inventory – Revised (NEO-PI-R; $r = .25$ for Openness and $r = .28$ for Agreeableness; Brackett & Mayer, 2003). When compared to other (self report) measures of emotional intelligence, results show that the Mayer-Salovey-Caruso Emotional Intelligence Test correlates only minimally with the Bar-On Emotion Quotient Inventory (the EQ-I, $r = .21$) or the Self Report Emotional Intelligence Test (the SREIT, $r = .18$), indicating that these three measures of emotional intelligence are not measuring a common construct (Brackett & Mayer, 2003). The MSCEIT has also been shown to possess **incremental validity**. For example, the MSCEIT was able to predict social deviance (i.e. involvement in physical fights and vandalism) in a sample of 207 college students even after controlling for personality and intelligence (IQ) (Brackett & Mayer, 2003).

While the authors assert the reliability and validity of the MSCEIT, they also point out that emotional intelligence measured through an ability framework meets several of the standard criteria for a new intelligence: it is operationalized as a set of abilities, it is objective in that the answers on the test are either right or wrong as determined by expert scoring and consensus, its

scores correlate with existing intelligences while accounting for unique variance, and scores increase with age (Mayer et al., 2003).

Bar-On: A Mixed Model of Emotional Intelligence

The director of the Institute of Applied Intelligences in Denmark and consultant for a variety of institutions and organizations in Israel, Reuven Bar-On developed one of the first measures of emotional intelligence that used the term "Emotion Quotient". Bar-On's model of emotional intelligence relates to the *potential* for performance and success, rather than performance or success itself, and is considered process-oriented rather than outcome-oriented (Bar-On, 2002). It focuses on an array of emotional and social abilities, including the ability to be aware of, understand, and express oneself, the ability to be aware of, understand, and relate to others, the ability to deal with strong emotions, and the ability to adapt to change and solve problems of a social or personal nature (Bar-On, 1997). In his model, Bar-On outlines 5 components of emotional intelligence: intrapersonal, interpersonal, adaptability, stress management, and general mood. Within these components are sub-components, all of which are outlined in Table 2. Bar-On posits that emotional intelligence develops over time and that it can be improved through training, programming, and therapy (Bar-On, 2002).

Bar-On hypothesizes that those individuals with higher than average E.Q.'s are in general more successful in meeting environmental demands and pressures. He also notes that a deficiency in emotional intelligence can mean a lack of success and the existence of emotional problems. Problems in coping with one's environment is thought, by Bar-On, to be especially common among those individuals lacking in the subscales of reality testing, problem solving, stress tolerance, and impulse control. In general, Bar-On considers emotional intelligence and cognitive intelligence to contribute equally to a person's general intelligence, which then offers an indication of one's potential to succeed in life (Bar-On, 2002).

Table 2: Bar-On's Model of Emotional Intelligence

Components	Sub-Components
Intrapersonal	Self Regard Emotional Self-Awareness Assertiveness Independence Self-Actualization
Interpersonal	Empathy Social Responsibility Interpersonal Relationship
Adaptability	Reality Testing Flexibility Problem Solving
Stress Management	Stress Tolerance Impulse Control
General Mood Components	Optimism Happiness

Measures of Bar-On's Model

Reuven Bar-On's measure of emotional intelligence, the Bar-On Emotion Quotient Inventory (EQ-i), is a self-report measure of emotional intelligence for individuals sixteen years of age and over. Developed as a measure of emotionally and socially competent behaviour that provides an estimate of one's emotional and social intelligence, the Emotion Quotient Inventory is not meant to measure of personality traits or cognitive capacity, but rather to measure one's ability to be successful in dealing with environmental demands and pressures (Dawda & Hart, 2000; Bar-On, 2002). One hundred and thirty three items are used to obtain a Total EQ (Total Emotion Quotient) and to produce five composite scales corresponding to the 5 main components of the Bar-On model: Intrapersonal EQ, Interpersonal EQ, Adaptability EQ, Stress Management EQ, and General Mood EQ. Items are measured on a 5 point scale ranging from 1 (very seldom/not true for me) to 5 (very often/often true of me). Total raw scores are converted into standard scores with a mean of 100 and standard deviation of 15, similar to that of IQ scores (Bar-On, 2002).

Bar-On has developed several versions of the Emotion Quotient Inventory to be used with various populations and in varying situations. Among these are the EQ-interview (to be completed after the self-report), the EQ-i Short Version (a 52 item version of the original), the EQ-i:125 (a 125 item version of the original which excludes the negative impression scale), the EQ-i Youth Version (for children and adolescents 7- 15 years of age), and the EQ-360

Assessment (a multi-rater instrument used in conjunction with the regular self-report EQ-i to give a more complete assessment). In addition, the original EQ-i is available in several languages, including Spanish, French, Dutch, Danish, Swedish, Norwegian, Finnish, and Hebrew (Bar-On, 2002).

Bar-On Emotion Quotient Inventory: Reliability and Validity

The Emotion Quotient Inventory (EQ-I) was normed on approximately 4000 respondents from the United States and Canada. Earlier versions of the Emotion Quotient Inventory (which relied on 12 sub-scales rather than the current 15) were normed internationally. These norms are presented in the technical manual for use with non-North American participants. The majority of the North American normative sample were white (79%) and under the age of 30 years, with equal representation of males and females (Bar-On, 2002). Stability estimates of the Emotion Quotient Inventory (in the form of test-retest reliability after 1 and 4 months, respectively) were reported as .85 ($N = 44$) and .75 ($N = 27$). It should be noted that no stability estimates were reported for the North American sample; these figures reflect the South African sample. Based on seven population samples, the authors report internal consistency (in the form of Cronbach's alpha) as ranging from .69 to .86 for the 15 subscales and an overall average internal consistency of .76 (Bar-On, 2002).

The Bar-On Emotion Quotient Inventory is a complete test in that it can classify each respondent within the range of EQ scores and can be used in a multitude of settings and situations, including corporate, educational, clinical, medical, research, and preventative settings. Content validity is reported by the authors as being adequate in that items for each sub-component were generated and selected in a systematic approach. Additionally, item analyses were conducted in an effort to extract items unrelated to the definitions, and feedback was provided by subjects who were interviewed in the early stages of test development. Structural validity was established through factor analysis to test the hierarchical structure of Bar-On's model of emotional intelligence. Analyses supported the five components of emotional intelligence ($GFI = .971$), however, exploratory factor analyses found support for a 13-factor model of sub-components rather than Bar-On's proposed 15 factor model (Bar-On, 2002).

Measures of **criterion validity** found that emotional intelligence as measured with the Emotion Quotient Inventory could accurately differentiate between those who were successful

and those who were unsuccessful in business and industry settings. It could also differentiate between those with high or low self-perceived success in military school, between those U.S. Air Force Recruiters who were the most successful in their work, and between academically successful and unsuccessful university students. Likewise, those individuals who were suspected to intuitively have higher levels of emotional intelligence (i.e. psychologists) were found to have Emotion Quotient Inventory scores significantly higher than the mean (Bar-On, 2002; Handley, 1997; Swart, 1996).

Construct validity was illustrated through measures of convergent and **divergent validity**. No significant correlations were found between the Emotion Quotient Inventory and several measures of standard intelligence (Bar-On, 2002; Brackett & Mayer, 2003), although the Emotion Quotient Inventory has been found to be significantly correlated to measures of psychological and subjective well-being ($r = .54$ and $r = .35$) and to all of the Big Five personality factors as measured by the NEO-PI-R (r 's = .16 to -.57; Brackett & Mayer, 2003). Likewise, research has found that the Total EQ scale was positively correlated with three of the best indicators of emotional functioning in a measure of personality, with acculturation ($r = .34$), and with sense of competence ($r = .51$), while being negatively correlated with other indicators of abnormal emotional functioning (Bar-On, 2002).

Comparisons with other measures of emotional intelligence indicated that the Emotion Quotient Inventory correlates only minimally with the Mayer-Salovey-Caruso Emotional Intelligence Test ($r = .21$) but more significantly with another self-report measure of emotional intelligence, the Self Report Emotional Intelligence Test (Schutte et al., 1998). Tests of incremental validity of the Emotion Quotient Inventory found that when personality and intelligence (IQ) were held constant, emotional intelligence as measured by the Emotion Quotient Inventory was still predictive of alcohol use (Brackett & Mayer, 2003).

Goleman: A Mixed Model of Emotional Intelligence

Daniel Goleman, a psychologist and science writer who has previously written on brain and behaviour research for the New York Times, discovered the work of Salovey and Mayer in the 1990's. Inspired by their findings, he began to conduct his own research in the area and eventually wrote *Emotional Intelligence* (1995), the landmark book which familiarized both the public and private sectors with the idea of emotional intelligence. Goleman's model outlines four

main emotional intelligence constructs. The first, self-awareness, is the ability to read one's emotions and recognize their impact while using gut feelings to guide decisions. Self-management, the second construct, involves controlling one's emotions and impulses and adapting to changing circumstances. The third construct, social awareness, includes the ability to sense, understand, and react to other's emotions while comprehending social networks. Finally, relationship management, the fourth construct, entails the ability to inspire, influence, and develop others while managing conflict (Goleman, 1998).

Goleman includes a set of emotional competencies within each construct of emotional intelligence. Emotional competencies are not innate talents, but rather learned capabilities that must be worked on and developed to achieve outstanding performance. Goleman posits that individuals are born with a general emotional intelligence that determines their potential for learning emotional competencies. The organization of the competencies under the various constructs is not random; they appear in synergistic clusters or groupings that support and facilitate each other (Boyatzis, Goleman, & Rhee, 1999). Figure 2 illustrates Goleman's conceptual model of emotional intelligence and corresponding emotional competencies. The constructs and competencies fall under one of four categories: the recognition of emotions in oneself or others and the regulation of emotion in oneself or others.

Figure 2: Goleman's (2001) Emotional Intelligence Competencies

	SELF Personal Competence	OTHER Social Competence
RECOGNITION	<u>Self-Awareness</u> Emotional Self-Awareness Accurate Self-Assessment Self-Confidence	<u>Social Awareness</u> Empathy Service Orientation Organizational Awareness
REGULATION	<u>Self-Management</u> Self-Control Trustworthiness Conscientiousness Adaptability Achievement Drive Initiative	<u>Relationship Management</u> Developing Others Influence Communication Conflict Management Leadership Change Catalyst Building Bonds Teamwork and Collaboration

Measures of Goleman's Model

Several measurement tools have been developed based on Goleman's model of emotional intelligence and its corresponding competencies. Included among these are the Emotional Competency Inventory (ECI; Boyatzis, 1994), the Emotional Intelligence Appraisal (EIA; Bradberry, Greaves, Emmerling, et al., 2003), and the Work Profile Questionnaire - Emotional Intelligence Version (WPQei; Performance Assessment Network, 2000).

