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Running Head: ASSESSING EMOTIONAL INTELLIGENCE MEASURES

Assessing emotional intelligence measures: Do they predict work and life outcomes?

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A Thesis Submitted in Partial Fulfillment of the Requirements for the
Degree of Master of Science in Applied Psychology (Industrial/Organizational)
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Abstract

Many organizations are using emotional intelligence (EI) measures for selection and training purposes as a result of the claims that these measures predict successful work and life functioning (e.g., Bar-On, 1997; Boyatzis, Goleman, & Rhee, 2000; Goleman, 1995; Goleman, 1998; Mayer & Salovey, 1997; Mayer, Salovey, & Caruso, 1999). However, little is known about the definition and measurement of this new construct and many researchers question what EI measures are assessing and what they predict (e.g., Newsome, Day, & Catano, 2000; Petrides & Furnham, 2000). In the present study, two popular EI measures (i.e., Emotional Quotient Inventory, EQ-i, Bar-On, 1997; Mayer Salovey Caruso Emotional Intelligence Test, MSCEIT, Mayer et al., 1999) were examined in terms of their construct validity and predictive validity. Officers and basic recruits in the Canadian Forces (CF) completed two measures of EI, personality, job satisfaction, and life satisfaction which were correlated with their scores on the Canadian Forces Aptitude Test (CFAT) and training performance ratings. The EQ-i had moderate to high correlations with the Big Five personality dimensions, suggesting a great deal of overlap between these two measures. Conversely, only the emotional management scale of the MSCEIT was associated with personality. Both the EQ-i and MSCEIT were unrelated to general cognitive ability and training performance. The MSCEIT was unrelated to job satisfaction and life satisfaction. In contrast, the EQ-i accounted for variance in both job satisfaction and life satisfaction after controlling for the influence of demographic characteristics and personality.

INTRODUCTION

Emotional intelligence (EI) has become the subject of media attention in recent years with researchers and practitioners making claims about the ability of EI to predict various work and life outcomes (e.g., Bar-On, 1997; Boyatzis, Goleman, & Rhee, 2000; Goleman, 1995; Goleman, 1998; Mayer & Salovey, 1997; Mayer, Salovey, & Caruso, 1999). These claims have received little empirical support. Many researchers question the definition and measurement of EI (e.g., Davies, Stankov, & Roberts, 1998; Newsome, Day, and Catano, 2000; Petrides & Furnham, 2000). Several different measures have been developed to assess EI (e.g., Bar-On, 1997; Mayer et al., 1999; Shutte, Malouff, Hall, Haggerty, Cooper, Golden, & Dornheim, 2000). These measures are being used by organizations for selection and training purposes without the empirical evidence to suggest that they are valid selection tools.

Two of the most well known EI measures are the Emotional Quotient Inventory (EQ-i, Bar-On, 1997) and the Mayer Salovey Caruso Emotional Intelligence Test (MSCEIT, Mayer et al., 1999). These measures were examined in terms of their construct validity and predictive validity among a sample of basic recruits and officer cadets in the Canadian Forces (CF). The present study had two goals: (1) to examine the relationship of the EI measures with personality and cognitive ability; and (2) to evaluate whether these EI measures predict successful work and life functioning.

Definitions & Models of EI

The concept of EI was first introduced by Salovey and Mayer (1990) and later popularized by Goleman (1995). The theory guiding the development of this construct dates back to historical research on social intelligence (e.g., Brown & Anthony, 1990;

Cronbach, 1960; Schneider, Ackerman, & Kanfer, 1996; Thorndike & Stein, 1937; Thorndike, 1920). Thorndike (1920) incorporated social intelligence into his conceptualization of intelligence, and defined it as the ability to understand and manage emotions. Thorndike (1920) suggested that social intelligence was distinct from abstract and mechanical intelligence.

In his theory of multiple intelligences, Gardner (1983) suggested that personal or social intelligence consisted of two components: intrapersonal intelligence (i.e., knowledge about oneself) and interpersonal intelligence (i.e., knowledge about others). More recently, Schneider et al. (1996) defined social intelligence as "socially effective behavior and its cognitive, affective, and conative antecedents" (p. 471). The definition of social intelligence was broad and not easily distinguishable from verbal intelligence; it was difficult to measure the social intelligence construct (e.g., Cronbach, 1960; Riggio, Messamer, & Throckmorton, 1991; Thorndike & Stein, 1937). Consequently, there were early critics of the social intelligence construct.

Salovey and Mayer (1990) referred to EI as an aspect of social intelligence. They defined EI as "the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (p. 189). In this definition of EI, Salovey and Mayer (1990) identified three components: appraisal and expression of emotions, regulation of emotions, and utilization of emotions in solving problems.

In their subsequent model, Mayer and Salovey (1997) defined EI as a set of abilities that enable individuals to perceive, express, assimilate, understand, and regulate emotions. Mayer and Salovey (1997) divided these emotional abilities into four levels

ranging from basic processes (i.e., perception and appraisal of emotions and assimilating emotions) to higher-level mechanisms (i.e., understanding and reasoning with emotions and managing and regulating emotions; see Table 1). Mayer, Caruso, and Salovey (2000a) suggested that the emotional intelligence construct is easily distinguishable from verbal intelligence and, therefore, would not suffer from the problems associated with the social intelligence construct.

Table 1

Mayer and Salovey's (1997) four-branch model of EI.

Branch	Definition
Branch 1: Perception of emotions	The ability to perceive emotions in oneself and others, as well as in objects, art, stories, and the like.
Branch 2: Emotional facilitation of thought	The ability to generate, use, and feel emotion as necessary to communicate feelings, or employ them through other mental processes.
Branch 3: Understanding emotions	The ability to understand emotional information, how emotions combine and progress through relationship transitions, and to reason about such emotional meanings.
Branch 4: Managing emotions	The ability to be open to feelings, to modulate them in oneself and others so as to promote personal understanding and growth.

Mayer, J. D., Salovey, P., and Caruso, D. R. (1999). Mayer Salovey Caruso Emotional Intelligence Test: Research Version 1.1 Manual. Toronto: Multi-Health Systems.

There are a variety of other definitions of EI that are somewhat different from the original definition proposed by Salovey and Mayer (1990) (e.g., Bar-On, 1997; Goleman, 1995; Mayer & Salovey, 1997). Goleman (1995), who was responsible for popularizing the concept of EI through his best-selling book, "Emotional Intelligence", and later through his book examining EI at work (Goleman, 1998), incorporated various personal

attributes into his definition of EI (e.g., motivating oneself and handling relationships). Although some of the aspects of Goleman's (1995) definition appear to include ability-based factors (e.g., knowing one's emotions, managing emotions, and recognizing emotions in others), he also included non-ability factors.

Bar-On (1997) focused on non-cognitive or trait-based factors and defined EI as "an array of noncognitive capabilities, competencies, and skills that influence one's ability to succeed in coping with environmental demands and pressures" (p. 14, Bar-On, 1997). The main factors in Bar-On's (1997) non-cognitive model include intrapersonal functioning, interpersonal skills, adaptability, stress management, and general mood (see Table 2).

Table 2

Bar-On's (1997) EI model.

Factors	Definition
Intrapersonal functioning	The ability to be aware of and understand one's emotions, feelings, and ideas.
Interpersonal skills	The ability to be aware of and understand others' emotions and feelings.
Adaptability	The ability to be flexible and alter one's feelings with changing situations.
Stress management	The ability to cope with stress and to control emotions.
General mood	The ability to feel and express positive emotions and remain optimistic.

In general, the various conceptualizations of EI appear to be somewhat distinct. The original definition of EI proposed by Salovey and Mayer (1990) referred to EI as the

ability to think intelligently about emotions and their meanings. As an ability, EI should be viewed as a type of intelligence that is relatively independent of personality traits (Mayer & Salovey, 1997). In contrast, Goleman's (1995) and Bar-On's (1997) definitions of EI are broader and encompass various personal traits. Because of the lack of consensus regarding the definition of EI, researchers and practitioners have developed different measures to assess EI. As a result, these measures are based on different operational definitions and assess different components of the EI construct. This inconsistency makes it difficult to discern what EI is.

EI Measures

A variety of measures have been developed to assess the different definitions of EI. Generally, these EI measures tend to be grouped into two categories: measures that require the test taker to engage in emotion-related tasks, such as recognizing emotions in faces (i.e., ability-based EI measures), and measures that require the participant to self-report his or her EI.

Ability-Based EI Measure: Mayer Salovey Caruso Emotional Intelligence Test (MSCEIT)

The MSCEIT was developed by Mayer et al. (1999) to assess their four branch ability-based model of EI: emotional management, emotional understanding, emotional integration, and emotional perception. The MSCEIT was based on an earlier ability-based measure, the Multi-factor Emotional Intelligence Scale that was also designed to assess Mayer and Salovey's (1997) four branch model. Due to the low reliability of the MEIS and the length of the measure, the MEIS was revised and became known as the MSCEIT (Mayer et al., 1999).

