Emotional Intelligence, Personality, Social Networks, and Social Perception.

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Declaration

I hereby declare that this thesis is of my own composition, and that it contains no material previously submitted for the award of any other degree. The work reported in this thesis has been executed by myself, except where due acknowledgement is made in the text.

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Acknowledgements

Abstract

Emotional Intelligence (EI) is a relatively new concept in the field of psychology, introduced by Salovey and Mayer in 1990. Research on EI has found associations among EI and social network size, health and well-being, and job performance.(Austin, Saklofske, & Egan, 2003; Brackett, Mayer, & Warner, 2003; Petrides & Furnham, 2003; Saklofske, Austin, & Minski, 2001). Two different types of EI, trait EI and ability EI, have been identified in the literature. Trait EI was identified by Petrides and Furnham, and is a non-cognitive ability which allows an individual to regulate his/her mood, recognize and make the most of emotions, and utilize social skills, and is measured by self report. Ability EI is the ability of an individual to understand, generate, and manage emotions. Ability EI is measured using a performance measure which assesses the capacity of an individual to perceive emotions in him/herself, others, and the environment.

Emotional intelligence has been linked to aspects of well-being, such as social network quality. In order to examine how EI related to social networks, both trait and ability EI were measured along with the Big Five factors of personality and social network quality and size. A study of 268 participants investigated the relationships amongst trait EI, personality, and social network quality and size. The Big Five factors of personality were all significantly positively correlated with EI ($p < .01$), and were also significantly correlated with social network quality and size. EI was significantly related to social network quality and size. When controlling for personality, EI was no longer significantly correlated with any of the social network quality or size variables. A subset of participants (n=78) completed an ability measure of EI, the Mayer Salovey Caruso Emotional Intelligence Test (MSCEIT). There were no significant correlations between MSCEIT scores and any of the other variables. A follow-up study was then carried out looking at the relationship of the original study variables with ability EI (MSCEIT), life stress, measured using the Uplifts and Hassles scale, and depression, measured using the Beck Depression Inventory (BDI), in the original participants. The results from this study indicated that emotional stability was significantly correlated with the Uplifts portion of the life stress scale, but not with Hassles. Conscientiousness was significantly negatively correlated with both the Hassle subscale of life stress and the BDI score. Emotional stability was also significantly negatively correlated with the BDI score. The total ability EI score measured by the MSCEIT did not show significant relationships with any other variables.

Given that EI has been linked to social network quality and size, and one of the facets of EI is the capacity of an individual to recognize emotions in others, it would seem that individuals who are high in EI should have larger and better quality social networks as they are theoretically able to recognize and appropriately respond to the emotions of others. In order to test this, a social perception inspection time task was carried out in which participants were required to identify if a face was happy, sad, or angry. The faces used were both Caucasian and Far-East Asian, the hypothesis being that a person high in EI would recognize the facially expressed emotions regardless of whether the face shown was of their own race or not. Results from this study indicated that EI was not related to correctly identifying facial expressions.

The results of these studies are discussed along with suggestions for future research in this area.

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Chapter One

The overall purpose of this thesis is to examine the construct of emotional intelligence, and how it relates to personality, social networks, life stress, depression, and social perception. Emotional intelligence will be examined throughout with regards to its value as a potential predictor of the outcome variables. The first chapter will provide general information, background, and measurement tools of both trait and ability EI, while chapter two will provide a more in-depth discussion of the relationships among emotional intelligence, personality, social networks, and well-being. The studies discussed in chapter three examine both trait and ability EI, and how they relate to personality, social network quality and size, life stress, and depression, and how these results correspond with previous research. Given the results found in these studies, a further review of the literature is undertaken in chapter four in order to explore social perception, which then leads to the development and description of the experiment in chapter five. Finally, chapter six looks at the results from all of the studies and how they fill the gaps in previous research, along with suggestions for future research.

This chapter will first provide a general overview of emotional intelligence, the differences and similarities between trait and ability EI, then look in depth at ability EI with regards to measurement, relationships with intelligence, and value as a predictor. Trait EI is then discussed with regards to measurement, relationship with personality, and value as a predictor. Finally, there is a brief review of the implications of emotional intelligence.

1.1 General Background of Emotional Intelligence

Emotional intelligence (EI) is a relatively new construct in the field of psychology. It was first introduced by Mayer and Salovey in 1990 as a concept further building on Gardner's (1983) intrapersonal and interpersonal intelligence (Mayer & Salovey, 1993). Though, in 1920 Thorndike first put forth the concept of social intelligence, which also has some similarities to the concept of EI. When introducing EI, Salovey and Mayer defined it as:

> "the subset of social intelligence that involved the ability to monitor one's own and other's feelings and emotions, to discriminate among them and use this information to guide one's thinking and actions" (Salovey & Mayer, 1990, p189).