Emotional Competency Inventory: Daniel Goleman developed the Emotional Competency Inventory (ECI) as a measure of emotional intelligence based on his emotional intelligence competencies as well as an earlier measure of competencies for managers, executives, and leaders (the Self-Assessment Questionnaire) by Richard Boyatzis (1994). The Emotional Competency Inventory is a multi-rater (360 degree) instrument that provides self, manager, direct report, and peer ratings on a series of behavioural indicators of emotional intelligence. It measures 20 competencies, organized into the four constructs outlined by Goleman's model: self awareness, social awareness, self management, and social skills. Each respondent is asked to describe themselves or the other person on a scale from 1 (the behaviour is only slightly characteristic of the individual) to 7 (the behaviour is very characteristic of the individual) for each item, and in turn these items are composed into ratings for each of the competencies. The respondent is left with two ratings for each competency: a self rating and a total other rating (made up of an average of all other ratings; Boyatzis, Goleman, & Rhee, 1999).

Emotional Intelligence Appraisal: The Emotional Intelligence Appraisal (EIA) measure was developed by Travis Bradberry and Jean Greaves along with members of the TalentSmart Research Team in an effort to create a quick and effective measure of emotional intelligence for use in a variety of settings. Based on Daniel Goleman's model of emotional intelligence, the Emotional Intelligence Appraisal uses 28 items to measure the four main components of the model (self-awareness, social awareness, self-management, and relationship management) and takes an average of 7 minutes to complete. Items target the existence of skills reflective of the above components and are rated using a six point frequency scale where 1 reflects "never" exhibiting a behaviour and 6 reflects "always" exhibiting a behaviour. The Emotional Intelligence Appraisal results in five final scores; an overall EQ score as well as a score for each of the four emotional intelligence components. It also is available in three different formats: a

Me Edition (self-report), a MR Edition (in 360 degree format) and the Team Edition (the EQ of an intact group; Bradberry, Greaves, Emmerling, et al., 2003).

Work Profile Questionnaire - Emotional Intelligence Version: The emotional intelligence version of the Work Profile Questionnaire (WPQei) was designed as a self-report measure of seven competencies in the Goleman model of emotional intelligence. Intended as a measure of competencies essential for effective work performance, the 84 item Work Profile Questionnaire - Emotional Intelligence Version gives participants a score (out of 10) for total emotional intelligence and a score (out of 10) for each of the seven competencies of interest: innovation, self-awareness, intuition, emotions, motivation, empathy, and social skills (Performance Assessment Network, 2000).

Measures of Goleman's Model: Reliability and Validity

The Emotional Competence Inventory was normed on approximately 6000 respondents in the North American and U.K. Emotional Competence Inventory databases. Although normative data for other geographic areas are provided, these areas are underrepresented. The majority of the normative sample were white males holding mid to senior-level management positions (Sala, 2002). Stability estimates have not been examined for the Emotional Competence Inventory. The technical manual reports internal consistency (in the form of Cronbach's alpha) as ranging from .73 to .92 for the total others ratings and from .60 to .85 for the self ratings (Sala, 2002).

The Emotional Competence Inventory is complete in that it can classify each respondent within the range of self and others' ratings. Evidence for content validity is reported in the technical manual through an accurate self-assessment study in which those individuals who were not aware of their strengths and weaknesses (had low accurate self-assessment) also had trouble evaluating themselves on emotional intelligence competencies (there was a larger discrepancy between their self and other ratings; Sala, 2002). Structural validity (as tested through factor analysis) to determine if Goleman's emotional competencies clustered around the proposed four-branch model of emotional intelligence has not been promising due to high intercorrelations and theoretical interrelations among competencies (Sala, 2002).

Measures of criterion validity found that the emotional intelligence (specifically self-awareness and social awareness) of college principals was significantly associated with college

student retention rates (r 's = .20 and .18; Sala, 2002). Other researchers have found that emotional intelligence (as measured by the Emotional Competence Inventory) was significantly positively correlated with salary (r = .40), job success (r = .33), and life success (r = .46; Sevinc, 2001). Construct validity was established through convergent validity studies with a variety of measures of similar constructs. Goleman's model of emotional intelligence was found to correspond significantly with the sensing/intuiting and thinking/feeling dimensions of the Myers-Briggs Type Indicator and with the extroversion, agreeableness, and conscientiousness factors of the NEO Personality Inventory. A study of divergent validity found no significant correlations between the Emotional Competence Inventory and a measure of analytical/critical thinking (Sala, 2002). No tests of incremental validity were reported for the Emotional Competence Inventory.

The Emotional Intelligence Appraisal (EIA) has three normative samples, one for each version of the test (N = 13,000 for Me Edition, N = 1,300 for MR Edition, and N = 350 for Team Edition). For all samples, the majority of the participants were North American men and women between the ages of 30 and 49. No stability estimates were reported for the EIA. The technical manual reports internal consistency (in the form of Cronbach's alpha) as ranging from .86 to .99 for the Me Edition, from .73 to .94 for the MR Edition, and from .77 to .99 for the Team EQ Edition. The Emotional Intelligence Appraisal is complete in that it can classify each respondent with a total EQ score as well as a score on each of the four components of emotional intelligence. Content validity was established through expert development of items related to each of the subscales. After face validity of the items was verified, subject matter experts eliminated unnecessary or repetitive items. Structural validity (as tested through factor analysis) to determine if the 28 items clustered around Goleman's emotional competencies suggested the best fit for the measure was a one-factor overall EQ score, with some support for a two-factor model made up of personal and social competencies (Bradberry et al., 2003).

Bradberry (2002) found that the EIA was a significant predictor of job performance among middle and senior managers (r = .36 for the Me Edition and r = .77 for the MR Edition). Additional criterion validity was again demonstrated for the Me Edition of the EIA when Bradberry et al., (2003) reported that this measure was a significant predictor of job performance among approximately 12,000 individuals representative of all industries, job classes, and job levels (r = .42). Construct validity was established through convergent validity studies with an alternative measure of emotional intelligence (the Mayer-Salovey-Caruso Emotional Intelligence

Test). The Emotional Intelligence Appraisal (MR Edition) was not significantly correlated with the Mayer-Salovey-Caruso Emotional Intelligence Test, and when both were used to measure managerial job performance, the Emotional Intelligence Appraisal was a better predictor of job performance than the Mayer-Salovey-Caruso Emotional Intelligence Test (13% and 59% of the variance in job performance was accounted for by the Me and MR Editions, respectively, while 6% was accounted for by the Mayer-Salovey-Caruso Emotional Intelligence Test). No tests of incremental validity were reported for the Emotional Intelligence Appraisal (Bradberry et al., (2003). No evidence for the reliability or validity of the Work Profile Questionnaire – Emotional Intelligence Version (WPQei) could be found.

Other Models and Measures

Several measures of emotional intelligence used in scientific research, particularly those sold for use in industrial and organizational settings, are not based on any of the aforementioned theories of emotional intelligence. Two of these measures: the Levels of Emotional Awareness Scale (LEAS) and the Self-Report Emotional Intelligence Test (SREIT) are described in the following section. Following, Table 3 summarizes the measures of emotional intelligence described in this review.

The Levels of Emotional Awareness Scale (LEAS)

The Levels of Emotional Awareness Scale is a self-report measure of emotional intelligence intended to assess the extent to which people are aware of emotions in both themselves and others. The measure is based on a hierarchical theory of emotional intelligence, more specifically of emotional awareness, which consists of five sub-levels: physical sensations, action tendencies, single emotions, blends of emotion, and blends of these blends of emotional experience (Lane and Schwartz, 1989). The Levels of Emotional Awareness Scale consists of 20 scenarios involving two people and an emotion-eliciting situation. The participant must indicate how they would feel in the situation and how the other person in the scenario would feel in the situation. Each scenario receives a score from 0-5 (corresponding to the Lane and Schwartz (1987) theory of emotional awareness). The participant receives a score for self (awareness of emotions in oneself), for other (awareness of emotion in others), and a total emotional awareness score (an average of self and other; Lane et al., 1990).

The Levels of Emotional Awareness Scale was normed on 385 individuals from Arizona and Minnesota. Statistical evaluation of the Levels of Emotional Awareness Scale found high **inter-rater reliability** and internal consistency, although no tests of stability have been performed (Lane, 2000). While no information is provided regarding content validity, research on structural validity found the subscales to be reliable (LEAS Total: alpha = .89, LEAS Self: alpha = .85, LEAS Other: alpha = .80; Ciarrochi, Caputi, & Mayer, 2003). Studies of criterion validity found that scores on the Levels of Emotional Awareness Scale were significantly correlated with impulse control ($r = .35$) and self-restraint ($r = .30$; Lane, 2000) but not related to any other personality variables or an E.I. composite (the Multibranch Emotional Intelligence Scale, an earlier version of the Mayer-Salovey-Caruso Emotional Intelligence Test). However, the Levels of Emotional Awareness Scale was found to be related to two subscales of emotional intelligence: perceiving emotions in stories and estimating feelings of characters in conflict. An independent review of the Levels of Emotional Awareness Scale concluded that it is only minimally related to emotional intelligence and would more accurately be classified as a measure of processing style rather than ability (Ciarrochi, Caputi, & Mayer, 2003).

The Self-Report Emotional Intelligence Test (SREIT)

The Self Report Emotional Intelligence Test is a 33 item self-report measure of emotional intelligence developed by Schutte and colleagues (1998). Initially based on early writings on emotional intelligence by Mayer and Salovey, the Self Report Emotional Intelligence Test has been criticized for not properly mapping onto the Salovey and Mayer model of E.I. and thus measuring a different concept of emotional intelligence. This criticism stems from the fact that the original Self Report Emotional Intelligence Test consisted of 62 items which mapped into the original model of emotional intelligence by Salovey and Mayer. However, factor analysis resulted in a single-factor, 33 item measure which did not accurately reflect the principles of the model (Petrides and Furnham, 2000).

Participants are asked to indicate their responses to items reflecting adaptive tendencies toward emotional intelligence according to a 5-point scale, with “1” representing strong agreement and “5” representing strong disagreement (Schutte et al, 1998). No normative data for the Self Report Emotional Intelligence Test could be found. Stability estimates of the Self Report Emotional Intelligence Test (in the form of test-retest reliability after 2 weeks) were

reported as $r(27) = .78$. and the authors reported a Cronbach's alpha of .87 as a reflection of internal consistency (Schutte et al, 1998). As mentioned above, independent reviewers found a lack of content validity in the Self Report Emotional Intelligence Test. However, the authors report content validity as being adequate, with the 33 items representing all portions of the Salovey and Mayer original concept of emotional intelligence. Factor analysis of the original 62 items found a sound one-factor model comprised of 33 items, establishing structural validity. Criterion related validity was reported as being good, with scores on the Self Report Emotional Intelligence Test significantly predicting year-end grade point average for a group of college students ($r(63) = .32$). Scores also distinguished between groups who would logically differ on levels of emotional intelligence. Therapists were found to score significantly higher on the Self Report Emotional Intelligence Test than prisoners and clients in a substance abuse program (Schutte et al, 1998).