Mayer et al. (1999) developed the MSCEIT to measure individuals' performance on

emotion-related tasks (Mayer et al., 1999). For example, several items on the MSCEIT require the test-taker to identify emotions in faces. Mayer et al. (1999) reported that the reliability of the MSCEIT improved from the original MEIS scale. One issue that still remains with the use of the MSCEIT is the ambiguity of the correct response. There are three methods of arriving at the correct response on an objective EI measure: target criteria, expert criteria, and consensus criteria (Mayer, Salovey, & Caruso, 2000a; Mayer & Geher, 1996). The target criteria method involves using the target's actual response/feeling as the correct response. The target may be asked to provide a written description of how he or she was feeling in a particular situation and the test taker guesses how the target was feeling by choosing from a set of responses. Expert criteria involve asking experts in the field of emotions, such as clinical psychologists, to judge how the target is feeling by observing the target or reading his or her account of a situation. The test taker receives credit if his or her response corresponds to that of the experts. Finally, the consensus method involves gathering judgements from a number of individuals; the test taker is deemed correct if he or she has the same view as the group. The consensus scoring procedure has been viewed as the most accurate and reliable method of determining the correct response because targets may not accurately report their negative feelings and large groups tend to be accurate indicators of the correct emotional response (Mayer et al., 2000a; Mayer, DiPaolo, & Salovey, 1990). Mayer et al. (2000a) reported that the correlations among these three scoring methods tend to be positive.

An ability-based EI measure should be distinct from personality traits (Mayer & Salovey, 1993; Mayer et al., 1999; Mayer, Caruso, & Salovey, 2000c; Mayer, Salovey, & Caruso, 2000b; Salovey & Mayer, 1994). The finding that the MSCEIT scales tend to

have low or non-significant correlations with personality supports this proposition (Barchard & Hakstian, 2001; Carroll & Day, 2001; Davies et al., 1998). In contrast, Ciarrochi et al. (2000) found that scores on the MEIS were related to empathy and extraversion scores. The low reliability of the MEIS, however, suggests that the results of this study should be interpreted with caution. More research is needed to clarify the relationship between ability-based EI measures and personality.

Ability-based EI should be moderately correlated with other forms of intelligence (Mayer et al., 2000c). Barchard and Hakstian (2001) found that the MSCEIT scales were associated with general intelligence. Verbal intelligence was related to perceiving, understanding, and managing emotions as assessed by the MEIS (Mayer et al., 2000a). Scores on the MEIS were related to general cognitive ability scores (Ciarrochi et al., 2000). However, due to the low reliability of the MEIS these results should be interpreted with caution. In order for the MSCEIT to be considered a measure of intelligence, it should increase with age and experience (Mayer et al., 2000c). Mayer et al. (2000c) found that adults scored significantly higher on the MEIS than adolescents regardless of the type of scoring procedure used. In the present study, the following hypotheses are proposed:

Hypothesis 1a: Scores on the MSCEIT will increase with age and education level.

Hypothesis 1b: Scores on the MSCEIT should be moderately correlated with cognitive ability and have low correlations with personality.

Self-Report EI Measure: Emotional Quotient Inventory (EQ-i). There are a number of self-report EI measures (e.g., Bar-On, 1997; Goleman, 1995; Salovey, Mayer, Goldman, Turvey, & Palfai, 1995; Shutte et al., 1998). The most widely known self-report measure of EI is the Emotional Quotient Inventory (EQ-i) developed by Bar-On

(1997). The EQ-i is a self-report inventory that consists of 133 items assessing 15 sub-scales that are classified under 5 main factors (i.e., intrapersonal functioning, interpersonal skills, adaptability, general mood, and stress management). The intrapersonal functioning factor assesses emotional self-awareness, assertiveness, self-regard, self-actualization, and independence. The scale measuring interpersonal skills includes empathy, interpersonal relationships, and social responsibility. The adaptability scale assesses problem solving, reality testing, and flexibility. The scale measuring stress management assesses stress tolerance and impulse control. The general mood scale assesses happiness and optimism.

Recently, Bar-On, Brown, Kircaldy, and Thome (2000) conducted a factor analysis of the higher order factors of the EQ-i that resulted in three interpretable factors: positive affect (i.e., self-regard, interpersonal relationships, independence, self-actualization, assertiveness, flexibility, and happiness), stability (i.e., problem solving, stress tolerance, impulse control, reality testing, negative impression), and social conformity (i.e., social responsibility and positive impression). Interestingly, affectivity, stability, and social conformity are well-researched personality constructs (e.g., Barrick & Mount, 1991; Johnson & Johnson, 2000) suggesting that the EQ-i may overlap with personality.

The moderate to high relationship between self-report EI measures and measures of the Big Five personality dimensions is well established (e.g., Bar-On, 2000; Bedwell, Hesson-McInnis, & Binning, 2000; Dawda & Hart, 2000; Mayer, Salovey, & Caruso, 2000d; Newsome et al., 2000; Shutte et al., 1998). The total scores on the EQ-i are correlated positively with extraversion, independence, and self-control, and negatively with anxiety (Newsome et al., 2000). Scores on the EQ-i are negatively related to

neuroticism and positively related to conscientiousness, agreeableness, and extraversion (Dawda & Hart, 2000). Research also suggests that self-report emotional intelligence measures are generally independent of general cognitive ability (e.g., Davies et al., 1998; Newsome et al., 2000). This finding does not comply with the original definition of emotional intelligence proposed by Salovey and Mayer (1990). Although Bar-On's (1997) measure tends to deviate from the original definition of EI proposed by Salovey and Mayer (1990), scores on several self-report EI measures have been shown to increase with age and education level (e.g., Bar-On et al., 2000; Ciarrochi et al., 2000).

In a well-known study, Davies et al. (1998) examined several measures of EI, personality, and cognitive ability. Self-report EI measures were moderately correlated with well-established personality inventories but were relatively independent of general cognitive ability (Davies et al., 1998). Barchard and Hakstian (2001) found that several self-report EI measures were associated with personality but were not associated with general intelligence. If EI were assessed using self-report inventories, it would not be easily distinguishable from personality inventories (Davies et al., 1998). Further research is needed to examine this issue. The following hypotheses are proposed:

Hypothesis 2a: Scores on the EQ-i will increase with age and education level.

Hypothesis 2b: Scores on the EQ-i will demonstrate moderate to high correlations with personality and will be unrelated to general cognitive ability.

EI Measures: Predictive Validity

The notion that EI predicts success at work and at home has been surrounded by a great deal of controversy (e.g., Barchard, 2001). This controversy is likely a result of the lack of empirical evidence to support the claims about the predictive ability of EI. These

claims suggest that EI predicts "success" at work and at home and place emphasis on the ability of EI to predict interpersonal success in these different domains (e.g., Bar-On, 1997; Goleman, 1995; Mayer et al., 1999). For example, Mayer et al. (1999) argued that individuals who are aware of their emotions and are able to regulate their emotions are more likely to be successful in the workplace because they get along well with clients and co-workers. They also suggested that emotionally intelligent individuals are more likely to be successful in job interviews and to have effective interactions with colleagues. They argued that emotionally intelligent individuals may be better able to handle the stressors of the modern workplace because they are more adaptable and are more effective at interpersonal interactions (Bar-On, 1997; Mayer et al., 1999).

Additional claims have been made suggesting that EI predicts success at work and at home as well as or better than general cognitive ability (Goleman, 1995; Goleman, 1998). The role of general cognitive ability as a predictor of job performance is well established. General cognitive ability accounts for approximately 20% of the variance in job performance (e.g., Hunter & Hunter, 1984); measures of personality may add to this prediction (e.g., Barrick & Mount, 1991; Barrick & Mount, 1996; Ones & Viswesvaran, 1996; Tett, Jackson, Rothstein, & Reddon, 1994). In particular, conscientiousness is a consistent predictor of job performance across occupations (Barrick & Mount, 1991). An examination of EI measures as predictors of "success" at work after statistically controlling for the influence of cognitive ability and personality measures is necessary.

Generally, many of the claims regarding the EI construct tend to be based on anecdotal evidence. Few empirical studies have examined the EQ-i and MSCEIT in an organizational setting (Barrett, Miguel, Tan, & Hurd, 2001). Barling, Slater, and

Kelloway (2000) examined whether EI, as assessed by the EQ-i, was associated with perceived transformational leadership. Total scores on the EQ-i were related to three aspects of transformational leadership (i.e., idealized influence, inspirational motivation, individualized consideration) after controlling for the influence of attributional style. Leaders who are able to regulate their moods and emotions are more likely to make realistic decisions, to be creative, to understand the impact of their emotions on their followers, and to be able to deal with multiple tasks and handle stressful work situations (George, 2000; Lewis, 2000).