EI quickly became a very popular topic both within psychology and with the general public as it "has been purported to be distinct from traditional IQ and crucial in predicting real-life outcomes" (Ciarrochi, Chan, and Caputi, 2000, p 540). Then, in 1995, Daniel Goleman published a book which was featured on the cover of TIME magazine and first allowed EI to become a popular topic with the general public. Goleman's book became a best seller as it was seen (and claimed (Goleman, 1995)) to be a dramatic improvement over existing assessment of ability, particularly as EI was seen as a more hopeful concept than cognitive intelligence because of the idea that it was something that could be taught. Though the book was based on the research that had been conducted in the area of emotional intelligence, the amount of

empirical evidence was limited. EI is a topic which is appealing to both the general public and academic researchers because of its initial face validity and intuitive appeal.

In 1997, Mayer and Salovey revised their original concept of EI to include four branches, looking at an individual's ability to perceive, facilitate, understand, and manage emotions. However, this led to debate within the literature as different models of EI were proposed by different researchers (Mayer & Salovey, 1997; Bar-On, 1997; Schutte et. al, 1998). While Mayer and Salovey proposed the four branch model, the model put forth by Bar-On consisted of:

> "noncognitive intelligence… defined as an array of emotional, personal, and social abilities and skills…. The key factors involved include intrapersonal capacity, … interpersonal skills, … adaptability, … stress management, … and motivational and general mood factors" (Bar-On, Brown, Kirkcaldy, & Thomé, 2000, p1108).

Furthermore, the concept was redefined by Schutte et al. as "appraisal and expression of emotion in the self and others, regulation of emotion in the self and others, and utilization of emotions in solving problems" (Schutte et al., 1998, p 175).

While the conceptual definitions are similar, differing operational definitions and a lack of cohesive model make the emotional intelligence construct a difficult one to assess. One of the main issues facing the differing models of EI is the matter of measurement. A variety of EI measures exist, the most

common measures include the Mayer Salovey Caruso Emotional Intelligence Test (MSCEIT; 2002), which was based on its predecessor the Multi-factor Emotional Intelligence Scale (MEIS; Mayer, Caruso, & Salovey, 1999). In addition, there is the Bar-On Emotional Quotient Inventory (EQ-i; 1997), the Test of Emotional Intelligence (TEMINT; Schmidt-Atzert & Bühner, 2002) and the Schutte et al. (1998) emotional intelligence scale, amongst others. However, with the large number of measurement scales, it is difficult to determine the reliability and validity of the measures given due to the variety of operational definitions required by the assortment of tests. Or, as Ciarrochi et al. (2000) point out, the enthusiasm over the EI construct loses sight of "the fact that many of the measures may be neither reliable nor valid" (p 540).

Each of the various models put forth by researchers has a different measurement tool, many of which have shown evidence of both validity and reliability (more specific details of the tools of measurement will be discussed later). Interestingly, the methods of measurement fall into two distinct categories. There are performance based measures which require individuals to implement their emotional skills in a manner similar to cognitive intelligence tests. The other measurement technique entails individuals filling out self report questionnaires in order to rate their ability to utilize emotional skills. These two different methods of measurement have given rise to two different labels of EI: ability EI and trait EI. Ability EI is used to refer to the emotional abilities of an individual as assessed by performance measures. In contrast to this, trait EI (sometimes referred to as mixed-model EI (Mayer, Salovey, & Caruso, 2000), but this author will always refer to it as trait EI) is measured by self report and looks at the

capacity of an individual to recognize, generate, and appropriately respond to emotions. Trait EI is a dispositional attribute which is stable across interpersonal situations while ability EI is a more stable cognitive skill. However, the question of incremental validity remains. Van Rooy, Viswesvaran, and Pluta state that "[e]mpirical research is… needed that assesses the incremental validity of a measure of EI based on one model… over a measure of EI based on the alternate…." (2005, p. 457). Each of these categories of emotional intelligence will now be discussed with regards to the definition and general issues, method of measurement and psychometric properties, and correlates.

1.1.2 EI as intelligence

Emotional intelligence was described by Mayer and Salovey as "a type of social intelligence that involves the ability to monitor one's own and others' emotions, to discriminate among them, and to use the information to guide one's thinking and actions" (Mayer & Salovey, 1993, p 433). After reading this definition, one is bound to ask: does this definition of emotional intelligence meet the conventional standards of a cognitive intelligence?