The authors likewise presented evidence for construct validity through convergent and discriminant validity. The Self Report Emotional Intelligence Test was found to correlate significantly with alexithymia ($r(24) = -.65$) and several elements of the Trait Meta Mood Scale including attention to feelings ($r(48) = .63$), clarity of feelings ($r(47) = .52$), and increased mood repair ($r(47) = .68$). It was found to be unrelated to SAT scores in 42 college students and related to only one factor (openness to experience, $r(22) = .54$) of the Big Five personality factors as measured by the NEO-PI (Schutte et al., 1998). However, more recent research has found that not only is the Self Report Emotional Intelligence Test significantly related to all but one factor (agreeableness) of the Big Five, it is also unrelated to a measure of Salovey and Mayer's model of emotional intelligence (the MSCEIT), indicating that they in fact are measuring different concepts of the construct (Brackett & Mayer, 2003).

Table 3: Commonly Used Measures of Emotional Intelligence

Measure	Corresponding Theorist	Mode of Measure	Brief Description
Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT)	Mayer and Salovey	Performance-Based	Specific tasks are used to measure level of ability of each branch of emotional intelligence.
Emotional Quotient Inventory (EQ-i)	Bar-On	Self-Report	133 self-report items measure total IQ and each of the 5 components of the Bar-On model
Emotional Competency Inventory (ECI)	Goleman	Self-Report And Other-Report	A multi-rater instrument that provides ratings on a series of behavioural indicators of emotional intelligence
Emotional Intelligence Appraisal (EIA)	Goleman	Self-Report And Other-Report	A 7-minute assessment meant to measure the existence of Goleman's four components of emotional intelligence
Work Profile Questionnaire-Emotional Intelligence Version (WPQei)	Goleman	Self-Report	Measures 7 of Goleman's competencies thought of as most essential for effective work performance
Levels of Emotional Awareness Scale (LEAS)	Other	Self-Report	Measures levels of awareness of emotions in oneself and others
Self-Report Emotional Intelligence Test (SREIT)	Salovey and Mayer Or Other	Self-Report	A 33-item measure of Salovey and Mayer's original concept of emotional intelligence

COMPARING MODELS OF EMOTIONAL INTELLIGENCE

Despite the existence of three distinct models of emotional intelligence, there are theoretical and statistical similarities between the various conceptions. On a global level, all of the models aim to understand and measure the elements involved in the recognition and regulation of one's own emotions and the emotions of others (Goleman, 2001). All models agree that there are certain key components to emotional intelligence, and there is even some consensus on what those components are. For example, all three models of emotional intelligence implicate the awareness (or perception) of emotions and the management of emotions as being key elements in being an emotionally intelligent individual.

A relationship between elements of the models has been established through statistical analyses. As outlined in the descriptions of the measures of emotional intelligence, there is evidence that different measures of emotional intelligence are related and may be measuring similar components. Brackett and Mayer (2002) found significant similarities between the regulation of emotion subscale of the Mayer-Salovey-Caruso Emotional Intelligence Test and the interpersonal EQ scale of the Bar-On Emotion Quotient Inventory. Considerable similarities have been found between self-report measures of emotional intelligence. Brackett and Mayer (1998) found that two self-report measures, the Emotion Quotient Inventory and the Self Report Emotional Intelligence Test, were highly correlated ($r = .43$). However, no relation between the two measures could be found when personality and positive well-being were controlled for, suggesting that while the two measures share variance, this variance may be attributable not to the measurement of emotional intelligence but to the measurement of other factors.

EMOTIONAL INTELLIGENCE AND RELATED CONSTRUCTS

Emotional intelligence has frequently been compared to personality, alexithymia, and leadership. This section will briefly review the research conducted in each respective area.

Emotional Intelligence and Personality

Personality, one's characteristic pattern of thinking, feeling, and acting (Myers, 1998), has been explored using a variety of theories including psychoanalytic, humanistic, social-cognitive, and trait theory. One of the most predominant and well accepted personality theories, trait theory attempts to explain personality in terms of the dynamics that underlie behaviour. Traits are characteristic patterns of behaviour or dispositions to feel and act in a certain way which distinguish one person from the next. They are hypothesized to be consistent and stable across a lifetime, acting as a type of template for an individual's behaviour (Myers, 1998). Research by McCrea and Costa (among others) has supported this hypothesis. In a longitudinal study of American adults, Costa and McCrea (1982) found that for the majority of people, personality at age 30 was predictive of personality at age 80.

Several trait theorists have proposed models of personality based on the factor analyses of traits expressed through personality inventories. For example, Hans and Sybil Eysenck's model of personality outlined two genetically influenced dimensions of personality: introversion-extroversion and stability-instability (Myers, 1998). A more recent, and more widely accepted trait model is the "Big Five" Personality Factor Model.

The Big Five Personality Factor Model, often called the "Big Five" or the "Five Factor Model", is an empirically derived model of personality based on the early work on traits by Gordon Allport, Raymond Cattell, and Hans and Sybil Eysenck. It proposes that personality can be factored into five dimensions: neuroticism, extraversion, openness, agreeableness, and conscientiousness. Further, it proposes that each individual falls between the two extremes of each dimension. Neuroticism contrasts elements of emotional stability with those of negative emotionality. Extraversion implies an energetic approach to the world as opposed to a passive approach, while openness examines an individual's openness to experiences versus their level of close-mindedness. Agreeableness seeks to measure whether one has a prosocial, co-operative orientation towards others or if they act with antagonism. Lastly, conscientiousness includes the

control of impulses which facilitates tasks and other goal-directed behaviour (Hergenhahn & Olson, 1999). Table 4 outlines the Big Five Personality Factor Model.

Table 4: The “Big Five” Personality Model (Myers, 1998)

Trait Dimension	Facets
Neuroticism	Calm vs. Anxious Secure vs. Insecure Self-satisfied vs. Self-pitying Even-tempered vs. Temperamental Comfortable vs. Self-Conscious Emotional vs. Unemotional
Extraversion	Sociable vs. Retiring Fun-loving vs. Sober Affectionate vs. Reserved Talkative vs. Quiet Active vs. Passive Passionate vs. Unfeeling
Openness	Imaginative vs. Practical Preference for Variety vs. Preference for Routine Independent vs. Conforming Creative vs. Uncreative Original vs. Conventional Curious vs. Uncurious
Agreeableness	Soft-hearted vs. Ruthless Trusting vs. Suspicious Helpful vs. Uncooperative Generous vs. Stingy Lenient vs. Critical Good-natured vs. Irritable
Conscientiousness	Organized vs. Disorganized Careful vs. Careless Disciplined vs. Impulsive Persevering vs. Quitting Ambitious vs. Aimless Punctual vs. Late

The relationship between emotional intelligence and personality has been heavily discussed in the literature. Several models of emotional intelligence are closely tied with

personality theory, specifically the mixed models of Bar-On and Goleman. Both models list components and sub-components of their theory of emotional intelligence which are similar to areas which have been previously studied under personality theory. Bar-On's sub-components of assertiveness, interpersonal effectiveness, empathy, impulse control, social responsibility, and reality testing have all been considered parts of personality, and are consequently measured as such by popular personality inventories. For example, the California Psychological Inventory (CPI) contains scales that include self-assurance, interpersonal effectiveness, self-acceptance, self-control, flexibility, and empathy. Likewise, several of Goleman's competencies, including empathy, self-control, and self-confidence are areas which have been extensively researched in personality psychology (Mayer, Salovey, & Caruso, 2000). Table 5 gives a more detailed account of the correspondences between the Big Five Personality Factors (as measured directly by the NEO-PI-R) and Bar-On and Goleman's components of emotional intelligence.

The overlap between components of emotional intelligence models and personality theory is especially evident in empirical comparisons of the constructs. When comparing Bar-On's measure of emotional intelligence (the Emotion Quotient Inventory) to the NEO-PI-R, a measure of the Big Five personality factors, the Emotion Quotient Inventory was found to correlate significantly with each factor. Highly significant correlations were found between the Emotion Quotient Inventory and neuroticism, extraversion, agreeableness, and conscientiousness factors (r 's = .27 to -.57) and moderately significant correlations were found with the openness factor of the Big Five (r = .16; Brackett and Mayer, 2003). Goleman's measure of emotional intelligence, the Emotional Competence Inventory, has been found to correlate significantly with three of the Big Five Personality factors: extroversion, openness, and conscientiousness (r 's = .22 to .49; Sala, 2002).

Coincidentally, even the pure model of emotional intelligence, proposed by Mayer and Salovey, has shown empirically significant correlations with measures of personality. In comparing the pure measure of emotional intelligence (the Mayer-Salovey-Caruso Emotional Intelligence Test) and the NEO-PI-R, significant correlations were found between the openness (r = .25) and agreeableness (r = .28) factors of personality and emotional intelligence (Brackett & Mayer, 2002).

Table 5: Big Five Personality Factors and Bar-On and Goleman’s Components of Emotional Intelligence (McCrae, 2000)

The Big Five	Bar-On	Goleman
<u>Neuroticism:</u>		
Anxiety		Ability to shake off anxiety (R)
Angry Hostility		
Depression	Happiness (R)	
Self-Consciousness	Self-Regard (R)	
Impulsiveness	Impulse Control (R)	Stifling Impulsiveness (R)
Vulnerability	Stress Tolerance (R)	
<u>Extraversion:</u>		
Warmth		
Gregariousness		
Assertiveness	Assertiveness	
Activity		
Excitement Seeking		
Positive Emotions	Optimism	
<u>Openness to Experience:</u>		
Fantasy		
Aesthetics		
Feelings	Emotional Self-Awareness	Monitoring Feelings
Actions	Flexibility	
Ideas	Reality Testing	
Values	Independence	
<u>Agreeableness:</u>		
Trust	Interpersonal Relationships	
Straightforwardness		
Altruism		Attunement to Others
Compliance		Interacting Smoothly with Others
Modesty		
Tender-Mindedness	Empathy	Empathic Awareness
<u>Conscientiousness:</u>		
Competence	Problem Solving	
Order		
Dutifulness	Social Responsibility	
Achievement Striving		Zeal and Persistence
Self-Discipline		Ability to Motivate Oneself
Deliberation		

Note: Features marked (R) correspond to the NEO-PI-R if component is reverse scored.