Other work outcomes have been examined in relation to EI, such as career commitment and managerial advancement. A self-report EI measure that assessed mood regulation and internal motivation accounted for approximately 35% of the variance in career commitment among a sample of nursing department employees (Carson & Carson, 1998). Another self-report EI measure assessing sensitivity/achievement, resilience, influence/adaptability, decisiveness/assertiveness, energy/integrity, and leadership predicted managerial advancement after controlling for the influence of managerial and intellectual intelligence (Dulewicz & Higgs, 2000). Several components of EI (e.g., mood repair) were related to performance in a mock selection interview (Fox & Spector, 2000). These studies, however, did not statistically control for the influence of personality variables.

Few studies have examined the ability of EI measures to predict academic achievement. Although academic achievement is not a direct measure of work success, we may gain valuable information about the role of EI measures in a work context by examining these research findings. In a recent study, Newsome et al. (2000) found that

the EQ-i and its respective scales were not related to academic performance. In contrast, Barchard (2001) found that EI measures added incremental variance to the prediction of academic success beyond that explained by cognitive ability and personality measures. However, Barchard's (2001) results should be interpreted with caution because a large number of predictor variables relative to the number of participants in her study were used. Rather than examining the EI measures separately, Barchard (2001) looked at the joint impact of a total of 20 EI measures on academic success. In a longitudinal study of academic grades, Shutte et al. (1998) found that their 33-item self-report EI measure was related to academic performance although they did not control for the influence of cognitive ability and personality measures.

The empirical evidence regarding EI and work outcomes and academic achievement remains inconclusive. For the most part, this inconclusive evidence stems from the difficulty in comparing research in this area due to the use of different EI measures and different control variables. A study directly comparing self-report and ability-based EI measures in a work setting is required in order to compare the predictive validity of these two types of measures. Furthermore, it is necessary to control for the influence of theoretically relevant variables, such as personality and cognitive ability in order to determine if the EI measures are measuring new constructs.

Several work outcomes may be of interest when examining the predictive ability of the EQ-i and MSCEIT. First, a measure of interpersonal performance in a work context would provide insight into the claims that emotionally intelligent individuals are more likely to succeed at the interpersonal aspects of their work (e.g., communicating with co-workers and supervisors and leading others). No past research has examined EI measures

in relation to interpersonal aspects of performance in an organizational context after controlling for the influence of personality and general cognitive ability.

Hypothesis 3: The EQ-i and MSCEIT will predict interpersonal aspects of training performance after statistically controlling for the influence of personality and general cognitive ability.

It has been proposed that emotionally intelligent individuals should be more satisfied because they tend to get along well with others and are better able to take charge of their moods in different situations (Bar-On, 1997). The relationship between emotional intelligence measures and job satisfaction should be explored (Bar-On, 1997). Researchers have examined the relationship between job satisfaction and personality, a construct that has been empirically linked to EI. Different facets of personality tend to be related to job satisfaction, such as extraversion, conscientiousness, and emotional stability (e.g., Judge, Higgins, Thoresen, & Barrick, 1999; Miller, Griffin, & Hart, 1999). That is, individuals who are more outgoing, conscientious, and emotionally stable also tend to be more satisfied with their jobs. No past research has examined EI measures in relation to job satisfaction after controlling for the influence of personality.

Hypothesis 4: Scores on the EQ-i and MSCEIT will predict job satisfaction after controlling for the influence of personality.

Claims have been made that emotionally intelligent individuals are better able to handle stressful situations because they are more adaptable and are better able to regulate their emotions resulting in enhanced life satisfaction (Bar-On, 1997; Mayer et al., 1999). Despite these claims, there is little empirical evidence linking EI measures to life satisfaction. The research that has examined this issue tends to be contradictory. In a

recent study, Dawda and Hart (2000) found that scores on the EQ-i (Bar-On, 1997) were negatively related to somatic health complaints. That is, individuals with high EI scores perceived fewer somatic health complaints. In contrast, Humpel, Caputi, and Martin (2001) found that scores on the MEIS were not related to stress outcomes (i.e., personal self-doubt, client-related difficulties, and personal relationships). However, the results indicated that male nurses who had higher scores on the MEIS reported higher levels of stress regarding their professional abilities. Mayer et al. (2000c) found the emotional understanding and emotional management scales of the MEIS demonstrated low correlations with life satisfaction. Scores on the Trait Meta-Mood Scale (Mayer et al., 1996) were negatively correlated with depression symptomology and positive correlated with life satisfaction and task mastery (e.g., Martinez-Pons, 1997). One potential explanation as to why these research findings seem to be inconsistent is that different EI measures were used and the influence of personality was not controlled for in these studies.

It is necessary to control for the influence of personality because personality tends to be associated with self-reported life satisfaction (e.g., Grandey, 2000; Park, 1998). There is a direct relationship between self-reported life satisfaction and some of the facets of personality, such as extraversion and conscientiousness (e.g., Creed, Muller, & Machin, 2001; Miller et al., 1999; Vollrath, 2000). Personality is also associated with an individual's ability to cope with stressful situations (e.g., Vollrath, 2000).

Although claims suggest that emotionally intelligent individuals should be happier and more satisfied with life (Bar-On, 1997), few studies have examined the incremental validity of EI as a predictor of psychological health after controlling for the influence of

personality. Ciarrochi et al. (2000) found that the EQ-i was positively correlated with life satisfaction and relationship quality after controlling for the influence of these variables.

Hypothesis 5: Scores on the EQ-i and MSCEIT will predict life satisfaction after statistically controlling for the influence of personality.

Summary & Overview of Present Study

Two popular EI measures that are being marketed as valid predictors of successful work and life functioning were examined in the present study, the EQ-i and MSCEIT. The state of research on the EI construct is plagued with conceptual and methodological problems. Measures that have been designed to assess the same construct appear to have noticeable differences in terms of their measurement methods, sub-scale compositions, and the theory guiding their development. Therefore, the present study had two main goals: (1) to examine the relationship of the EQ-i and MSCEIT with personality and cognitive ability; and (2) to evaluate whether these measures predict various work and non-work outcomes. The present study is the first to directly compare two measures of EI in an organizational context. This research is necessary in order to make comparisons between the different EI models and to test the claims that EI measures predict successful work and life functioning.

Method

Sample

In order to assess the objectives of the present study, 277 military personnel from the Canadian Forces (CF) were asked to complete several paper and pencil questionnaires. Training performance ratings were available only for 190 participants and only 165

participants were asked to complete the MSCEIT[1]. The analyses involving the MSCEIT are based on data using 165 participants; the analyses involving training performance are based on data using 112 participants; and all other analyses are based on data using 262 participants[2]. Because of the large proportion of missing data, comparisons on demographic variables (i.e., age, gender, language, and education level) were made for those individuals with and without missing data[3]. There were no significant discrepancies between those individuals who had completed all questions and those with missing data. However, performance evaluations were only available for those participants enrolled in the Basic Officer Training Program. Comparisons were also made on the questionnaire measures to ensure that participants did not differ on the predictor and criterion measures. There were no significant discrepancies on the predictor and criterion measures for those individuals with and without missing data.

A total of 199 men and 63 women participated in the present study. 91 were Private Recruits and 164 were Officer Cadets[4]. Their average age was 20.1 years (SD = 3.9). The majority of the respondents completed high school (65.8%). The sample was predominantly English speaking (96.7% English, 1.8% French). Participants were enrolled in the CF for an average of 0.5 years.

Procedure

Participants completed several questionnaires in groups of approximately 50. The researcher and employees from the Department of Human Resources Research and

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[1] Due to the length of the testing sessions, only the first 165 participants completed the MSCEIT.
[2] The missing data on the performance measure is a result of those 78 individuals not completing the MSCEIT. Descriptives of the sample were calculated using n=262.
[3] 7 participants were deleted as a result of their scores on the validity indicator of the EQ-i.
[4] 7 participants did not indicate their rank.

Evaluation, Department of National Defence, facilitated the testing sessions. The participants' supervisors were not present during the testing sessions to ensure that the participants did not feel pressure to participate in the present study. The session facilitators followed detailed instructions and a script outlining the informed consent procedures for participants (see Appendix A). Differences were examined on the predictor and criterion measures for each group. Results indicated that the groups differed on the following scales: conscientiousness, $F=2.24$, $p<.05$; intrapersonal skills, $F=2.20$, $p<.05$; adaptability, $F=2.12$, $p<.05$; general mood, $F=2.14$, $p<.05$; and stress management, $F=2.17$, $p<.05$. However, when these group differences were controlled for in the analyses, the results of the present study did not differ.

Measures

The participants completed the following scales[5]:

Background Information. The participants were asked to indicate their age, gender, rank (i.e., Private Recruit or Officer Cadet), environment (i.e., Land, Sea, or Air), component (i.e., Regular or Primary Reserve), years of service, first official language (i.e., English or French), and highest level of completed education (see Appendix B).