General cognitive intelligence can be operationalized as an individual's ability to process information and cognitive capacity (Gottfredson, 1997), which is a rather broad definition. Given that general intelligence is challenging to define, researchers have attempted to delineate it into more manageable categories. For example, the broad categories of fluid and crystallized intelligence, or specific aspects of intelligence, such as verbal ability (Roberts, Zeidner, & Matthews, 2001). The theory of crystallized and

fluid intelligence, put forth by Cattell (1971) and Horn (1988), has been empirically supported and shown to be psychometrically valuable (Roberts et al., 2001). However, some researchers, such as Gardner (1983), have proposed multiple intelligences which include social intelligence, as well as intrapersonal/interpersonal intelligence. Emotional intelligence is another type, or aspect, of intelligence, which involves the cognitive capacity to process emotional information. EI could also be seen as an aspect of crystallized intelligence, given that the ability to process emotional information develops over time and through experience. Yet, as mentioned previously, there is an overlap with the concept of social intelligence as proposed by Gardner (1983). Again, the question of assessment must be considered.

General intelligence is measured by maximum performance measures in order to determine the full cognitive capacity and information processing capability. Essentially, intelligence is general mental aptitude and "general information-processing capacity that facilitates reasoning, problem solving, decision making, and other higher order thinking skills" (Gottfredson, 1998; p 81). In order to define a concept as an intelligence it would seem necessary to be able to assess the construct in a manner similar to that which is used to assess general intelligence. Studies which have looked at the relationship between self report measures of general intelligence and performance measures of cognitive intelligence have yielded results which indicate a relatively small correlation (r = 0.3) between the two (Paulhus, Lysy, & Yik, 1998; Mabe & West, 1982). This is not terribly surprising given that performance measures are based on actual ability to solve problems, while self report measures are "people's endorsements of descriptive statements

about themselves" (Brackett & Mayer, 2003, p 1147). However, some of the most commonly used EI measures are self report (i.e. Schutte et al. 1998 emotional intelligence scale and Bar-On EQ-i). This leads back to the issue of the two different types of EI: trait and ability. One has to wonder, if trait EI is measured by self report, can it truly be called a type of intelligence? Furthermore, if the self report assessed trait EI cannot be called an intelligence, yet the performance measures of ability EI qualify that construct as a type of intelligence, how can they be evaluating the same concept?

With regards to the issue of trait EI and its qualification as an intelligence, it does seem questionable that self report measures of EI can accurately assess the ability of an individual to deal with emotional material, or really any Intellectual ability (Salovey & Grewal, 2005). However, it does seem feasible that trait EI could be related to personality, which is measured in a similar self report fashion (Brackett & Mayer, 2003). This will be discussed further later on in this chapter. First, in order to further answer these questions, it also becomes necessary to consider if ability EI can qualify as an intelligence.

1.1.3 Ability EI

Ability EI is an innate cognitive capacity to assess emotional material, measured by performance, in a manner similar to psychometric intelligence (Mayer & Salovey, 1997). The original concept looked at three main components of EI: the capacity of an individual to express and appraise emotions, utilize emotions when thinking and acting, and regulate emotions (Salovey & Mayer, 1990). The current definition for ability EI involves four branches, which examine the ability of an individual to perceive, manage,

and understand emotions, as well as facilitate thoughts. Ability EI is a cognitive ability, and is therefore similar to cognitive intelligence in showing little to no significant correlation with personality (Matthews et al., 2002). This will be further discussed later on in this section.

1.1.3.1 Measurement

The most commonly used ability EI test is the Mayer Salovey Caruso Emotional Intelligence Test (MSCEIT), which is an updated version of the Multi-factor Emotional Intelligence Scale (MEIS, Mayer et al., 1999; Mayer, Salovey, & Caruso, 2001). The MSCEIT is, at present, the only available measure of ability EI that is a broad-bandwidth measure (Austin, Parker, Petrides, & Saklofske, in press). In addition, as this is the ability EI measure used in the studies discussed in subsequent chapters, the main focus will be on previous research which uses the MSCEIT. This is a performance measure which the authors of the test, the same as those who originally introduced the concept of EI, assert is the standard to which other tests of EI should be held because of the objective and performance-based evaluation involved in this test (Brackett & Mayer, 2003; Mayer, Caruso, & Salovey, 1999; Mayer & Salovey, 1997; Salovey & Grewal, 2005). The MSCEIT is largely based on empirical evidence and measures the ability of participants through performance on emotion related tasks. The assessment is based on the four branch model of ability EI put forth by Salovey and Mayer (1997). The MSCEIT assesses how well an individual is able to perceive, manage, and understand emotions, as well as facilitate thought through emotions (Mayer et al., 2001). The emotion perception branch of the MSCEIT measures how well an individual is able to identify the emotions expressed

in faces, landscapes, and designs. The second branch of the MSCEIT is the facilitating thought branch, in which the individual completing the MSCEIT is given scenarios that ask him/her to match feelings to senses, sensations to emotions, or determine which mood would best facilitate cognition. Understanding emotions is the third branch of the MSCEIT; items assessing this branch ask participants to determine which emotion encompasses a list of feelings. It also describes situations which portray the progression of emotions, and finally, participants are given emotional analogies in which they are to choose corresponding pairs of emotions. The final branch of the MSCEIT is the managing emotions branch. This branch describes situations and items assessing this branch invite the person completing the MSCEIT to determine the emotions being felt by both the target person in the description and how those emotions would be best utilized in the situation.