Emotional Intelligence and Alexithymia

Alexithymia, from the Greek meaning *no words or feelings*, is a personality construct that has been related theoretically to emotional intelligence. Four key features define alexithymia:

1. Difficulty in identifying feeling and distinguishing between feelings and the bodily sensations of emotional arousal.
2. Difficulty describing feelings to other people.
3. Constricted imaginal processes evidenced by a lack of fantasy.
4. A stimulus-bound and externally oriented cognitive style which relies on external cues and signals rather than internal indicators (Taylor & Bagby, 2000).

Although the features of alexithymia present the construct to be a type of psychiatric diagnosis or diagnostic category, it is important to point out that it is neither. Instead, it is a complex mixture of personality traits which remains stable over time, even after distress or depression have diminished (Taylor & Bagby, 2000).

Research in the area of alexithymia began in the early 1950's when psychologists began reporting certain distinct characteristics in their patients. The psychiatrists were finding treatment of these patients difficult due to lack of emotional awareness and externalized style of living in which behaviour was guided by rules and regulations rather than feelings. More recent research has found that alexithymia is associated with substance abuse disorders, eating disorders, post-traumatic stress disorder, and psychosomatic disorders. Alexithymia has also been associated with a number of health problems including inflammatory bowel disease, hypertension, and gastrointestinal disorders (Taylor & Bagby, 2000).

Reasonably, an inverse association should exist between the constructs of alexithymia and emotional intelligence. Specifically, one would hypothesize that those individuals who suffer from alexithymia likewise should also have very low emotional intelligence. This hypothesis has been supported in the literature. Schutte et al (1998) found that in a sample of 25 students, a self-report measure of emotional intelligence (the Self Report Emotional Intelligence Test) was significantly inversely correlated with the Toronto Alexithymia Scale (the TAS-20), the standard measure for alexithymia ($r = -.65$). Research with larger community samples has also found significant associations. For example, Parker, Taylor, and Bagby (2001) found a strong negative correlation between the Emotion Quotient Inventory and the TAS-20 ($r = -.72$) in a sample of 734 community members.

Emotional Intelligence and Leadership

One of the most applied constructs which emotional intelligence has been associated with is that of leadership. The leadership literature has produced countless theories outlining which characteristics compose the most effective leader, however, current academic research in the area describes two distinct types of leaders: transformational and transactional (Mandell & Pherwani, 2003). The transformational leader stimulates interest among colleagues, inspires a different outlook on the work, generates an awareness of the goals of the organization, develops others to higher levels of ability, and motivates others to consider the interests of the group over their own interests. Along these lines, transformational leadership is said to be comprised of the following four dimensions: idealized influence, inspirational motivation, intellectual stimulation, and individual consideration (Bass & Avolio, 1994). Alternatively, the transactional leader is one whom rewards (or disciplines) staff on the basis of their performance. They emphasize work standards, task completion, and employee compliance while relying heavily on organizational rewards and punishments to influence employee performance (Bass & Avolio, 1994).

Researchers investigating the effects of transformational and transactional leadership have found that transformational leadership predict higher ratings of effectiveness and satisfaction (Hater & Bass, 1988), higher group performance (Keller, 1995), and higher amount of effort on the part of subordinates (Seltzer & Bass, 1990) compared to transactional leadership. Researchers in the area of leadership have likewise proposed that effective transformational leaders must possess social and emotional intelligence. These elements are considered critical to inspire employees and to build strong relationships. Research comparing emotional intelligence and transformational leadership has consistently found positive correlations between the two constructs. In a study examining transformational leadership and emotional intelligence in 32 individuals in management positions, Mandell and Pherwani (2003) found that level of emotional intelligence (as measured by the Bar-On Emotion Quotient Inventory) was significantly related to transformational leadership style ($R = .50$).

The foremost contributor to the area of emotional intelligence and leadership is Daniel Goleman, who has written several books on implementing emotional intelligence in an organization, including *Working with Emotional Intelligence* (1998) and *The Emotionally Intelligent Workplace* (2001). Goleman posits that leaders high in emotional intelligence are key to organizational success; leaders must have the capacity to sense employees' feelings about

their work environments, to intervene when problems arise, to manage their own emotions in order to gain the trust of the employees, and to understand the political and social conventions within an organization (Goleman, 2001). In addition, a leader has the capacity to impact organizational performance by setting a particular work climate. Goleman outlines six distinct leadership styles and how they affect the climate of the organization (see Figure 3). Each style is characterized by a number of the emotional intelligence competencies outlined in Goleman's model, and each may be effective in an organizational setting, depending on the situation at hand.

Research has found that the most effective leaders integrate four or more of the six styles regularly, substituting one for another more appropriate style depending on the leadership situation. This has been found to be the case in studies of insurance companies, where leaders were adept at all four of the positive styles of leadership, and at schools, where heads of schools who used four or more of the leadership styles experienced superior performance among students compared to comparison schools. Performance was poorest in those schools where only one or two styles of leadership were used (Hay/McBer, 2000).

Table 6: Leadership Style and Impact on Organizational Climate (Goleman, 2001)

LEADERSHIP STYLE						
	<u>Coercive</u>	<u>Authoritative</u>	<u>Affiliative</u>	<u>Democratic</u>	<u>Pacesetting</u>	<u>Coach</u>
<u>When Appropriate</u>	In a crisis, to kick-start turnaround, or with problem employees	When change requires a new vision, when clear direction needed	To heal rifts in a team or to motivate during stressful times	To build consensus or to get valuable input from employees	To get quick results from a highly motivated and competent team	To help an employee improve performance or develop long-term strengths
<u>Objective</u>	Immediate compliance	Mobilize others to follow a vision	Create harmony	Build commitment through participation	Perform tasks to a high standard	Build strengths for the future
<u>Impact on Climate</u>	Strongly negative	Most strongly positive	Highly positive	Highly positive	Highly negative	Highly positive
<u>EI Competencies</u>	Drive to achieve; initiative; emotional self control	Self-confidence; empathy; change catalyst	Empathy; building bonds; conflict management	Collaboration; team leadership; communication	Conscientiousness; drive to achieve; initiative	Developing others; empathy; emotional self-awareness

EMOTIONAL INTELLIGENCE IN APPLIED SETTINGS

This section will focus on how emotional intelligence has been applied in various settings. First, research on the gender differences in emotional intelligence will be outlined in an effort to examine if the application of emotional intelligence to different settings varies as a function of gender. Second, the application of emotional intelligence to everyday living will be explored. Finally, the applicability of E.I. to the workplace will be discussed, focusing on the economic value of higher emotional intelligence in the workplace, the success rate of those high in E.I. relative to others, and various avenues for training of E.I. competencies.

Gender Differences in Emotional Intelligence

Competing evidence exists surrounding whether or not males and females differ significantly in general levels of emotional intelligence. Daniel Goleman (1998) asserts that no gender differences in E.I. exist, admitting that while men and women may have different profiles of strengths and weaknesses in different areas of emotional intelligence, their overall levels of E.I. are equivalent. However, studies by Mayer and Geher (1996), Mayer, Caruso, and Salovey (1999), and more recently Mandell and Pherwani (2003) have found that women are more likely to score higher on measures of emotional intelligence than men, both in professional and personal settings.

The discrepancy may be due to measurement choice. Brackett and Mayer (2003) found that females scored higher than males on E.I. when measured by a performance measure (the Mayer-Salovey-Caruso Emotional Intelligence Test). However, when using self-report measures such as the Bar-On Emotion Quotient Inventory (EQ-i) and the Self-Report Emotional Intelligence Test (SREIT), they found no evidence for gender differences. Perhaps gender differences exist in emotional intelligence only when one defines E.I. in a purely cognitive manner rather than through a mixed perspective. It could also be the case that gender differences do exist but measurement artifacts such as over-estimation of ability on the part of males are more likely to occur with self-report measures. More research is required to determine whether or not gender differences do exist in emotional intelligence.

Applicability to Everyday Living

Several studies have found that emotional intelligence can have a significant impact on various elements of everyday living. Palmer, Donaldson, and Stough (2002) found that higher emotional intelligence was a predictor of life satisfaction. Additionally, Pellitteri (2002) reported that people higher in emotional intelligence were also more likely to use an adaptive defense style and thus exhibited healthier psychological adaptation. Performance measures of emotional intelligence have illustrated that higher levels of E.I. are associated with an increased likelihood of attending to health and appearance, positive interactions with friends and family, and owning objects that are reminders of their loved ones (Brackett, Mayer, & Warner, in press). Mayer, Caruso, and Salovey (1999) found that higher emotional intelligence correlated significantly with higher parental warmth and attachment style, while others found that those scoring high in E.I. also reported increased positive interpersonal relationships among children, adolescents, and adults (Rice, 1999; Rubin, 1999).

Negative relationships have likewise been identified between emotional intelligence and problem behaviour. Mayer, Caruso, and Salovey (2000) found that lower emotional intelligence was associated with lower self-reports of violent and trouble-prone behaviour among college students, a correlation which remained significant even when the effects of intelligence and empathy were partialled out. Lower emotional intelligence (as measured by the MSCEIT) has been significantly associated with owning more self-help books (Brackett et al., in press), higher use of illegal drugs and alcohol, as well as increased participation in deviant behaviour (i.e. involvement in physical fights and vandalism). No gender differences were observed for these associations (Trinidad & Johnson, 2002; Brackett and Mayer, 2003). Finally, a study of 15 male adolescent sex offenders (15-17 years old) found that sex offenders have difficulty in identifying their own and others' feelings, two important elements of emotional intelligence (Moriarty, Stough, Tidmarsh, Eger, & Dennison, 2001).

Emotional Intelligence in the Workplace

As previously discussed, advanced emotional intelligence can be beneficial in many areas of life. However, the application of its usefulness has been most frequently documented in the professional workplace. Cherniss (2000) outlines four main reasons why the workplace would be a logical setting for evaluating and improving emotional intelligence competencies:

1. Emotional intelligence competencies are critical for success in most jobs.
2. Many adults enter the workforce without the competencies necessary to succeed or excel at their job.
3. Employers already have the established means and motivation for providing emotional intelligence training.
4. Most adults spend the majority of their waking hours at work.

A strong interest in the professional applications of emotional intelligence is apparent in the way organizations have embraced E.I. ideas. The American Society for Training and Development, for example, has published a volume describing guidelines for helping people in organizations cultivate emotional intelligence competencies which distinguish outstanding performers from average ones (Cherniss and Adler, 2000).

As previously noted, considerable research in the emotional intelligence field has focused on leadership, a fundamental workplace quality. Even before research in the area of E.I. had begun, the Ohio State Leadership Studies reported that leaders who were able to establish mutual trust, respect, and certain warmth and rapport with members of their group were more effective (Fleishman and Harris, 1962). This result is not surprising given that many researchers have argued that effective leadership fundamentally depends upon the leader's ability to solve the complex social problems which can arise in organizations (Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000).