Ability-based EI. Participants completed the Mayer, Salovey, Caruso Emotional Intelligence Test (MSCEIT) Research Version 1.1 (Mayer et al., 1999). The MSCEIT typically takes between 45-75 minutes to complete. Due to time constraints and the low reliability of three subscales (i.e., Blends, Landscapes, and Sensation Translations) respondents completed the following eight sections: Emotions in Relationships, Emotion Management, Transitions, Synesthesia, Facilitation, Faces, and Designs. The researcher

was unable to obtain reliability data for the MSCEIT scales because they were scored by the test publisher. The reliabilities for each of the MSCEIT scales as reported by Mayer et al. (2000d) are presented in Table 3.

The scales measuring emotional perception assessed the ability to perceive emotions in oneself and others, as well as in objects, art, and stories. Two sub-scales within the MSCEIT assessed this branch of EI: Section A (Faces) and Section J (Designs). In these sections, the test taker is required to judge the amount of emotional content in the faces, landscapes, and designs. In particular, the test taker is required to judge these pictures based on how much happiness, sadness, fear, etc. is contained within them. The anchors used in these sections are faces expressing several emotions in order to avoid the influence of verbal content (Mayer et al., 1999).

The scales measuring emotional facilitation assessed the ability to generate, use, and feel emotion as necessary to communicate feelings, or employ them in other mental processes. Two sub-scales within the MSCEIT assessed this branch of EI: Section B (Synthesthesia) and Section G (Facilitation). This sub-scale assesses similarities between emotional feelings and other sensations, such as temperatures and tastes. For example, the test taker may be asked to compare love to hot and slow sensations. Participants are asked to respond based on a Likert-type scale in which they indicate whether the sensation is not alike (1) or very much alike (5) the sensations listed.

The scales measuring emotional understanding assessed the ability to understand emotional information, how emotions combine and progress through relationship transitions, and to reason about such emotional meanings. Two sub-scales assessed this

[5] There were other scales included in the questionnaire that were not used in the present study.

branch of EI: Section D (Progressions) and Section H (Transitions). The transitions scale

Table 3

The MSCEIT branches and their respective sub-scales.

MSCEIT Branch	Sub-scale
Emotional management (α=.87)	Section E: Emotions in relationships Section I: Emotion management
Emotional understanding (α=.77)	Section D: Progressions Section H: Transitions
Emotional facilitation (α=.90)	Section B: Synesthesia Section G: Facilitation
Emotional perception (α=.91)	Section A: Faces Section J: Designs

is assessed by asking the participant what happens as an emotion changes or becomes more intense. The progressions task requires the test taker to identify a change in mood that may be a result of a change in relationship.

The scales measuring emotional management assessed the ability to be open to feelings, to monitor them in oneself and others so as to promote personal understanding and growth. Two sub-scales assessed this branch of EI: Section E (Emotions in Relationships) and Section I (Emotion Management). This sub-scale is assessed by asking the test-taker to choose an alternative that outlines a course of action in order to achieve a particular goal. For example, the test taker may be asked to decide among the following alternatives in order to cheer up a sad person: talk to some friends, see a violent movie, eat a big meal, or take a walk alone.

A consensus scoring procedure was used to score the MSCEIT. With the use of this scoring procedure, one's score is equal to the proportion of the norm group who gave that response. For example, if 34% of the norm group selected option 3 on a MSCEIT question, the participants who selected that response would receive a score of .34. Once consensus scores were obtained, the items from a given sub-scale were summed to obtain an item cluster score for the individual. Finally, the four sub-scale scores were created from the item clusters. In the present study, the MSCEIT scores are reported as normed standard scores with $\underline{M}$ = 100 and $\underline{SD}$ = 15. According to Mayer et al. (1999) scores above 115 indicate enhanced EI, scores between 85 and 115 indicate moderate/average EI, and scores below 85 indicate that EI needs development.

Self-Report EI. The Emotional Quotient Inventory (EQ-i) is a self-report inventory and consists of 133 items assessing five factors of EI: intrapersonal functioning, interpersonal functioning, adaptability, stress management, and general mood. These five factors are composed of 15 sub-scales: emotional self-awareness (8 items), assertiveness (7 items), self-regard (9 items), self-actualization (9 items), independence (7 items), empathy (8 items), interpersonal relationships (11 items), social responsibility (10 items), problem solving (8 items), reality testing (10 items), flexibility (8 items), stress tolerance (9 items), impulse control (9 items), happiness (9 items), and optimism (8 items). Participants are asked to respond based on a five-point Likert-type scale ranging from "very seldom or not true of me" (1) to "very often true of me or true of me" (5). In the present study, the five main factors of the EQ-i demonstrated high levels of internal consistency: intrapersonal functioning (α=.93), interpersonal skills (α=.87), adaptability (α=.85), stress management (α=.86), and general mood (α=.88).

Personality. Respondents completed the Personal Characteristics Inventory (PCI) developed by Barrick and Mount (2000). The PCI is based on the Five-Factor Model of personality (i.e., Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness) and consists of 150 items assessing these five personality characteristics and their respective facets (see Table 4). Participants responded to the items based on the following scale: "disagree" (1), "neutral" (2), or "agree" (3). Because the PCI was scored by the test publisher, the reliabilities of the PCI scales were not available in the present study. Barrick and Mount (2000) reported that the reliability of the PCI factors and their respective facets were: stability α=.86 (even temperament α=.77; self-confidence α=.78); extraversion α=.86 (sociability α=.80; need for recognition α=.70; leadership orientation α=.77); openness α=.83 (abstract thinking α=.75; creative thinking α=.70); agreeableness α=.82 (cooperation α=.72; consideration α=.76); and conscientiousness α=.87 (dependability α=.72; achievement striving α=.73; efficiency α=.72). The PCI scores were reported as raw scores.

Cognitive Ability. The Canadian Forces Aptitude Test (CFAT) is a 60-item measure of general cognitive ability assessing three sub-scales: Verbal Skills (15 items), Spatial Ability (15 items), Problem Solving Ability (30 items), and an overall scale score[6]. Items are presented in order of ascending difficulty in the test. The test takes approximately 45 minutes to administer. Scores were converted into percentile scores according to the norms previously established for non-commissioned members and officers (Albert, 1998). Past research indicates that scores on the CFAT are positively

[6] Members completed the CFAT upon entry into the CF. The researchers obtained the participants' CFAT scores and matched their scores to their service numbers, and then the service numbers were deleted from

Table 4

The Big Five personality factors and their respective facets as assessed by the PCI.

Big Five Factor	Facets
Extraversion	Sociability Need for recognition Leadership orientation
Agreeableness	Cooperativeness Consideration
Conscientiousness	Dependability Achievement striving Efficiency
Stability	Even-temperament Self-confidence
Openness	Abstract thinking Creative thinking

correlated with other cognitive ability measures (e.g., Albert, 1998).

Job Satisfaction. Participants completed one item assessing their satisfaction with the CF (i.e., "Overall, I am satisfied with my service or employment in DND/CF"). Participants were asked to respond to this item based on a 5-point Likert-type scale ranging from "strongly disagree" (1) to "strongly agree" (5). Past research supports the validity of using one item to assess job satisfaction (Wanous, Reichers, & Hudy, 1997).

Life Satisfaction. The 7-item Life Satisfaction Scale (Tepperman & Curtis, 1995) assessed satisfaction with various aspects of life (e.g., life as a whole, job, financial situation, and home life; 1 = "very dissatisfied"; 5 = "very satisfied") and general well-being (e.g., "In general, to what extent do you feel that things are going your way?"; 1 = "never"; 5 = "always"; see Appendix C)[7]. In the present study, Cronbach's alpha for this

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the data file.

[7] When the item assessing job satisfaction was deleted from the life satisfaction scale, the results of the

scale was α=.76.

Training Performance. Officer Cadets were assigned a score that ranged from "substantially below average" (1) to "superior" (5) in each of the following areas: leadership, military knowledge, basic military techniques, drill, C-7 rifle, physical training, and communications[8]. The evaluation forms were completed at the end of the Basic Officer Training Program (BOTC). Platoon leaders completed these evaluation forms as part of the evaluation process in the CF. The Directorate of Human Resources Research and Evaluation provided this data with service numbers deleted from the data file in order to ensure anonymity and confidentiality of the participants. The evaluation forms were completed approximately 1 to 2 months following the testing sessions. Di Genova (2001) conducted a principal axis factor analysis of the training performance measure resulting in the following two interpretable factors: interpersonal performance and basic military skills[9]. The interpersonal factor consisted of leadership, military knowledge, basic military techniques, and communications. The military factor reflected hard core military skills including physical training and drill. The interpersonal factor was examined in the present study and consisted of a composite score of leadership, military knowledge, basic military techniques, and communications.

Results

Correlations & Descriptives

Means and standard deviations of the study variables are presented in Table 5. A

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present study did not differ.