The difficulty that arises in relation to the MSCEIT, and determining the ability EI of an individual, is the difficulty that comes with objectively determining the correct response to emotional stimuli (Roberts et al., 2001). This is in contrast to cognitive intelligence tests which examine verbal, spatial, reasoning, or numerical abilities, all of which are able to be tested with items that have correct and incorrect responses. There are three different types of scoring procedures available to measure the responses to emotional stimuli. These procedures are consensus scoring, expert scoring, and target scoring.

Consensus scoring, which is the primary method of scoring the MSCEIT, occurs when a test has been given to a large group of people, and the correct answer is determined by the agreement of the group

(http://www.emotionaliq.org/MSCEIT.htm). The MSCEIT uses mode consensus scoring, which is when the group's most frequent response to an item becomes the correct response for an item. For example, if 60% of the respondents stated that a scene displayed happiness, then the correct response for that item would become happiness. However, another option is proportion consensus scoring which means that the items are weighted according to the agreement of the group. For example, if 60% of the group agrees that a landscape conveys a happy emotion, 30% think the emotion being shown is surprise, and the remaining 10% determine the emotion is anger, then each of the responses for that item are weighted based on the proportion of the group which agreed with the response (Barchard & Russell, 2006). This method requires a large number of people complete the test and the results are amalgamated and analyzed in order to determine the correct response. Furthermore, consensus scoring does not allow for inter-rater reliability, which means that it does not account for differences in perception from others, or from the norm. The biggest weakness of consensus scoring is the skewed distribution of the score (MacCann, Roberts, Matthews, & Zeidner, 2004). This happens because the purpose of consensus scoring is to find the answer which is most common amongst the group, therefore, the distribution will have a strong degree of kurtosis and a negative skew because the majority of responses to an item will be the same. The difficulty with this is that it means that a person who is high in EI will fall close in the distribution to a person who has an average EI due to the skew. Another issue which arises with mode consensus scoring (the type used by the MSCEIT) is that it is biased against subgroups within the norm group (Barchard & Russell, 2006). This occurs when a subgroup (which could be based on race, gender, socio-economic status, experts, etc.) shows a different

modal response score than the normative group. In fact, this could be the reason for differences in the consensus and expert scores of the MSCEIT.

Expert scoring is also an option when evaluating measures of emotional intelligence. Information regarding expert scoring is available when using the MSCEIT, though as stated earlier, consensus scoring is the primary method. The expert scoring for the MSCEIT is based on 21 members of the International Society for Research on Emotions. However, a study conducted by Van Rooy and Viswesvaran (2004) reported that "expert ratings resulted in higher predictive validities than scoring using group consensus ratings" (p. 88). This is likely the reason that information regarding responses for both types of scoring are available when using the MSCEIT. Expert scoring entails experts in the field of emotions being given the items on a test and their responses being used to determine the scoring weights for each item. For example, an expert in the field of emotions will view a face and decide which expression is being demonstrated. In this case, the correct response is determined by the experts in the field. The advantage of this approach is that, in theory, the experts who are judging the items have knowledge of behaviour and emotions (MacCann et al., 2000). The disadvantage to this approach is the difficulty in determining who is an expert in the field. In this instance in particular, it is difficult to judge who is an expert in the field of emotional intelligence given both the short period of time in which the construct has been an area of research and the divergent ideas regarding the true nature of EI. In addition, there is some indication that when expert scoring is used, participants who are similar to the experts tend to score higher (i.e. – when the experts were white males, white males

scored more highly than with other types of scoring), so a social group to which an individual belongs may affect their EI score (MacCann et al., 2004).