The cost-effectiveness of emotional intelligence in the workplace has been an area of interest. Several studies have reported the economic value of hiring staff based on emotional intelligence. In a report to Congress, the Government Accounting Office (1998) outlined the amount saved when the United States Air Force used Bar On's Emotional Quotient Inventory (EQ-I) to select program recruiters. By selecting those individuals who scored highest in emotional intelligence as recruiters, they increased their ability to select successful recruiters by threefold and saved \$3 million annually. A similar study by Boyatzis (1999) found that when partners in a multinational consulting firm were assessed on E.I. competencies, partners who scored above the median on nine or more competencies delivered \$1.2 million more profit than did other partners.

Cherniss and Goleman (1998) estimated that by not following training guidelines established to increase emotional intelligence in the workplace, industry in the United States is losing between \$5.6 and \$16.8 billion a year. They found that the impact of training employees in emotional and social competencies with programs which followed their guidelines was higher than for other programs, and by not implementing these programs companies were receiving less of an impact and consequently losing money.

Are Individuals with High E.I. More Successful?

Research on the predictive significance of E.I. over I.Q. was spurred by Goleman's initial publication on the topic which claimed that emotional intelligence could be “as powerful, and at times more powerful, than I.Q.” (Goleman, 1995, p.34). Much of this claim was based on past research revealing that the predictive nature of I.Q. on job performance was not promising, with I.Q. accounting from 10-25% of the variance in job performance (Hunter & Hunter, 1984; Sternburg, 1996). The results of longitudinal studies further implicated emotional intelligence as being important. One study involving 450 boys reported that I.Q. had little relation to workplace and personal success; rather, more important in determining their success was their ability to handle frustration, control emotions, and get along with others (Snarey & Vaillant, 1985). Although this study did not attend to emotional intelligence directly, the elements which it addressed (the ability to regulate one’s emotions and understand the emotions of others) are some of the central tenants of the emotional intelligence construct.

While research exists supporting the contention that emotional intelligence does contribute to individual cognitive-based performance over and above the level attributed to general intelligence (Lam & Kirby, 2002), current theories tend to be more judicious regarding the incremental benefits of E.Q. over I.Q. Both Goleman (1998) and Mayer, Salovey and Caruso (1998) emphasize that emotional intelligence by itself is probably not a strong predictor of job performance. Instead, it provides a foundation for emotional competencies which are strong predictors of job performance.

In later work, Goleman (2001) attempts to theoretically clarify the relationship between I.Q. and E.Q., and their respective applicability to job performance. He describes I.Q. as playing a sorting function, determining the types of jobs individuals are capable of holding. He theorizes that I.Q. is a strong predictor of what jobs individuals can enter as well as a strong predictor of

success among the general population as a whole. For example, in order to become a medical doctor, an individual requires an above average I.Q. Emotional intelligence, on the other hand, is described by Goleman as a stronger predictor of who will excel in a particular job when levels of I.Q. are relatively equal. When the individuals are being compared to a narrow pool of people in a particular job in a certain organization, specifically in the higher levels, the predictive power of I.Q. for outstanding performance among them weakens greatly. In this circumstance, E.Q. would be the stronger predictor of individuals who outperform others. Thus, the doctors in a particular clinic would all have similarly above average I.Q.'s. Goleman would hypothesize that what would distinguish the most successful doctors from the others would be their levels of emotional intelligence.

Teaching Emotional Intelligence: Avenues for Training

Training programs aimed at improving emotional intelligence can occur in several different areas of training and development within an organization, including management training, communication and empathy training, conflict resolution and stress management training, as well as self-management training and training provided to unemployed workers (Cherniss, 2000). However, it is important to realize that traditional training curriculum and delivery are not generally successful in developing emotional intelligence competencies. Traditional programs generally adopt a "one size fits all" approach that ignores individual complexities while focusing on cognitive learning (Dearborn, 2002).

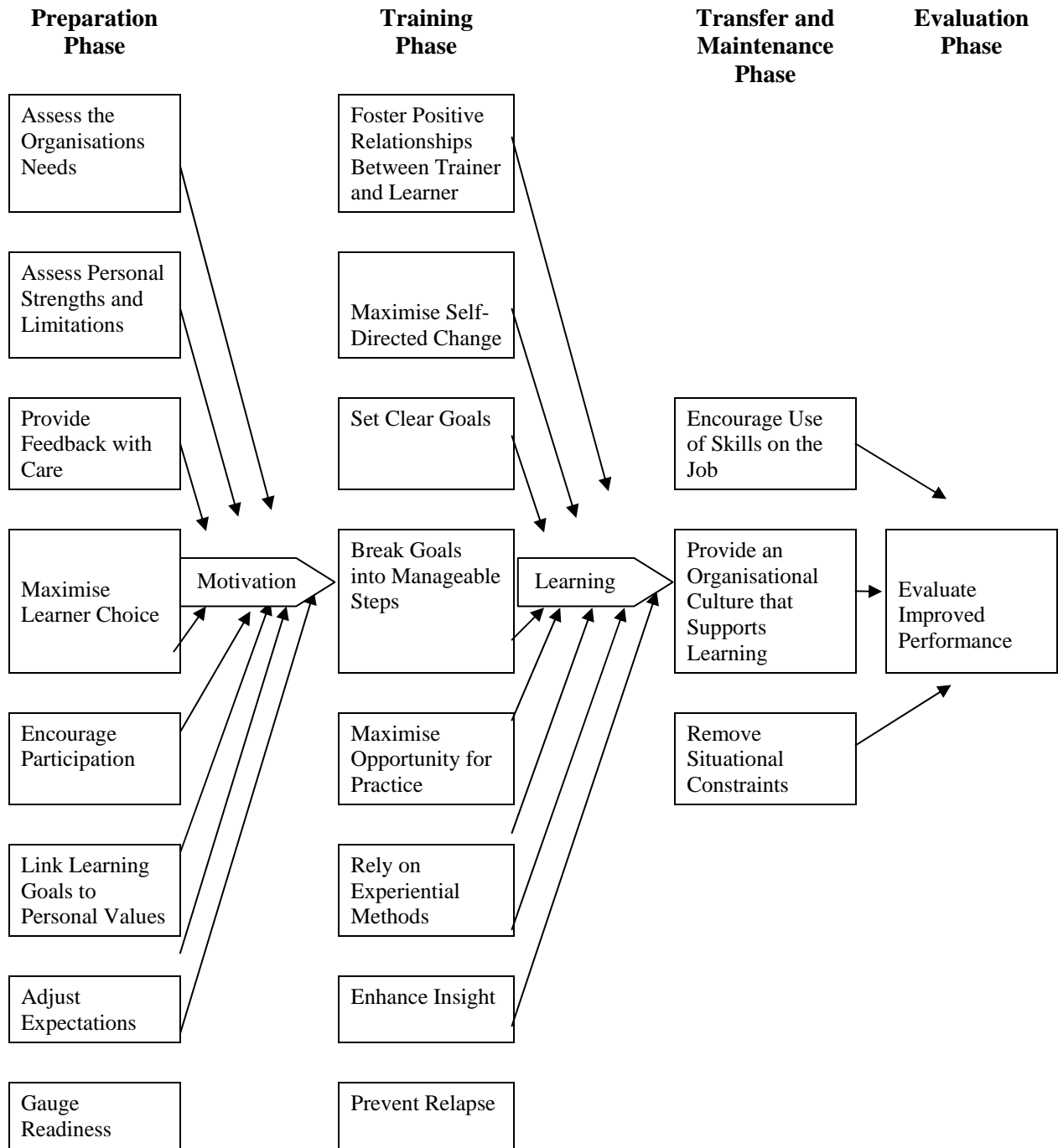
According to Cherniss and Goleman (1998), programs which utilize a cognitive learning process involve placing new information into already existing frameworks and ways of understanding, consequently enriching and expanding the neural circuitry of the brain. This type of learning is generally ineffective when trying to teach emotional intelligence competencies as these skills involve expanding the neural circuitry of the brain while re-training the brain centres which control emotion. Thus, emotional rather than cognitive learning techniques must be utilized to teach emotional intelligence. This less traditional training approach, based on self-directed and more individualized learning engagements, encompasses the following components:

- ◆ Visioning around reaching one's ideal self.
- ◆ Self-assessment and self-awareness of current strengths and weaknesses.

- ◆ Ensuring that strengths and limitations improve so that they do not detract from the achievement of goals.
- ◆ Creating and committing to a learning agenda that builds on strengths and reduces weaknesses.
- ◆ Active and frequent experimentation with new behaviours that support and develop emotional intelligence competencies.
- ◆ Reliance on a coach to regulate progress (Goleman, 1998).

Goleman has also established an optimal process for developing emotional intelligence in organizations. Outlined in Figure 4, this process consists of four phases: preparation for change, training, transfer and maintenance skills, and evaluation. Each phase has corresponding guidelines for achieving success. Preparation for change involves assessing the competencies which are most critical for organizational and individual effectiveness while convincing the workforce that improving their emotional competencies will lead to desirable outcomes. Goleman points out that motivational factors might be a particular issue in this step, as emotional learning and emotional intelligence are areas which are central to a person's identity, and thus many may be resistant to being told they must change themselves as people. The training phase focuses on experiential learning with repeated practice, modeling, and corrective feedback. Maintenance of skills is done through social support and a supportive work environment along with policies and procedures which support the development of emotional intelligence. Finally, evaluation is conducted to determine individual satisfaction with the training as well as to establish if the training has produced meaningful changes in on-the-job behaviour (Cherniss & Goleman, 1998).

Figure 3: Developing Emotional Intelligence in Organisations: The Optimal Process



Possible Programs for Developing Emotional Intelligence

Many programs and initiatives have been developed for use in organizational settings in an effort to improve the emotional intelligence of staff and management. Unfortunately, the effectiveness of the majority of these programs has not been evaluated. However, the results of three programs that have been evaluated are reviewed below.

Mastering Emotional Intelligence Program (MEI)

The Mastering Emotional Intelligence Program (designed by Goleman and Boyatzis) is a one year process that teaches participants how to identify and address emotional intelligence issues in the workplace while supporting the development of emotional intelligence competencies. Participants take part in a 2-day "Building Awareness" workshop where they learn to become more aware of their own and others' emotions. Later in the year they participate in another 2-day "Deciding to Change" workshop where each participant receives individual attention on those emotional intelligence competencies where their self-assessments differed dramatically from others assessments of them. The participants are instructed to meet with group members and to encourage each other to improve their E.I. through providing support and feedback in various situations. Finally, the participants meet again for a 1-day "Practicing and Mastering" workshop which provides further opportunities to work on E.I. behaviours (Sala, 2001)

This program's effectiveness was measured on two different samples: on a group of Brazilian managers from a large consumer retail organization and on an American sample of government accountants. Pre and post measures (14 months apart) of emotional intelligence in the two samples found that scores on the Emotional Competency Inventory (Boyatzis, Goleman, & Rhee, 1999) were approximately 11% higher post program for the Brazilian sample and 24% higher for the American sample (Sala, 2001).