[8] Performance data were unavailable for basic recruits.

[9] A factor analysis of the training performance measure was not conducted in the present study because of low sample size. Di Genova's (2001) sample included the participants in the present study; however, she had a larger sample because she also tested Francophones. Therefore, Di Genova's (2001) factor analysis

Bonferroni correction procedure was used in which the conventional error rate (p=.05) was divided by the total number of correlations (189) conducted in this study. Therefore, all correlations were significant at the p<.0003 level. The relationships among age, education level and all other study variables are presented in Table 6. Correlations among all study variables are presented in Table 7.

Gender differences on the EI measures and outcome variables were examined in order to determine if it was necessary to control for their influence in the regression analyses. Men and women differed on the interpersonal skills (t(260)=-4.0, p<.001; men: M=4.0, SD=0.5; women: M=4.3, SD=0.4) scale of the EQ-i. Men and women also differed on the emotional perception scale of the MSCEIT (t(163)=-3.5, p<.01; men: M=96.6, SD=12.9; women: M=103.5, SD=8.0). Men and women did not differ on their scores on the outcome measures.

The correlations among the MSCEIT scales and the EQ-i scales ranged from r (165) =.10, ns to r (165) =.33, p<.0003. The emotional management scale of the MSCEIT was related to three of the EQ-i scales: interpersonal skills (r (165)=.31, p<.0003), adaptability (r (165)=.32, p<.0003), and general mood (r (165)=.27, p<.0003). The emotional perception scale of the MSCEIT was also related to three of the EQ-i scales: interpersonal skills (r (165)=.29, p<.0003), adaptability (r (165)=.33, p<.0003), and general mood (r (165)=.29, p<.0003). The emotional understanding and emotional facilitation scales of the MSCEIT were unrelated to the EQ-i scales. The inter-correlations among the MSCEIT scales ranged from r (165)=.29, p<.0003 to r (165)=.55, p<.0003. The EQ-i scales were highly inter-correlated (r (262) ranged from .57, p<.0003

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was reported in the present study.

Table 5

Means and standard deviations of study variables.

Variable	M	SD	n	α
1. Age	20.2	3.9	262	--
MSCEIT Scales				
2. Emotional management	101.4	10.4	165	.87
3. Emotional understanding	101.3	10.7	165	.77
4. Emotional facilitation	99.7	10.8	165	.90
5. Emotional perception	98.7	12.0	165	.91
EQ-i Scales				
6. Intrapersonal functioning	156.4	20.4	262	.93
7. Interpersonal skills	106.1	11.7	262	.87
8.Adaptability	98.5	11.2	262	.85
9. General mood	71.2	9.9	262	.86
10. Stress management	68.8	8.4	262	.88
Personality				
11. Stability	44.9	9.2	262	.86
12. Extraversion	72.2	8.8	262	.86
13. Openness	48.0	5.9	262	.83
14. Agreeableness	50.7	6.2	262	.82
15. Conscientiousness	78.7	8.3	262	.87
General Intelligence				
16. General cognitive ability	42.5	8.7	262	--
Criterion Variables				
17. Job satisfaction	4.1	0.8	262	--
18. Life satisfaction	3.8	0.6	262	.76
19. Training performance	3.5	0.6	112	.79

Table 6

Correlations of age and education level with all other study variables.

	Age	Education
MSCEIT Scales		
1. Emotional management	.03	.06
2. Emotional understanding	-.02	.02
3. Emotional facilitation	.11	.17
4. Emotional perception	-.03	.06
EQ-i Scales		
5. Intrapersonal functioning	.05	.06
6. Interpersonal skills	.09	.08
7. Adaptability	.11	.14
8. General mood	.05	.02
9. Stress management	.01	.06
Personality		
10. Stability	.07	.10
11. Extraversion	-.13	-.08
12. Openness	-.16	-.02
13. Agreeableness	.06	.07
14. Conscientiousness	.07	.06
General Intelligence		
15. General cognitive ability	-.12	.20
Criterion Variables		
16. Job satisfaction	.02	.02
17. Life satisfaction	.01	.05
18. Training performance	.06	.05

Table 7

Correlations among study variables.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
MSCEIT Scales[a]																		
1. Emotional management	--	.45***	.22	.40***	.20	.31***	.32***	.27***	.16	.16	.02	.26***	.32***	.31***	.13	.06	.07	.10
2. Emotional understanding		--	.29***	.37***	.15	.10	.18	.20	.10	.13	.08	.12	.11	.18	.18	-.01	.04	.14
3. Emotional facilitation			--	.55***	.13	.16	.18	.14	.09	.13	.12	.04	.13	.06	-.06	.03	-.05	.02
4. Emotional perception				--	.23	.29***	.33***	.29***	.17	.15	.12	.18	.16	.21	.02	.11	.12	-.03
EQ-i Scales																		
5. Intrapersonal functioning					--	.57***	.78***	.83***	.67***	.71***	.58***	.39***	.34***	.56***	.05	.27***	.56***	.13
6. Interpersonal skills						--	.53***	.61***	.45***	.36***	.36***	.29***	.64***	.45***	.04	.12	.34***	-.15
7. Adaptability							--	.72***	.77***	.66***	.32***	.34***	.35***	.66***	.07	.28***	.48***	.08
8. General mood								--	.63***	.62***	.59***	.34***	.41***	.50***	.09	.33***	.66***	.08
9. Stress management									--	.72***	.22***	.30***	.38***	.56***	.10	.26***	.43***	.10
Personality																		
10. Stability										--	.34***	.30***	.38***	.49***	.04	.29***	.42***	.11
11. Extraversion											--	.38***	.27***	.32***	.11	.13	.39***	.16
12. Openness												--	.25***	.33***	.28***	.19	.22***	.08
13. Agreeableness													--	.41***	.01	.07	.18	.01
14. Conscientiousness														--	.16	.22***	.30***	.15

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Cognitive ability																		
15. General cognitive ability															--	-.04	.07	.19
Criterion variables																		
16. Job satisfaction																--	.52***	.03
17. Psychological well-being																	--	.10
18. Interpersonal training performance[b]																		--

***p < .0003; n=262.

[a] The analyses involving the MSCEIT are based on data using 165 participants.

[b] The analyses involving interpersonal training performance are based on data using 112 participants.

Note: The relationship between the emotional understanding scale of the MSCEIT and general cognitive ability would be significant at the p< .05 level.

to .83, p<.0003).

MSCEIT Correlates

In order to assess Hypothesis 1a, the correlations among age, education level, and scores on the MSCEIT scales were examined (see Table 6). Age and education level were not correlated with scores on the MSCEIT subscales. Hypothesis 1b was assessed by examining the correlations of the MSCEIT scales with general cognitive ability and personality (see Table 7). None of the MSCEIT scales were associated with general cognitive ability. The relationship between the emotional understanding scale of the MSCEIT and general cognitive ability approached significance (r (165) =.18, p<.05). The emotional understanding, emotional facilitation, and emotional perception scales of the MSCEIT demonstrated non-significant correlations with the Big Five personality dimensions. The emotional management scale of the MSCEIT was related to three of the Big Five personality dimensions: openness (r (165) =.26, p<.0003), agreeableness (r (165) =.32, p<.0003), and conscientiousness (r (165) =.31, p<.0003).

EQ-i Correlates

Scores on the EQ-i were not associated with age and education level. Scores on the EQ-i demonstrated moderate to high correlations with personality (r (262) ranging from .22, p<.0003 to .72, p<.0003). Stability had the highest correlations with the EQ-i scales. The EQ-i scales were regressed onto the Big Five personality dimensions (see Table 8). The Big Five accounted for 67% of the variance in the intrapersonal functioning scale of the EQ-i (p<.001). The only unique predictors of the intrapersonal functioning scale of the EQ-i were stability (ß = .50, p < .001), extraversion (ß = .34, p < .001), and conscientiousness (ß = .20, p < .001). Individuals who reported that they were more

emotionally stable, extraverted, and conscientious also reported that they were more aware of their own emotions and feelings. The Big Five accounted for 48% of the variance in the interpersonal skills scale of the EQ-i ($p<.001$). The only unique predictors of the interpersonal functioning scale of the EQ-i were extraversion ($\beta = .15$, $p < .05$), agreeableness ($\beta = .52$, $p < .001$), and conscientiousness ($\beta = .17$, $p < .05$). Individuals who reported that they were more emotionally stable, agreeable, and conscientious also reported that they were better able to understand others' emotions and feelings. The Big Five accounted for 59% of the variance in the adaptability scale of the EQ-i ($p<.001$). The only unique predictors of the adaptability scale of the EQ-i were stability ($\beta = .43$, $p < .001$) and conscientiousness ($\beta = .42$, $p < .001$). Individuals who reported that they were more emotionally stable and conscientious also reported that they were more flexible with changing situations. The Big Five accounted for 58% of the variance in the general mood scale of the EQ-i ($p<.001$). The only unique predictors of the general mood scale of the EQ-i were stability ($\beta = .38$, $p < .001$), extraversion ($\beta = .38$, $p < .001$), agreeableness ($\beta = .10$, $p < .05$), and conscientiousness ($\beta = .15$, $p < .05$). Individuals who reported that they were more emotionally stable, extraverted, agreeable and conscientious also tended to report that there were able to express positive emotions and remain optimistic. Finally, the Big Five accounted for 59% of the variance in the stress management scale of the EQ-i ($p<.001$). The only unique predictors of the stress management scale of the EQ-i were stability ($\beta = .59$, $p < .001$), extraversion ($\beta = -.11$, $p < .05$), and conscientiousness ($\beta = .26$, $p < .001$) indicating that individuals who reported that they were more emotionally stable and conscientious and less extraverted also tended to report that they were better able to cope with stressful situations.