Finally, the third scoring option available is target scoring. Target scoring requires a judge, generally the individual taking the test, to determine what a target is depicting while engaged in an emotional activity (Roberts et al., 2001). An example of this type of scoring would be a scenario which describes an individual who gets in an argument with a co-worker. The individual taking the test would then be asked to identify the strength of certain emotions that the target person in the scenario might be feeling. One of the disadvantages of this type of scoring is that it can be used primarily for identification or perception of emotion, but not for other aspects of EI such as facilitating thoughts, or managing or understanding emotions. The other main disadvantage to this type of scoring is that it is impossible for the person taking the test to have all the information about the target person which could be related to determining the emotions of the target. The advantage to this type of scoring is that a test can be created which describes scenarios and the individual taking the test can be measured on his/her ability to recognize, or perceive, the emotions being depicted in the scenario. While target scoring is not available with the MSCEIT, it is the primary method of scoring for other ability EI tests, such as the Test of Emotional Intelligence (TEMINT; Schmidt-Atzert & Bühner, 2002).

However, it becomes apparent in the description of the types of scoring available for ability EI tests that none of these types of scoring can be used for correct/incorrect items such as those used on tests of conventional cognitive intelligence. The other main issue with the MSCEIT is that of cost.

The MSCEIT is a proprietary test marketed by Multi-Health Systems Inc. (MHS) and commercially priced (a research price is available, which is approximately £6.50 per test including VAT). It is likely that budgetary restrictions have constrained some researchers who may have sought to use the MSCEIT.

Briefly, some of the alternative measures of ability EI include: the TEMINT, the Emotional Accuracy Research Scale, (EARS, Mayer & Geher, 1996), and Levels of Emotional Awareness Scale (LEAS, Lane & Schwartz, 1987). The TEMINT is an ability EI test originally written in German, and recently translated to English (Amelang & Steinmayr, 2006). It provides scenarios in which participants rate the emotions of a target person in each of 12 situations. It was specifically developed as a measure of ability EI, and research indicates that its relationship to personality and cognitive intelligence are similar to those of the MSCEIT (Knapp-Rudolph, 2003; Schmidt-Atzert & Bühner, 2002). Mayer and Geher developed the EARS before the MEIS, making it the first ability EI test (Matthews et al., 2002). The EARS utilizes expert and consensus scoring to identify the emotions felt by individuals depicted in vignettes. However, since its development, it has been used in only two studies: the original Mayer and Geher (1996) study, and a study by Geher et al. (2001). Finally, the LEAS (Lane & Schwartz, 1987) measures the ability of an individual to recognize and describe emotions by presenting interpersonal scenarios designed to elicit emotional responses from the participants both for themselves and others. For example, a vignette might describe a situation in which two friends worked together and one received a prize. The participant would then be asked to describe how s/he would feel not receiving the prize, and how his/her friend

would feel. The responses are given scores for both the self and other. However, the fact that the development of the LEAS pre-dates the ability emotional intelligence construct makes it difficult to refer to the LEAS as a measure of ability EI.

Although the method of scoring ability EI tests differs from the scoring method of cognitive intelligence tests, results reported in the literature have indicated that there is a significant relationship between ability EI and cognitive intelligence, yet the results are such that there is also an indication of construct validity of ability EI (Van Rooy & Viswesvaran, 2004).

1.1.4 Ability EI, cognitive ability, and construct validity

The first study discussed examining the relationship between ability EI and cognitive ability will be a meta-analysis conducted by Van Rooy and Viswesvaran (2004). Just to note: given the nature of a meta-analysis (to examine all the available literature), the studies which will be discussed subsequently were published either after, or close to the same time, as the meta-analysis in order to avoid overlap. Van Rooy and Viswesvaran (2004) examined a total of 69 studies, from both published journal articles and unpublished academic works such as dissertations and theses, which investigated the relationship between EI and other variables, such as cognitive intelligence.   The inclusion criteria for the studies was that they used a measure which was specifically referred to as a measure of emotional intelligence (thereby excluding those measuring social intelligence, interpersonal intelligence, etc. as a predictor). Out of the total number of studies examined, 19 of them explored the association between EI and

cognitive intelligence, and 9 measured EI using the MEIS (the predecessor to the MSCEIT). The results of the meta-analysis indicate that the correlation between ability EI as measured by the MEIS and cognitive intelligence (r = .33). However, the correlation between cognitive intelligence and ability EI as measured by other tests was only r = .09. This significant relationship between ability EI and cognitive intelligence seems to indicate that they are measuring something similar. These results, therefore, support the notion of construct validity of emotional intelligence. In addition, Van Rooy and Viswesvaran also examined the incremental validity of EI over and above cognitive intelligence. In order to do this, they decided to use the overall predictive validity value of cognitive intelligence (.53) reported in a meta-analysis conducted by Schmidt and Hunter (2004). Essentially, Schmidt and Hunter (1998) carried out a meta-analysis and found an overall mean predictive value for mental ability. Using that validity value for mental ability, the results were examined to determine if EI exhibited incremental validity over cognitive intelligence. Emotional intelligence did explain an additional .02 beyond cognitive intelligence, though when the equation was reversed, intelligence displayed an additional .31 beyond EI. Overall, there does seem to be a little incremental validity of EI over cognitive intelligence (Van Rooy & Viswesvaran, 2004). Bearing in mind that incremental validity is essentially the degree to which a test improves on information that can already be gathered from existing measures, this means that emotional intelligence offers little explanation above cognitive ability.