Emotional Competence Training Program

The Emotional Competence Training Program grew out of a program spearheaded by the life insurance division at American Express Financial Advisors. Aiming to increase advisors' ability to cope effectively with the emotions they encountered when dealing with matters of life insurance with their customers, the program targets many aspects of emotional intelligence. In

particular, the Emotional Competence Training Program aims to increase advisors' emotional self-awareness, self-control, empathy, communication, conflict management, and the "developing others" competency (in the leadership version of the program).

The program is offered in different versions depending on the positions and roles of those in the company and is a standard element of training for all new employees. The length and content of the program varies with each version, the most effective being those which consist of four or five days of training spread throughout a few months. The program begins with a familiarization of the concept of emotional intelligence, followed by activities aimed at facilitating one's emotional awareness. Next, the participants learn about "self-talk" and how internal dialogue can affect their feelings and emotions. From there, they learn to replace their self-talk with more constructive internal dialogue. Participants then learn about the roles of emotion in behaviour, emotional response patterns, and they clarify the rules for emotional expression in their workplace. Next, the program shifts to relationships with coworkers; it looks at how to effectively listen to and speak about feelings and emotions, and clarifies issues surrounding interpersonal boundaries. Finally, the participants imagine what optimal performance would entail, identify the barriers to this level of performance, and write personal action plans to apply what they have learned to their goal.

Several evaluations have been conducted on different versions of this training program. A study of 33 advisors at American Express found that those who had completed the program had increased 13.5% on a measure of optimism and coping skill (compared to .9% increase in a control group) while showing an increase in insurance sales revenue (20% greater than the control group). A study of regional managers who had participated in the management-level program found that those advisors who were working under the managers which received training grew their business at a rate of 18.1% over a period of 15 months; those who worked under a control group of managers experienced 16.2% growth (AMEX Program, 2003).

Customized Leadership Development Program

Based on a design used successfully at the Weatherhead School of Management, the Customized Leadership Development Program is an emotional intelligence program which allows managers to identify areas in which they require behaviour change while giving them the opportunities to practice these changes in real-life situations. The program guides participants

through a process of self-directed learning, experienced as 5 "discoveries". The first, one's "Ideal Self", is the discovery of what one wants out of life and work. The second, one's "Real Self", is the discovery of what one is right now. A comparison of the "Ideal Self" and the "Real Self" results in a Personal Balance Sheet, illustrating one's strengths and weaknesses. A "Learning Plan" is the third discovery, providing a focus for future efforts in which participants are encouraged to use their individual styles and preferences in the planning. The fourth discovery is the process of experimenting and practicing on the job. Finally, the fifth discovery is the development of trusting relationships with coaches and others which facilitate further development (Goleman, Boyatzis, & McKee, 2002).

Participants in the Customized Leadership Development Program have shown a 70% improvement in emotional intelligence competencies one and two years after the program. Five to seven years after program completion, changes have been found to sustain at 50% improvement. In comparison, typical management training programs have been found to yield only 10% improvement three to eighteen months after training (Goleman, Boyatzis, & McKee, 2002).

EMOTIONAL INTELLIGENCE AND THE CORRECTIONAL SERVICE OF CANADA

The Correctional Service of Canada possesses unlimited opportunities in which to integrate an understanding of emotional intelligence among its leaders. This section provides an overview of how emotional intelligence corresponds to current leadership competencies endorsed by the Public Service, how it relates to effective prison leadership, as well as how the literature on the qualities of a successful correctional service worker reflect emotional intelligence competencies. Lastly, possible avenues for emotional intelligence training for correctional service workers are discussed.

Leadership and the Correctional Services of Canada

As a national organization, the Correctional Service of Canada encompasses leaders at a variety of different levels of operation, from senior management level leaders working at National Headquarters to leaders at individual institutions. The qualities that make each of these leaders successful are unique to their specific level of operation, and thus will be examined separately.

Leadership Among Senior Management

In an effort to establish guidelines and standards for effective leadership, the Public Service Commission of Canada has specified fourteen leadership competencies for Assistant Deputy Ministers (ADMs) and Senior Executives. These competencies, which are grouped under the categories of intellectual, future building, management, relationship, and personal competencies, have likewise been adapted by the National Managers' Community Council for use with middle managers. Table 7 describes each leadership competency.

Table 7: Leadership Competencies for ADMs and Senior Executives

Category	Leadership Competency	Description
Intellectual	Cognitive Capacity	The ability to understand and respond strategically to the complexities of the public service.
	Creativity	The ability to respond to challenges in innovative, unconventional ways.
Future Building	Visioning	The ability to share the vision of the public service with others in an enthusiastic, compelling, and motivational way.
Management	Action Management	The ability to accomplish objectives in spite of crises and distractions while keeping in mind short and long-term goals.
	Organizational Awareness	The ability to develop an awareness of the organization and its key players in order to position oneself to achieve objectives.
	Teamwork	The ability to contribute actively and fully in team projects in a collaborative rather than competitive manner.
	Partnering	The ability to form partnerships with a diverse group of others who share common goals in order to provide integrated services.
Relationship	Interpersonal Relations	The ability to interact effectively with a diverse group of individuals in order to achieve management objectives.
	Communication	The ability to speak in a compelling, articulate manner and to listen effectively for underlying messages and nuances in the input of others.
Personal	Stamina/Stress Resistance	The ability to sustain high energy levels and resist stress in the face of difficult demands.
	Ethics and Values	The ability to conduct themselves in a manner which upholds the personal, social and ethical norms of the Public Service.
	Personality	The ability to set goals and maintain stability, control, focus, and composure in challenging situations.
	Behavioural Flexibility	The ability to adjust behaviour to adapt to different situations, people, and groups while learning new and more effective behaviours.
	Self-Confidence	The ability to be secure and confident in one's abilities, make independent decisions, and handle criticism constructively.

Note. taken from the Public Service Commission (2003)

Several of the key leadership principles endorsed by the Public Service are reflective of emotional intelligence elements. Visioning, the ability to share the vision of the public service with others in an enthusiastic, compelling, and motivational way, would be a difficult competency to achieve without a certain degree of emotional intelligence. A leader would require the ability to read and understand the emotional climate of their organization in order to understand the degree of enthusiasm needed to motivate staff to work in accordance with the vision. Several competencies under the *management* category would likewise benefit from higher emotional intelligence among leaders. Organizational awareness is a term shared by Goleman's model of emotional intelligence. Goleman (1998) defines organization awareness as the ability to read the emotions and political realities of groups in order to gain insight into group and organizational hierarchies, a definition similar to that of the Public Service organizational awareness competency. The teamwork and partnering leadership competencies both involve the ability to network socially, an ability which can be enhanced by higher emotional intelligence. Logically, a leader who was able to read and understand the emotions of others as well as understand and control their own emotions would be more successful at working on a team and forming partnerships with a diverse group of people.

These elements of emotional intelligence are especially applicable to the competencies in the relationship category of the leadership traits. The capacity for superior interpersonal relations and communication would be greatly affected by a leader's emotional intelligence. The personal competencies of ethics and values, personality, and behavioural flexibility would also require high emotional intelligence. Conducting oneself in an ethical manner requires both control of one's own emotions and consideration for the emotions of others. Maintaining stability, control and focus (elements in the personality competency) would require the ability to recognize and moderate one's own emotional state, while the ability to control and adapt one's behaviour would be reflective of one's ability to control and adapt one's emotions. These elements of self-control, adaptability, and conscientiousness are competencies described by all three models of emotional intelligence. Mayer and Salovey (1997) refer to them as emotional understanding and management, Bar-On (2002) describes them as intrapersonal components, and Goleman (2001) places them in the self-awareness and self-management categories. Regardless of the model used, it is evident that the majority of the leadership competencies which the Public

Service endorses as being requisite in its top leaders are those which, to a large extent, depend on the emotional intelligence of those leaders.

Leadership Within Correctional Institutions

The leadership competencies laid out by the Public Service may be generalized to all types of leaders, regardless of level or location. However, it is not unreasonable to assume that leaders within correctional institutions face unique challenges and require additional (or different) leadership skills. In his book on prison leadership, Kevin Wright (1994) notes that while many individuals in higher-level executive positions attend universities with programs in public administrations to prepare them for leadership responsibilities, no such programs exist for prison administrators. They are forced to learn how to effectively lead in an institution through experience rather than education. He outlines four characteristics common among successful prison executives:

1. They understand what is required for an institution to run effectively, have mapped out objectives, and have begun to implement the objectives.
2. They are visible within the institutions. They are aware of any events, are involved in day-to-day operations, and are attentive to details.
3. They are self-confident and consciously aware of their influence within and outside the organization.
4. They are highly committed and loyal to their organization and staff.

Once again, the elements which contribute to the success of these institutional leaders could be enhanced with advanced levels of emotional intelligence. Goleman's (2001) social competencies, including organizational awareness, developing others, influence, conflict management, change catalyst, and teamwork and collaboration are all elements of emotional intelligence that could facilitate the effective administration of institutions and make for a more aware, involved, and committed leader. Likewise, an increased awareness of one's own emotions and their effect on coworkers could make a leader more self-confident and consciously aware.

Effective leadership skills are also important for those individuals within the institutions that take on leadership roles other than that of prison executive. One example of such individuals are instructors in the institutional employment program CORCAN. CORCAN, a federal correctional service initiative provided to address the employment needs of offenders, is comprised of institutional manufacturing, agribusiness, construction, textile operations, and other services. Evaluations of the effectiveness of CORCAN instructors' leadership styles have found that using a transformational leadership style results in significant improvements in offenders' personal growth, work habits, motivation, respect for others, job skills and involvement, and progress toward rehabilitation, among other positive outcomes (Crookall, 1989; Gillis, 1994). As outlined earlier, a significant relationship has been found between transformational leadership style and emotional intelligence (Mandell and Pherwani, 2003). Since such a connection has been established, it would not be unreasonable to hypothesize that advanced emotional intelligence would be beneficial in leaders throughout the institution, whether in executive or more applied positions.

Qualities of Effective Correctional Service Workers and E.I.

It could be theorized that those individuals who would benefit most from a higher emotional intelligence are correctional service workers. Their ability to read, understand, and react to inmate emotions as well as to manage their own emotions has a daily impact not only their own lives but on the lives of the inmates. For example, higher emotional intelligence could aid in the prevention of security incidents in an institution. In a Commissioner's Directive outlining the roles and responsibilities of individuals in order to prevent security incidents (Commissioner's Directive 566, 2003), the Commissioner outlines that correctional staff should ensure that, among other things, they communicate immediately any situation which, in their opinion, could jeopardize the safety of the unit and that they act positively with other staff and offenders. These roles require the ability to identify the mood of an environment; to sense the emotional state of the inmates and workers and react in a manner that is appropriate to the situation. These abilities are emotional intelligence skills. Likewise, the ability to act positively with other staff and offenders requires these same emotional intelligence skills.