Table 8

Summary of regression analysis regressing the scales of the EQ-i onto the Big Five personality dimensions

	Intrapersonal		Interpersonal		Adaptability		General mood		Stress management	
	β	R^2	β	R^2	β	R^2	β	R^2	β	R^2
Big Five		.67***		.48***		.59***		.58***		.59***
Stability	.50***		.02		.43***		.38***		.59***	
Extraversion	.34***		.15*		.02		.38***		-.11*	
Openness	.06		.04		.06		.01		.06	
Agreeableness	-.03		.52***		-.01		.10*		.06	
Conscientiousness	.20***		.17*		.42***		.15*		.26***	

*p < .05; **p<.01; ***p < .001; n=262

The total EQ-i score was regressed onto the Big Five personality dimensions (see Table 9). Results indicated that the Big Five accounted for 70% of the variance in the total EQ-i score ($p<.001$). All of the Big Five personality dimensions contributed uniquely to the prediction of the total EQ-i score with the exception of openness to experience. Scores on the EQ-i were not associated with general cognitive ability providing further support for this hypothesis.

Table 9

Summary of regression analysis regressing the total EQ-i score onto the Big Five personality dimensions

	β	Total R^2
Big Five		.70***
Stability	.48***	
Extraversion	.20***	
Openness	.08	
Agreeableness	.14***	
Conscientiousness	.24***	

*p < .05; **p < .01; ***p < .001; n=262

EI Measures & Outcome Variables

Scores on the EQ-i and scores on the MSCEIT were not associated with training performance. A hierarchical regression analysis was performed in order to determine if the EQ-i added to the prediction of interpersonal training performance after controlling for general cognitive ability in the first step, and personality in the second step (see Table

10). Results indicated that general cognitive ability accounted for 4% of the variance in interpersonal training performance ($p < .05$). The Big Five personality dimensions did not account for a significant proportion of the variance in interpersonal training performance. The EQ-i accounted for an additional 10% of the variance in interpersonal training performance ($p < .05$). The only unique predictor that emerged was the interpersonal skills scale of the EQ-i ($\beta = -.43$, $p < .01$).

A second hierarchical regression analysis was performed in order to determine if the MSCEIT added to the prediction of interpersonal training performance after controlling for general cognitive ability in the first step, and personality in the second step. The MSCEIT scales did not account for a significant increase in the variance in interpersonal training performance after controlling for the influence of general cognitive ability and personality ($R^2_{increment}=.03$, ns).

All of the EQ-i scales were associated with job satisfaction (ranging from r (262) =.26, $p<.0003$ to r (262) =.33, $p<.0003$) with the exception of the scale assessing interpersonal skills (r (262) =.12, ns). Conversely, the MSCEIT scales were not associated with job satisfaction. In order to assess the fourth hypothesis, job satisfaction was regressed hierarchically onto the EQ-i after first controlling for the influence of gender, age, education level, and then the Big Five personality dimensions (see Table 11).

Table 10

Summary of hierarchical regression analysis for variables predicting interpersonal training performance

	β	R^2 Change	Total R^2
Step 1: General cognitive ability	.19*	.04*	.04*
Step 2: Personality		.04	.08*
Stability	.05		
Extraversion	.13		
Openness	-.03		
Agreeableness	-.02		
Conscientiousness	.09		
Step 3: EQ-i		.10*	.18**
Intrapersonal functioning	.27		
Interpersonal skills	-.43**		
Adaptability	-.05		
General mood	.17		
Stress management	.05		

*$p < .05$; **$p < .01$; $n=112$

Table 11

Summary of hierarchical regression analysis for variables predicting job satisfaction

	β	R^2 Change	Total R^2
Step 1: Demographics		.00	.00
Age	.01		
Gender	.01		
Educational level	.01		
Step 2: Personality		.11***	.11***
Stability	.25**		
Extraversion	.00		
Openness	.11		
Agreeableness	-.10		
Conscientiousness	.10		
Step 3: EQ-i		.05*	.16***
Intrapersonal functioning	-.15		
Interpersonal skills	-.08		
Adaptability	.03		
General mood	.42***		
Stress management	-.02		

*p < .05; **p < .01; ***p < .001; n=262

The demographic characteristics did not account for a significant proportion of the variance in self-reported job satisfaction. Personality accounted for a significant increase in the variance in job satisfaction scores ($\underline{R}^2_{increment}$ = .11, $\underline{p}$ < .001). The only unique predictor was the stability factor of the PCI (ß = .25, $\underline{p}$ < .01). The EQ-i scales were entered in the third step (i.e., intrapersonal functioning, interpersonal skills, adaptability, general mood, and stress management). The EQ-i scales accounted for a significant increase in the variance in job satisfaction scores ($\underline{R}^2_{increment}$ = .05, $\underline{p}$ < .05). However, the only unique predictor of job satisfaction scores was general mood (ß = .42, $\underline{p}$ < .001). Individuals who reported that they were happy and optimistic also tended to be more satisfied with their jobs. Jointly, the demographic characteristics, Big Five personality dimensions, and EQ-i scales accounted for approximately 16% of the variance in job satisfaction scores ($\underline{p}$ < .001). A hierarchical regression analysis was also performed in order to determine if the MSCEIT added to the prediction of job satisfaction after controlling for the influence of personality. Results indicated that the MSCEIT did not account for variance in job satisfaction scores beyond that explained by personality ($\underline{R}^2_{increment}$=.01, $\underline{ns}$).

All of the EQ-i scales were associated with life satisfaction scores (ranging from $\underline{r}$ (262) =.34, p<.0003 to $\underline{r}$ (262) =.66, $\underline{p}$<.0003). Conversely, the MSCEIT scales did not correlate with life satisfaction. In order to assess the fifth hypothesis, life satisfaction was regressed hierarchically onto the EQ-i after first controlling for the influence of gender, age, education level, and then the Big Five personality dimensions (see Table 12). The demographic characteristics did not account for a significant proportion of the variance in self-reported life satisfaction. Second, life satisfaction was

regressed on the Big Five personality dimensions. Personality accounted for a significant increase in the variance in life satisfaction scores ($R^2_{increment}$ = .25, p < .001). The only unique predictors were stability (ß = .31, p < .001) and extraversion (ß = .28, p < .001). The EQ-i scales accounted for a significant increase in the variance in life satisfaction

Table 12

Summary of hierarchical regression analysis for variables predicting life satisfaction

	β	R^2 Change	Total R^2
Step 1: Demographics		.01	01
Age	-.03		
Gender	.04		
Educational level	.07		
Step 2: Personality		.25***	.25***
Stability	.31***		
Extraversion	.28***		
Openness	.00		
Agreeableness	-.05		
Conscientiousness	.07		
Step 3: EQ-i		.20***	.46***
Intrapersonal functioning	.01		
Interpersonal skills	-.05		
Adaptability	.01		
General mood	.69***		
Stress management	.05		

*p < .05; **p < .01; ***p < .001; n=262

scores in the third step ($R^2_{increment}$ = .20, p < .001). However, the only unique predictor of life satisfaction was general mood (ß = .69, p < .001) indicating that individuals who reported that they were happy and optimistic also tended to report higher levels of life satisfaction. Jointly, the demographic characteristics, Big Five personality dimensions, and EQ-i scales accounted for approximately 46% of the variance in life satisfaction (p < .001). A hierarchical regression analysis was also performed in order to determine if the MSCEIT added to the prediction of life satisfaction after controlling for the influence of personality. Results indicated that the MSCEIT did not account for variance in life satisfaction scores beyond that explained by personality ($R^2_{increment}$=.04, ns).

Discussion

The present study sought to examine the construct and predictive validity of two popular EI measures: the EQ-i and MSCEIT. More specifically, there were two primary goals in the present study: (1) to examine the relationship of the EQ-i and MSCEIT with general cognitive ability and personality; and (2) to determine if the EQ-i and MSCEIT predict work and life outcomes after controlling for the influence of general cognitive ability and personality measures.