Another study which investigated the relationship between cognitive intelligence and ability EI as measured by the MEIS was conducted by

Roberts et al. (2001). This study looked at 704 (89% male) trainees in the United States Air Force aged, 17 to 23. The participants in this study completed the MEIS, as well as the Armed Services Vocational Aptitude Battery (ASVAB), a general cognitive ability measure with 10 subscales that assess: general science, arithmetic reasoning, word knowledge, paragraph comprehension, mathematical reasoning, numerical operations, coding speed, auto and shop information, mechanical comprehension, and electrical information (Roberts et al., 2001). Roberts et al. (2001) report that in their study, as well as other psychological literature (Roberts et al., 2000), the results of these ten subscales are combined into five composite scores: administration, electronics, general, mechanical, and Air Force qualifying (AFQT), which is considered the best subscale of this test to measure general intelligence. In the results of the study, the authors examined how both consensus and expert scoring of the MEIS related to the general ability variables. The results indicated a significant correlation with general cognitive intelligence as measured by the AFQT and both the consensus (r = .29) and the expert (r = .40) total MEIS ability EI. In a further regression analysis, the AFQT was shown to be a significant predictor of the MEIS expert score results ($F(6, 581) = 19.61$, $\beta = 0.23$, $p < .001$). Given the significant relationship found between cognitive and emotional intelligence, these results seem to indicate, along with the previously discussed literature, that ability EI does have construct validity, while being significantly related to general cognitive ability.

A further study which examined the relationship between ability EI and cognitive ability was conducted by MacCann, Roberts, Matthews, and Zeidner (2004). This study examined 102 undergraduate students and

assessed their ability EI, as measured by the emotion perception branch of the MSCEIT (the successor to the MEIS), and how it compared to fluid and crystallized intelligence as well as visualization measures evaluating an individual's ability to determine if a shape is the same or different from a target shape. The results indicated that there was a significant correlation between the ability EI scores measured by the MSCEIT emotion perception subscale and both crystallized intelligence and general intelligence as measured by visual recognition and identification of shapes ($r = .22$ and $.23$). The relationship between EI and visual recognition and shape identification found in the results of this study lend additional credibility to the overall construct validity of EI, by showing that it relates to outcome variables in a similar manner to intelligence, as well as indicating that there is a significant relationship between ability EI and cognitive intelligence.

A related study examined the relationship between school performance and emotional intelligence. Given that school performance is related to cognitive ability (Gardner, 1983), it would seem reasonable to conclude that school performance should be related to ability EI, given the relationship between ability EI and cognitive intelligence. In order to determine if such a relationship exists, Zeidner, Shani-Zinovich, Matthews, and Roberts (2005) conducted a study looking at the ability EI differences in a 208 high school students, both gifted and non-gifted. In this study, all the students in gifted classes in a school in Israel (N = 83), and a corresponding group of students not in the gifted classes (N = 125), were tested in order to determine both their trait and ability EI. In order to determine if students are suitable for the gifted classes, they first take an academic aptitude test. Students who score in the top 15% of that test are then tested for general cognitive and

intellectual ability using advanced placement tests. Then, the top one to three percent of students were included in the gifted classes. Given the criteria for students to be included in gifted classes, it seems clear that these students were of high cognitive ability. The students then completed the MSCEIT, as well as a self-report measure of trait EI. The results of this study found that the students in the gifted classes obtained significantly ($p < .05$) higher mean scores on the MSCEIT (103.36) than the mean score for the non-gifted students (97.77). However, results indicated that self-report EI scores for the gifted students (mean = 95.17) were lower than the self-report EI scores from students not in the gifted class (mean = 103.47). Interestingly, these results indicate that the students with a higher cognitive ability also have a higher ability EI, which would seem to support the previously discussed research that indicates that ability EI is related to cognitive ability.