A joint study investigating the work of federal correctional officers explains the role of a correctional officer in the following way:

...the dynamic security portion of their work involves active intervention with and counseling of offenders. It requires good interpersonal skills, excellent judgment, and vigilance. The ability to read and interpret body language in order to prevent potentially volatile situations cannot be overlooked (Treasury Board of Canada, 2000).

Many of the elements outlined in this characterization are important concepts in an emotional intelligence framework. Bar-On (2002) lists interpersonal skills as one of the main tenants of emotional intelligence, while Goleman (2001) stresses the importance of vigilance in his achievement drive and initiative competencies. The ability to read and interpret body language is a central tenant of emotional intelligence, reflected in the social awareness branch of Goleman's (2001) model, in the interpersonal component of Bar-On's model, and in the emotional understanding branch of the Mayer and Salovey model of emotional intelligence.

Part of the prevention of potentially volatile situations is the ability to negotiate with others. In their development of exercises to be used in simulated negotiations, Ogilvie and Carsky (2002) integrated exercises to develop the emotional intelligence of negotiators. They assert that the four branches of Mayer and Salovey's model of emotional intelligence are directly applicable to negotiations. Negotiators who can recognize emotions in themselves and others can better understand the reasons for these emotional responses, leading to better outcomes in negotiation. Understanding how emotions change is also important as a series of positive and negative emotions are experienced during negotiations. Lastly, the ability to influence one's own emotions and the emotions of others is likewise a tactical asset in negotiations.

Emotional intelligence can also be beneficial to community-based correctional service workers. In a study of the characteristics of the most effective probation officers, Andrews and Kiessling (1980) found that parole officers who scored highest on measures of interpersonal sensitivity (empathy) and socialization also reported the highest levels of satisfaction with their supervision in terms of the quality of the relationship they established with probationers. They were more likely to be prosocial in their verbal expressions, more likely to approve of probationers prosocial expressions, and were less likely to direct non-contingent or gratuitous expressions toward probationers. Finally, these probation officers produced probationers who

had higher levels of respect for the law, court, and police and lower levels of reoffending rates. These two characteristics, empathy and socialization, are cornerstones of emotional intelligence. It is listed as a sub-component of interpersonal emotional intelligence by Bar-On (2002), as a social awareness competency by Goleman (2001), and is included under the emotional understanding branch of emotional intelligence by Mayer and Salovey (1997). Socialization is built on the ability to share one's emotions while understanding the emotions of others. Clearly, emotional intelligence is an important factor in the success of correctional service workers, whether inside or outside an institutional setting.

CONTROVERSIES, LIMITATIONS, AND DIRECTIONS FOR FUTURE RESEARCH

The construct of emotional intelligence has weathered many controversies. In fact, an entire edition of the journal *Emotion* (Volume 1, No.3, 2001) was dedicated to an extensive discussion surrounding the legitimacy and validity of the emotional intelligence construct. This section aims to disseminate some of the controversies and limitations surrounding emotional intelligence. It concludes with a section on suggestions for further research as well as caveats for those looking to implement emotional intelligence programs in their organizations.

The Legitimacy of Emotional Intelligence

The publication of Daniel Goleman's *Emotional Intelligence* in 1995 allowed the non-academic world to read about and understand the concept of emotional intelligence, as well as apply Goleman's model in their homes and workplaces. Although many people have adopted emotional intelligence as a new and exciting idea, others are not quite as convinced. Opponents have called emotional intelligence a "buzzword" which in reality holds little meaning (Steiner, 1997), while others have proposed that it is just a new word for a collection of already established competencies (Woodruffe, 2001). Goleman's claims stating emotional intelligence's significance in predicting success is over and above that of I.Q., and the conflicting evidence regarding these claims, resulted in many researchers doubting the legitimacy of the construct (Epstein, 1998; Hedlund & Sternburg, 2000; Mayer et al., 2000; Roberts, Zeidner, & Matthews, 2002).

In his review of research surrounding emotional intelligence, Becker (2003) criticized emotional intelligence on two fronts. The first is the lack of valid and reliable measures in the area. Becker argues that since the construct cannot yet be measured with reasonable accuracy, it is impossible to know whether it is rooted in reality or imagination. The second criticism stems from the fact that emotional intelligence appears to be based on problematic conceptualization, with Becker stipulating that emotional intelligence is nothing more than general intelligence aimed at emotional phenomena.

Another group of researchers suggest that while the theory development surrounding emotional intelligence is weak, there is much potential for its application towards improved leadership effectiveness and human resource performance improvements, among other things (Luthens, 2002). Hedlund and Sternberg (2000) hypothesize that the problem with emotional

intelligence is not the concept itself, but in the lack of consistency in how constructs are conceptualized and operationalized. Specifically, they take issue with the fact that definitions of emotional intelligence range from encompassing purely cognitive factors to including cognitive factors as well as many personality traits.

Neurological Evidence for Emotional Intelligence

In spite of the negative and unsupportive outlooks on emotional intelligence, neurological evidence does exist to support the hypothesis that emotional intelligence is a separate and distinct idea from I.Q. The earliest (and most well known) case study in this area is the case of Phineas Gage. Gage was a popular, hardworking, friendly man of normal intelligence who worked with explosives during the building of the railroads. He survived a horrible accident when an explosion drove an iron bar through the front of his head. Although Phineas recovered quite miraculously with his intellect, memory, speech, sensation, and movement intact, his behaviour saw a drastic change. His emotions and reactions became unpredictable, he became irresponsible, and he grew impatient if what he was told conflicted with his desires. Modern neuroimaging techniques used on Phineas' skull have discovered that the iron rod had punctured the bilateral ventromedial region of his prefrontal cortex (Bechara, Tranel, & Damasio, 2000).

Researchers in the area of affective neuroscience stress that their findings cannot support one model of emotional intelligence over another, rather their findings endorse the existence of a set of emotional abilities that comprise a form of intelligence which is distinct and different from standard intelligence, or IQ (Bechara, Tranel, & Damasio, 2000). While intellectual abilities such as verbal fluency, spatial logic, and abstract reasoning (the components of I.Q.) are based primarily in the neocortex, the components that constitute emotional intelligence have been found to exist as more of a neurological circuitry that links the limbic areas for emotion (amygdala and its corresponding networks) to the prefrontal cortex (the brain's executive centre). Lesions in this area were found to produce deficits in hallmark abilities of emotional intelligence (Damasio, 1999). In particular, those patients who had suffered from ventromedial prefrontal lesions (or frontal lobe syndrome) preserved their intellectual abilities while developing severe impairments in personal and social decision making. They experienced trouble making plans for their day or their future and had difficulties choosing friends, partners, and activities. They began to make disadvantageous choices which they were not known to make before their brain

injuries, could not learn from their previous mistakes, and suffered from deficits in their ability to process emotional signals and to cope effectively with environmental and social demands (Bechara, Tranel, & Damasio, 2000).

Such affective neurological studies have found support for several of the main components of emotional intelligence which are universal across all models. For example, the recognition of emotions in others is a unanimous element of emotional intelligence. Studies of patients with amygdala lesions found that the amygdala is essential for recognition of emotions through facial expressions and in judging the trustworthiness of a given individual. In addition, the neural connections which underlie these inability to interpret facial expressions overlap with those involved in decision making, thus researchers believe that deficits in emotional processing can have adverse consequences on social decision making (Bechara, Tranel, & Damasio, 2000). The effective management of one's emotions is likewise a universal aspect of emotional intelligence. Research by Davidson, Jackson, and Kalin (2000) using PET scans (positron-emission tomography) found that increased activity in the amygdala led to an increase in negative emotions. However, this activity is mediated by the medial pre-frontal cortex, which produces neurons which inhibit the activity of the amygdala. Thus, it appears that within the circuit between the amygdala and the medial pre-frontal cortex lies the ability to regulate negative affect. Such studies of the neurology underlying emotions are new to the field, and much more work needs to be done in this area. However, the ability to neurologically distinguish cognitive intelligence (I.Q.) and emotional intelligence (E.Q.) is a significant contribution to the legitimacy of the emotional intelligence construct.

Ability vs. Mixed Models: Which is Superior?

There is a significant amount of debate within the emotional intelligence literature concerning the two models of emotional intelligence (ability vs. mixed); many researchers have attempted to address the issue of which model represents emotional intelligence in the most accurate manner. Supporters of the ability model propose that the mixed model of emotional intelligence is less "pure". Ability model supporters argue that research based on ability measures has demonstrated that emotional intelligence is a distinct and clearly defined construct with evidence of incremental validity (Brackett & Mayer, 2003).

However, proponents of the mixed models chastise the ability model for focusing too strictly on traditional intelligence-based psychometric criteria. They argue that many theorists have recommended broadening the traditional notion of intelligence so that it incorporates many facilities which have conventionally been beyond its scope. Researchers, such as Howard Gardner, note that standardized intelligence tests do not necessarily measure success in school or life as support for a mixed model of emotional intelligence (Gardner, 1999).

Measurement Issues and Emotional Intelligence

Measures of emotional intelligence, like theories of emotional intelligence, fall within either the ability or mixed models and can take several forms: self-report, other-report, or performance measures. *Self-report* measures ask people to indicate to what extent a certain statement describes them. Relying on a person's self-understanding and self-concept, self-report measures are accurate if the person's self-concept is accurate. However, if the person's self-concept is inaccurate, a self-report measure may in fact be measuring the self-concept and not the true thoughts, behaviours, and attitudes of the individual (Paulhus, Lysy, & Yik, 1998; Mayer, Caruso, & Salovey, 2000).

Other-report measures (also called other-rater or informant measures) are sometimes advantageous over self-report measures as they are less of a measure of self-concept. In other-report formats, individuals who are familiar with a person are asked to what extent a certain statement describes that person. Other-report measures have been criticized as a measure of a person's reputation and not their true self, and have been found to be much less accurate when judging internal cognitive styles and capacities (Funder and Drobth, 1987).

Performance measures (also called ability measures) assess intelligence by having the individual engage in a number of cognitive tasks. Performance measures have traditionally been regarded as the "gold standard" for traditional intelligence testing due to the fact that intelligence corresponds directly to the actual capacity for one to perform well at mental tasks. In essence, having to perform mental tasks illustrates their actual capacities while self and other-report designs measure beliefs about those capacities (Mayer & Salovey, 1993). However, others believe that while self-report measures of emotional intelligence do provide a less direct measure, they avoid the inherent reliability and scoring problems associated with performance measures (Roberts, Zeidner, & Matthews, 2001). In terms of the models of emotional

intelligence, self and other report measures are used within the mixed models, while performance measures are utilized within an ability model of emotional intelligence.