Summary of Results

Scores on the MSCEIT were unrelated to general cognitive ability. Only the emotional management scale of the MSCEIT was associated with personality. The EQ-i was unrelated to general cognitive ability. Consistent with past research, the EQ-i had moderate to high correlations with personality (e.g. Bar-On, 2000; Dawda & Hart, 2000; Newsome et al., 2000). The regression analysis indicated that the Big Five personality dimensions as assessed by the PCI accounted for a large proportion of the variance in

each of the EQ-i scales, suggesting a great deal of overlap between these two measures.

In terms of the predictive ability of the EI measures, both EI measures were unrelated to interpersonal training performance. The MSCEIT was essentially unrelated to job satisfaction and life satisfaction. Conversely, the EQ-i accounted for variance in both job satisfaction and life satisfaction after controlling for the influence of demographic characteristics and personality

MSCEIT Correlates

Scores on the MSCEIT should increase with age and education level in order to be considered a measure of intelligence (Mayer et al., 2000c). The premise guiding this claim is that individuals with more experience should have higher levels of intelligence (Mayer et al., 2000c). In the present study, this relationship did not occur. Scores on the MSCEIT scales also did not increase with age and education level. However, the age of the sample in the present study ranged from 16 to 39 with approximately 63% of the sample between the ages of 16 and 19 indicating a restriction of range problem. Therefore, the results regarding age differences on the EI measure should be interpreted with caution. Future researchers should examine the MSCEIT across the life span in order to further examine whether scores on this measure increase with age. Researchers should examine other indicators of experience in relation to scores on the MSCEIT, such as tenure and length of relationship.

If the MSCEIT is to be considered a measure of intelligence, it should be moderately correlated with other intelligence measures (Mayer et al., 2000c). Based on this argument, in the present study the MSCEIT was expected to be moderately correlated with the CFAT. This hypothesis was not supported. Scores on the MSCEIT scales were

not associated with the CFAT. The CFAT has demonstrated moderate to high correlations with other well-established cognitive ability measures in past research (Albert, 1998). Future researchers should examine the MSCEIT in relation to other well-established measures of general cognitive ability.

Overall, the MSCEIT scales had non-significant correlations with the Big Five personality dimensions, supporting past research (e.g., Barchard & Hakstian, 2001; Carroll & Day, 2001). Only the emotional management scale of the MSCEIT was associated with the Big Five personality dimensions. This finding supports the claims made by Mayer et al. (1999) that the MSCEIT is relatively independent of personality. In the present study, individuals who were better able to manage their emotions reported that they were more open to new experiences, agreeable, and conscientious. Researchers should continue to investigate the relationship between the MSCEIT and personality.

EQ-i Correlates

Some research suggests that scores on the EQ-i increase with age and education level (e.g., Bar-On et al., 2000). In this present study, this hypothesis was not supported and may be a result of the restriction of range problem. All of the EQ-i scales had moderate to high correlations with personality (e.g., Bar-On, 2000; Dawda & Hart, 2000; Newsome et al., 2000). The Big Five personality dimensions accounted for a large proportion of the variance in each of the EQ-i scales supporting the conclusion by Davies et al. (1998) that self-report measures of EI are not easily distinguishable from personality inventories. However, both the EQ-i and PCI are self-report measures and the extent to which the correlation between these two measures was inflated as a result of using the same method of measurement is not known (Crocker & Algina, 1986). However, if this

common method bias was operating the EQ-i would be unable to predict the satisfaction variables after controlling for personality.

The EQ-i appears to be a trait-based measure that includes various non-cognitive factors, such as stress management and adaptability (Bar-On, 1997). Nevertheless, it has been labeled a measure of intelligence. Labeling a trait-based measure a measure of intelligence is misleading especially given the lack of correspondence between personality and intelligence (e.g., Barchard & Hakistian, 2001; Salovey & Mayer, 1994).

EI Measures & Outcome Variables

Many of the claims surrounding the EI construct suggest that EI predicts success at work (e.g., Bar-On, 1997; Goleman, 1995; Mayer et al., 1999). In fact, Goleman (1995) claimed that EI predicts "success" at work as well as or better than general cognitive ability. Analysis of the zero-order correlations indicated that scores on the EI measures were not associated with training performance. After controlling for the influence of general cognitive ability and personality, the EQ-i added significantly to the prediction of interpersonal training performance. This finding indicates that a suppressor variable may be operating. A suppressor variable is an independent variable that adds significantly to the prediction of the dependent variable as a result of its correlations with the other independent variables (Tabachnick & Fidell, 2001). A suppressor variable may be present when the zero-order correlation between two variables is much smaller than the beta weight for the independent variable (Tabachnick & Fidell, 2001), and in the present study this pattern emerged. Thus, the ability of the EQ-i to predict interpersonal training performance may be a result of the high intercorrelations among the EQ-i and personality scales.

These results do not support the claims that EI predicts success at work and provide evidence for the view that it is premature to use EI measures for selection purposes in an organizational setting (Newsome et al., 2000; Petrides & Furnham, 2000; Shutte et al., 2000). The training performance measure in the present study has not been extensively validated. Little is known about the development of this new training performance measure. Despite these limitations, the performance measure appears to have a number of advantages over past performance measures used in the CF. Previously, the CF assigned pass/fail grades to trainees resulting in limited information and reduced variability of scores. Furthermore, a performance measure consisting of various interpersonal aspects can prove advantageous when examining the predictive ability of EI. Many of the claims surrounding EI suggest that emotionally intelligent individuals are interpersonally successful, and the present study employed a measure assessing interpersonal performance. Nevertheless, further exploration of the training performance measure and its properties is necessary.

The EQ-i and MSCEIT were expected to predict job satisfaction after controlling for the influence of personality. This hypothesis was partially supported. Descriptions of the emotionally intelligent employees suggest that they tend to be effective at interactions with colleagues and to have a positive outlook on life (e.g., Bar-On, 1997; Mayer et al., 1999; Goleman, 1995). Scores on all of the EQ-i scales correlated with job satisfaction scores with the exception of the scale assessing interpersonal skills. However, scores on the MSCEIT were not related to job satisfaction scores. After controlling for the influence of gender, age, education level, and personality, the EQ-i predicted job satisfaction. Interestingly, the only unique predictor of job satisfaction that emerged was the general

mood sub-scale of the EQ-i.

Claims have been made that emotionally intelligent individuals are better able to handle the stressors of the modern workplace (Mayer et al., 1999). Some research supports this claim in that EI measures were related to life satisfaction, well-being, and depression symptomology (e.g., Dawda & Hart, 2000; Martinez-Pons, 1997). In the present study, scores on the EQ-i were associated with life satisfaction; however, scores on the MSCEIT were not associated with life satisfaction.

With the exception of Ciarrochi et al. (2000), no past research has examined EI measures as predictors of life satisfaction after controlling for the influence of personality measures. In the present study, the EQ-i added to the prediction of life satisfaction beyond the influence of the demographic characteristics and personality. Similar to job satisfaction, the only unique predictor that emerged after controlling for the influence of personality was the general mood sub-scale of the EQ-i.

The general mood sub-scale of the EQ-i assesses happiness and optimism (i.e., the ability to feel satisfied with one's life and to look on the brighter side of life) and doesn't appear to be consistent with traditional definitions of intelligence. Rather, the definition and items comprising this scale appear to overlap with life satisfaction or affect (e.g., "I am satisfied with my life" and "I'm optimistic about most things I do"). Perhaps, these results can be explained by the relationship between job satisfaction and life satisfaction. It may be the case that the EQ-i is simply a re-labeling of already existing constructs, such as satisfaction or affect. To further support the notion that the EQ-i may be a measure of affect, Bar-On et al. (2000) conducted a factor analysis and identified a component of the EQ-i, which they labeled positive affect. Individuals who are high on

positive affect tend to report greater satisfaction with life in general (Burke, Brief, & George, 1993; George, 1990). Future researchers should examine this well-researched construct in relation to self-report EI measures.

Implications for Future Research

It may be time to take a step back and focus on the definition of EI. The construct of EI as it was originally defined referred to EI as ability (Mayer & Salovey, 1997). In contrast, more recent definitions of EI have become broader and have encompassed many personal attributes that appear to deviate from the traditional definition of intelligence (e.g., Bar-On, 1997; Goleman, 1995). Future researchers should evaluate the nature of this construct at the definitional stage.

An interesting finding that emerged in the present study was the lack of correspondence between the two EI measures. This suggests that the EQ-i and MSCEIT may be assessing different constructs. EI as assessed by the EQ-i appears to overlap with personality. In contrast, EI as assessed by the MSCEIT tends to be largely independent of personality. These findings suggest that there are theoretical problems with the EI construct. The tendency to validate one EI measure against another may be problematic given the obvious differences between the different measures of EI (Petrides & Furnham, 2000). Furthermore, evidence for construct validity is found by demonstrating convergent and discriminant validity (Crocker & Algina, 1986). In the present study, there was no evidence of convergent validity and the EQ-i and MSCEIT differed in their relationships with personality, job satisfaction, and psychological well-being. Mayer et al. (2000c) indicated that it is important to continue investigating the convergent and discriminant validity of EI measures.