An additional study was conducted in order to assess how ability EI related to cognitive decision making, as well as to determine if ability EI was related to the big five factors of personality (Day & Carroll, 2004). The study examined 246 Canadian undergraduates (70 men, 176 women) to determine their personality profiles, ability EI, and how well they were able to perform on a cognitive decision-making task. The purpose of this study was to empirically investigate how well ability EI could predict an individual's performance in a situation that called for him/her to interact with other people, as well as how this related to the personality of the individual. The results indicated that the big five factors of personality were, at best, weakly correlated to ability EI. The only personality factor that was significantly, though weakly, correlated with all four of the MSCEIT subscales, was Openness (Day & Carroll, 2004). This finding is not terribly surprising given

that there is some indication that Openness is related to crystallized cognitive intelligence (Ackerman & Heggestad, 1997; Matthews et al., 2001). In addition, one of the characteristics of Openness to experience is Openness to and recognition of emotions, which could be another reason for the relationship found in this study (Day & Carroll, 2004). With regards to the interpersonal cognitive decision making task, a significant relationship was only seen with the emotion perception subscale of the MSCEIT ($r = 0.17$, $p < .01$), which was a predictor of performance on the decision making task. The correlation between the emotion perception subscale of the MSCEIT was similar to the previously discussed findings of MacCann et al. (2004). While the results of the Day and Carroll (2004) study do seem to fall in line with the research discussed previously, the cognitive decision-making task was not a measure of cognitive intelligence, so while it does support the interpersonal aspects of EI, it does not lend itself to adding support to the relationship between ability EI and cognitive intelligence. However, the results which examine the relationship between ability EI and the big five factors of personality are especially interesting in that they supported the notion that ability EI is independent of personality.

Finally, Van Rooy, Viswesvaran, and Pluta (2005) conducted another meta-analysis of the emotional intelligence construct. The meta-analysis examines the differences, both between trait and ability EI, as well as how both trait and ability EI interact with other variables such as the big five factors of personality and cognitive intelligence. It examines studies conducted after 1995, and only studies which use either the MEIS or the MSCEIT to measure ability EI were included. The results of the meta-analysis indicate a very weak correlation between trait and ability EI ($r = 0.14$), indicating that the

two types of EI are different constructs. The rest of the trait EI results will be discussed in the next section. The meta-analysis also examined the relationship between ability EI and the big five factors of personality across an average of 10 studies. The results were in keeping with those of Day and Carroll (2004), in that any correlations found between ability EI and personality were either non-significant or very weak, and none of the correlations between ability EI and any of the personality factors was greater than r = 0.20. The largest relationship (though still weak) was between ability EI and Agreeableness (r = 0.18), which was similar to the relationship between ability EI and Openness (r = 0.14). The relationship between ability EI and Openness is similar to what was found (and discussed) previously (Day & Carroll, 2004), however, the correlation with Agreeableness is somewhat unexpected, though it is rather weak. The correlations with the rest of the personality factors were non-significant. Results which related cognitive intelligence to ability EI were also similar to previously discussed research. In the current study, Van Rooy et al. (2005) found an overall correlation of r = 0.34 between cognitive intelligence and ability EI across 18 studies. The overall results of the meta-analysis indicated some very apparent differences between how trait and ability EI related to other variables, as well as each other. Across 13 studies, and with the results corrected for error, the total correlation between trait and ability EI was r = 0.14.

1.1.5 Ability EI as a predictor

Research indicates that ability EI is related to a number of different variables beyond cognitive ability, such as interpersonal performance, autonomic self-

perception, attachment, everyday behaviour (or life space), and social network quality (Brackett, Mayer, & Warner, 2004; Day & Carroll, 2004; Kafetsios, 2004; Lopes, Salovey, & Straus, 2003; Schneider, Lyons, & Williams, 2005). As discussed in the previous section, Day and Carroll (2004) found that ability EI was a significant predictor of how well an individual performed on an interpersonal cognitive decision making task. They reported that an individual high in ability EI is better able to make decisions in interpersonal situations. The question that will be addressed in this section is what is indicated by the other research with regards to how well ability EI predicts the other variables mentioned.

Schneider, Lyons, and Williams (2005) conducted a study to investigate if people high in ability EI are better able to recognize activity in their autonomic nervous system, such as their heartbeat. The study tested the ability EI of 79 individuals, as well as asking them to estimate their heart-rate, as accurately as possible, without feeling their own pulse. Given that emotion perception is an aspect of ability EI, the researchers predicted that those individuals that were high in ability EI would be better able to perceive their own heart-rate as heart-rate could be seen as an indicator of emotion. However, the emotion perception subscale of the MSCEIT was not specifically related to physical self-perception. The results of Schneider et al. (2005) did indicate that other MSCEIT subscales were significant predictors of autonomic self-perception. Interestingly, the facilitating thought subscale of the MSCEIT was able to significantly predict improved self-perception of the heartbeat, while the managing emotions subscale was able to predict when an individual had inferior physical self-perception. In addition, the results indicated that the understanding emotions subscale predicted better

self-perception for females. The authors suggest that these results may be due to the facilitating thought subscale measuring how well an individual is able to "compare emotions with sensations, which… could have enhanced its relation with visceral self-perception" (Schneider et al., 2005, p 859). In contrast, the authors propose that an individual scoring high on managing emotion will reflect upon his/her feelings, possible leading to reduced arousal, which could explain this subscale predicting poorer performance on the autonomic self-perception task. The explanation put forth by the authors with regards to the emotion management is also related to the results indicating that females scoring high on the understanding emotions scale were better able to perceive their heartbeat. Those that score high on the understanding emotions subscale of the MSCEIT must be able to recognize emotions, therefore increasing arousal and the ability to accurately perceive physical states (Schneider et al., 2005). Essentially, the results of this study indicate that ability EI is a significant predictor of autonomic self-perception.