Just as debate exists over the most accurate conception of emotional intelligence, so does debate exist over the most precise method in which to measure the construct. There has been doubt surrounding the validity of self-report measures of emotional intelligence. Several researchers have pointed out that the correlations which exist between these types of emotional intelligence measures and other theoretical variables are really a reflection of the measures predicting personality variables which in turn predict the criteria. They therefore conclude that self-report measures of emotional intelligence are not in fact accounting for any additional variability in life criteria than did traditional tests of intelligence and personality (Dawda & Hart, 2000; Newsome, Day, & Catano, 2000). Other researchers have found that while self-report measures of emotional intelligence did have some predictive capability over and above that of standard personality measures, self-report measures were not the "best choice" after personality to explain additional variance (Saklofke, Austin, & Minski, 2003).

Davies, Stankov, and Roberts (1998) conducted a large-scale psychometric investigation of emotional intelligence by using a wide range of measures related to the construct. They reported that most measures suffered from low reliability and validity, but that self-report measures in particular were strongly correlated with well-established personality factors. A more recent study by Brackett and Mayer (2003) compared self-report and performance measures to ascertain their validity. Results showed that the performance based measure of emotional intelligence correlated only modestly with personality and well-being, while the self-report measures were found to correlate strongly with personality measures. In addition, the performance and self-report measures showed no convergent validity, in other words, the measures were not related to each other. The performance measure showed high discriminant validity when compared to personality measures but the self-report measures did not.

Can Emotional Intelligence Be Taught?

One of the most controversial aspects of emotional intelligence is whether or not it can be taught or developed. Although proponents of the development of emotional intelligence, such as Goleman, argue that the proper programs can help individuals change from, say, pessimists to optimists within weeks (Goleman, 1998), several arguments exist supporting the notion that,

logically, emotional intelligence can not be taught. These arguments stem from personality theory (more specifically trait theory) as well as the neurological evidence.

Research has found that personality traits are strongly influenced by genes and persist from childhood to adulthood, remaining static over time. Although traits are pervasive and enduring, they do follow a developmental trajectory: between late adolescence and thirty years of age, neuroticism, extraversion and openness tend to decline, while agreeableness and conscientiousness tend to increase. These traits are strongly preserved throughout the entire adult life span, although there is a much more gradual shift in this same trend as one ages (McCrae et. al, 1999). Thus, a trait theorist would argue that although it may be possible to give people training in emotional intelligence and change some of their specific attitudes, behaviours, or policies, creating deep and pervasive changes in personality is difficult. Also, because personality traits are so enduring, any changes in attitude or behaviour that are made may be superficial and short-term in nature (McCrae, 2000).

Another argument which could be made regarding the ability to advance one's emotional intelligence is a neurological one. Previously aforementioned research has shown that a distinct type of intelligence (other than I.Q.) can be identified by examining PET scans and patients with lesions in certain brain areas, mainly the amygdala and the pre-frontal cortex (Bechara, Tranel, & Damasio, 2000). If emotional intelligence is distinct from cognitive intelligence in that it is not comprised of neocortical connections (which can be developed through learning), how is it that one can learn or develop emotional intelligence skills? It would appear that the neurological support for emotional intelligence to some degree, corroborates the idea that emotional intelligence is genetically determined and static in nature, rather than dynamic.

A 2003 article by Emmerling and Goleman attempted to clarify the reservations regarding the ability to develop emotional intelligence skills. To start with, they acknowledged that genes play an important role in the determination of emotional intelligence but drew attention to the fact that geneticists themselves recognized the ability of nature to shape gene expression. Secondly, they challenged the common misconception that developing one's emotional intelligence was an easy task; they argue that individuals are unlikely to improve any aspect of their emotional intelligence without sustained effort, commitment, and attention to do so. Lastly, they highlight research findings that support the contention that emotional intelligence can be developed, sighting findings from a longitudinal evaluation of the

Weatherhead MBA program in which emotional intelligence was found to be improved by 50% seven years after program completion (Boyatzis, Cowan, & Kolb, 1995) and neurological research supporting the contention that the brain centres for emotion (the amygdala and pre-frontal cortex among others) may indeed be plastic and capable of change (Davidson, Jackson, & Kalin, 2000).

Suggestions for Future Research and Application

The modern concept of emotional intelligence is in itself a youthful one. Much work has yet to be done to discover exactly what emotional intelligence encompasses and how it would be most effectively applied. Future research on emotional intelligence might focus on the following areas:

- The relationship between emotional intelligence and personality. More research is needed to determine the exact connection of emotional intelligence and personality constructs and if certain models or measures of emotional intelligence are accounting for additional variance in performance or behaviour over and above that of personality factors. Research should consider the usefulness of constructs and measures which may only replicate or rename ideas which are already established.
- The validity of modeling emotional intelligence on cognitive intelligence. Considering the debate regarding the validity and applicability of I.Q. tests, additional research is required to establish if emotional intelligence (as proposed by Mayer and Salovey) is best modeled after standard intelligence.
- The measurement of emotional intelligence. More research is required on the reliability and validity of the measures of emotional intelligence. In addition, future efforts might look at developing ability measures of Goleman and Bar-On's models of emotional intelligence, considering much of the criticism surrounding the present measures of these constructs revolves around their self-report format.
- The extent to which emotional intelligence can be taught. As evidence exists both for and against the ability for emotional intelligence competencies to be developed, it is important that future research determine the extent that such learning may occur before an organization invests considerable funds into a development program. Perhaps hiring

on the basis of emotional intelligence may prove to be more effective than attempting to develop its levels after the fact.

- The extent to which training in emotional intelligence is more beneficial than other leadership or “people skills” training. If one takes the view that both personality traits and emotional intelligence traits are relatively stable over time, future research could examine whether programming in emotional intelligence accounts for a greater improvement in performance than current programs in place which aim to strengthen leadership characteristics.
- The effectiveness of emotional intelligence programs. Several programs touted to increase the emotional intelligence of participants, which are available on the market, are yet to be evaluated. Program evaluation research is necessary in order to determine which programs are effective in general and in specific settings and situations.
- The role of emotional intelligence in the Public Service. Although a substantial amount of research has been conducted on the role of emotional intelligence in private business, there is a lack of research examining emotional intelligence in the public service sector. The goals and dynamics of these institutions often differ, and it would be interesting to examine whether or not emotional intelligence could make a comparable contribution to the functioning of the Public Service of Canada.
- The role of emotional intelligence in corrections. Currently, the focus of emotional intelligence literature in corrections is on the offenders. For instance, the Mayer-Salovey-Caruso Emotional Intelligence Test User’s Manual (Mayer, Salovey, & Caruso, 2002) asserts that emotional intelligence plays a role in correctional settings in that low emotional intelligence is often characteristic of correctional inmates. However, there is a lack of literature surrounding the applicability of emotional intelligence to correctional service workers both inside and outside of the institutions. Examining this relationship could be beneficial; perhaps correctional service workers higher in emotional intelligence are more likely to understand and respond to the needs of the inmates, possibly resulting in less security issues, and ultimately, in lower reoffending rates. Likewise, perhaps those correctional service workers higher in emotional intelligence are more adequately equipped to deal with the special circumstances of particular offenders, specifically woman and Aboriginal offenders.

CONCLUSION

Since 1990 emotional intelligence has garnered considerable attention from the academic community, applied settings and mainstream society. Three competing models of emotional intelligence have emerged along with their own corresponding measurement strategy. While the pure model emphasizes cognitive ability and relies on an objective, performance-based measure of E.I., the mixed models assess both cognitive ability and personality traits using self-report measures. Interestingly, although Multi-Health Systems has published two E.I. measures (one derived from the 'pure' model, the other from the 'mixed' model) considerable debate remains regarding the legitimacy of the construct and how it should be measured. Consequently, additional research is needed to gain not only theoretical consensus but also clarity regarding the most appropriate measurement strategy. Lastly, the effectiveness of E.I. training and E.I.-based hiring has been examined in applied settings. However, the extent to which a correctional environment, specifically Correctional Service of Canada could benefit from hiring individuals who already possess a high level of E.I. or alternatively, training existing staff to become more emotionally intelligent remains to be examined.

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APPENDIX A: GLOSSARY OF STATISTICAL TERMS

Note: statistical terms are presented in alphabetical order. Definitions were taken from several sources, including Nunnally & Bernstein, 1994 and Anastasi, 1982.

Completeness: an estimate of validity, completeness refers to the ability of a measure to accurately classify the majority of test takers.

Concurrent Validity: an estimate of criterion-related validity which examines the extent to which a measure assesses present status in another criterion.

Construct Validity: an estimate of validity which examines the degree to which a measure is actually assessing what it purports to measure. Construct validity includes convergent, divergent, and discriminant validity.

Content Validity: an estimate of validity which examines the adequacy with which a specified domain of content is covered in a measure of that domain.

Convergent Validity: an estimate of construct validity which examines the extent to which two independent methods of measuring a construct lead to similar conclusions.

Correlation: describes the degree of relationship between two variables. The most common types of correlations are Pearson's r and the Phi coefficient. Correlations range from -1.00 to 1.00, with -1.00 and 1.00 representing perfect negative and positive relationships and 0 representing a lack of relationship between the variables.

Criterion Validity: an estimate of validity which examines the extent to which the measure estimates another behaviour (criterion) that is external to the measuring instrument itself. Criterion-related validity includes concurrent validity, correspondence with intervention, and predictive validity.

Divergent/Discriminant Validity: Used interchangeably in the literature, divergent/discriminant validity is an estimate of construct validity which examines the extent to which a measure is assessing the construct of interest rather than a different, unassociated construct. It is also used to examine the extent to which a measure is able to produce relevant group differences.

Incremental Validity: the extent to which a measure makes a unique contribution to prediction, that is, if the measure produces an increment in predictive accuracy and efficiency over and above other measures.

Internal Consistency: an estimate of reliability based on the average correlation among items within a test.

Inter-Rater Reliability: an estimate of reliability, inter-rater reliability is the extent to which two or more test administrators rate a participant in the same way, that is, the extent to which the administrators ratings correlate.

Predictive Validity: an estimate of criterion-related validity which examines the extent to which a measure predicts future outcomes in another criterion.

Reliability: the extent to which a measure leads to the same or similar results over repeated trials.

Stability: an estimate of reliability, stability is the extent to which a measure leads to the same results over time. Generally reflected in test-retest reliability.

Structural (factorial) validity: the extent to which the theoretical components of a measure have been supported through a specific type of statistical analysis (i.e., factor analysis).

Test-Retest Reliability: an estimate of reliability where subjects are tested then retested by the same measure after a period of time.

Validity: the scientific utility of a measure, that is, the extent to which a measure is truly measuring what it purports to measure.