Another issue that lends further support for the need to focus on the definition of EI is the difficulty associated with making comparisons among the research findings. Different measures of EI are being used, different definitions of EI have been adopted, and there is an inconsistency in terms of controlling for the influence of variables such as personality and cognitive ability. These problems deserve special consideration before researchers and practitioners should use EI measures for selection and training purposes.

The procedures used to score ability-based EI measures should also be examined in future research. In the present study, a consensus scoring procedure was used in which the participants' scores reflected the proportion of the norm group who endorsed a particular response. Thus, there is no right or wrong answer; rather, some answers are deemed as being more correct than others. The most correct answer is determined based on the average of a large normative group who may only possess average levels of emotional intelligence. In the case of traditional intelligence testing, if our correct response was determined by the normative sample we would not have an accurate indication of an individual's level of intelligence, but rather an indication of average intelligence. It is important to examine the feasibility of using consensus scoring procedures in future research.

In the present study, the EQ-i demonstrated moderate to high correlations with personality, suggesting that it is not distinct from personality. In future studies on the EQ-i, researchers should control for the influence of positive/negative affectivity when examining the predictive ability of the EI measures. Researchers should attempt to identify those personality variables that may correlate with the EQ-i in order to further examine the notion that self-report EI measures are not easily distinguishable from

personality inventories (e.g., Davies et al., 1998).

The present study used one item to assess overall job satisfaction. Past research supports the validity of using a single item to measure job satisfaction (Wanous et al., 1997). However, based on the claims that emotionally intelligent individuals get along well with co-workers (e.g., Mayer et al., 1999), it may be interesting to examine specific facets of job satisfaction, such as satisfaction with co-workers and supervisors. This research is secondary to the important question regarding the definition and measurement of EI.

The present study was the first to assess the incremental validity of the EQ-i and the MSCEIT using interpersonal training performance as the criterion. Consequently, the present study was the first to assess these measures in the CF. The results of this study have many important implications for personnel selection practices in the CF. That is, the EQ-i and MSCEIT should not be used to select officers in the Canadian Forces at this time. However, further exploration of the definition and measurement of EI may prove beneficial to the use of this construct in a military context.

Limitations

Several interesting findings emerged in the present study. However, there are a few limitations that should be considered in the present study. At the time the participants completed the scales, they had been enlisted in the CF for an average of 0.5 years. Therefore, the participants may not have had a realistic expectation of the organization which may pose problems when examining the construct of job satisfaction. However, given that these participants were fully immersed in their life in the CF as they were involved in training 24 hours per day, it is reasonable to expect that they may form their

views of the organization rather quickly.

The sample used in the present study has a number of unique characteristics that may limit the generalizability of these results to other organizations. Participants were in a highly structured training situation at the time they completed the questionnaires. Therefore, these results may only generalize to other military and para-military organizations in which highly structured training programs are common practice.

Three of the sections of the MSCEIT were deleted in the present study. Therefore, the contribution of these scales to the overall scale scores is not known. Furthermore, because the MSCEIT was scored by the publisher, the researcher was unable to obtain reliability data and had to rely on the reliabilities published in the test manual. This was also a problem for the personality measure. Reliability data for the PCI could not be obtained in the present sample.

Summary & Conclusion

EI has become the subject of media attention in recent years, which, in part, has prompted the development of several measures designed to assess it. In the present study, two popular measures of EI were examined in terms of their construct validity and predictive validity: the EQ-i and the MSCEIT. The results of the present study suggest that the EQ-i and MSCEIT may be assessing different constructs given their differential relationships with personality, job satisfaction, and life satisfaction. The implications of these findings are apparent; two measures that have been designed to assess the same construct are unrelated to each other. However, given the different definitions from which these measures were based, it is not surprising that the EQ-i and MSCEIT don't correspond. It may be time to take a step back to the definitional stage of this construct's

development. If EI is to have an important place in the workplace, there must be agreement among researchers as to how to define and measure it.

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Appendix A: Informed Consent & Study Instructions

Informed Consent

The purpose of this study is to examine the relationship between various measures assessing personal characteristics and success in training. Your participation in this study is entirely **voluntary**. You may withdraw from this study at any time without pressure or repercussion. Should you chose to participate, please be assured that individual responses will not be made public. The results of the research will only be provided in aggregate form, so no individual participant can be identified.
If you choose to participate, you can expect that your responses:

1. will remain **confidential,**

2. will have no bearing on your selection into the CF, future CF courses or your career, and

3. will not be recorded on any permanent personnel performance file.

You will be asked to provide your service number on the questionnaires. Please note that your service number will only be used to match performance data and will be **deleted** once that information is obtained.

If you do not agree to participate in this study, please feel free to leave at any time.

General Instructions: During this testing session you will be asked to complete four questionnaires. You will be given specific instructions for the first questionnaire and then you will be asked to proceed by completing the remaining questionnaires. Each questionnaire contains detailed instructions. Please read through the instructions carefully before starting the questionnaire. Once you have finished the first questionnaire, please begin working on the second...and so on. **Please ensure that all measures are complete and that you indicate your Service Number on each answer sheet.** If you have any questions as to where to indicate your Service Number as you are working through the questionnaires, don't hesitate to ask.

On the MSCEIT answer sheet-Service Number goes in CITE and ID space.
On the Eq-I answer sheet-Service Number goes in the Job Title space.
On the PCI answer sheet-Service Number goes in the Social Security Number space.
Please write this on the board.

Appendix A: Informed Consent & Study Instructions

Questionnaire 1: MSCEIT Instructions

Testing Time: approx. 45 minutes

Please instruct the participant to indicate Service Number on the answer sheet. To take the MSCEIT, you will be asked to respond to a series of questions that are arranged in 8 clusters, labeled A to L in the test booklet and answer sheet. The questions range from asking you to identify emotions in faces and pictures, to asking you to compare emotional feelings to other sensations such as those of heat and colors. The MSCEIT is an ability test, so some answers are more correct than others; for some items, partial credit is given. It is in your interest to answer all of the questions. **Please work as quickly as you can.** If two answers appear correct, it is possible that either one will provide you with equivalent credit. For that reason, finish a question as soon as you have found the answer you are most satisfied with.

Additional Information

- Test takers should be provided with 4 test booklets (i.e., MSCEIT, General Life Information, PCI, and Eq-I) and 3 answer sheets (i.e., MSCEIT answer sheet, PCI answer sheet, and Eq-I answer sheet). Once they have completed the first measure, they can proceed to the second measure. They may have questions regarding where to indicate their service numbers.

- Please ensure that Service Numbers are indicated in the appropriate spaces on all 3 answer sheets and on the General Life Information Questionnaire. See example answer sheets for appropriate spaces.

- Do not answer specific questions about the MSCEIT (e.g., What does excitement mean?). You may answer very general questions.

- Gather answer sheets and test booklets at the end of the testing session. Please paperclip the testing materials for each individual (i.e., 1 MSCEIT answer sheet, 1 PCI answer sheet, 1 Eq-I answer sheet, and 1 General Life Information Booklet) to ensure that their testing materials are kept together.

Appendix B: Background Information

Please provide the following biographical information:

1. Service Number: _____

2. Gender: Male Female

3. Rank: Private Recruit Officer Cadet

4. Your Environment: Land Sea Air

5. Your component: Regular Primary Reserve

6. Years of Service: How many completed years of service do you have? _____ years

   OR How many completed months of service do you have? _____ months

7. First Official Language: English French

8. What level of education have you completed?

   Less than High School
   Some High School
   High School Diploma (Sec V)
   Some College (CEGEP)
   College Diploma
   Some University (CEGEP II)
   University Degree
   Some Graduate School
   A Graduate Degree

9. What is your age? _____ years

Appendix C: Life Satisfaction Scale

Service Number:

We are interested in how you have been feeling in general. Please answer the following questions by circling the appropriate response.

IN GENERAL, TO WHAT EXTENT DO YOU FEEL...	Never		Sometimes		Always
...on top of the world, feeling like life is wonderful?	1	2	3	4	5
...that things were going your way?	1	2	3	4	5
...happy?	1	2	3	4	5

We are interested in how satisfied you are with various aspects of your life. Please answer the following questions by circling the appropriate response.

	Very Dissatisfied	Dissatisfied	Neither Satisfied nor Dissatisfied	Satisfied	Very Satisfied
All things considered, how satisfied are you with your life as a whole these days?	1	2	3	4	5
Overall, how satisfied or dissatisfied are you with your job?	1	2	3	4	5
Overall, how satisfied or dissatisfied are you with the financial situation of your household?	1	2	3	4	5
Overall, how satisfied or dissatisfied are you with your home life?	1	2	3	4	5