Another study looking at the predictive validity of ability EI was conducted by Kafetsois (2004) to explore how ability EI was related to attachment style in 239 participants. The four attachment styles examined in this study were those put forth by Bartholomew (1990): secure, preoccupied, fearful, and dismissing. These four types all involve a positive and/or negative view of both the self and others (Kafetsois, 2004). The secure attachment style corresponds with a positive view of both the self and others, while the preoccupied attachment style involves a negative view of the self, but a positive view of others. Similarly, a fearful attachment style entails a negative view of both the self and others, while the dismissing style is indicative of a positive view of the self and a negative view of others. Given

these definitions of the four attachment styles, the author suggested that the secure attachment would result in a positive relationship with ability EI, while the preoccupied attachment would show a negative relationship, and no prediction was made with regards to the two attachment styles that involve a negative view of others (Kafetsois, 2004). The results of a multiple regression analysis reported in this study indicate that the secure attachment style was significantly predicted by ability EI. Interestingly, the dismissing attachment style was also positively predicted by the understanding emotions subscale of the MSCEIT. This result is likely due to the understanding emotions scale requiring participants to describe emotions and how they relate to each other, so an individual with a dismissing attachment style could still score well on this subscale because it would seem that s/he could understand the emotions of him/herself and others, while still seeing him/herself in a positive light and others in a negative one. The author suggests that an individual with a dismissing attachment style "experience[s] lower levels of emotional intensity…" which may "enhance cognitive processes of understanding emotions" (Kafetsois, 2004, p. 138). Finally, the preoccupied attachment style did result in a negative relationship with the perceiving emotions subscale of the MSCEIT. In a similar explanation to that of the dismissing attachment style, an individual with a preoccupied attachment style could perceive the emotions of him/herself and others regardless of whether the individual's view of him/herself or others was positive or negative. This study adds to the predictive validity of ability EI, the regression analyses performed indicated that that aspects of ability EI are significant predictors of attachment style.

Given the characteristics of ability EI discussed thus far, it seems reasonable to conduct a study in order to determine how this relates to everyday behaviour, or "life space" (Brackett, Mayer, & Warner, 2004). In order to determine how ability EI related to everyday behaviour, Brackett et al. (2004) conducted a study to examine in what way the MSCEIT was associated with life space criteria. Life space was measured by the College Student Life Space Scale (CSLSS; Brackett, 2001) which looks at three main areas of everyday life. The three main areas are broadly defined and look at healthy/unhealthy behaviour (health behaviours, eating well, exercise, alcohol consumption, smoking, care of personal appearance), leisure/academic activities (time spent studying, class attendance, using illegal drugs or other deviant behaviour), and interpersonal relationships (quality, positive or negative, of relationships with friends and family) (Brackett et al., 2004). The authors examined 330 (89 males, 241 females) participants with regards to their ability EI, life space, and personality. Academic ability was assessed with each participant's university grades and total score for the Scholastic Aptitude Test (SAT). As with research discussed previously, the results indicated that the total MSCEIT score showed a weak significant correlation with both Agreeableness and Openness (r = 0.17 and 0.14). Also similar to previously discussed research, the total ability EI score was positively correlated with the cognitive ability measures: total SAT score (r = 0.39) and grades (r = 0.18). In order to best determine how ability EI was related to the life space measures, the authors decided to control for the effects of personality and cognitive ability. The results indicate that lower ability EI was a significant predictor of four of the aspects of life space for the male participants: illegal drug use, higher alcohol consumption, deviant behaviour, and negative relationships with a

best or new friend (Brackett et al., 2004). These results seem to indicate that low EI is a significant predictor of deviant behaviour, poor health behaviours, and negative social relationships in male university students.

Finally, Lopes, Salovey, and Straus (2003) conducted a study, somewhat similar to the research just discussed, examining how emotional intelligence, cognitive intelligence, and personality related to social network quality in 103 participants. In contrast to previous research, the results of this study found a negative correlation between ability EI and Openness. Another finding that diverged somewhat from the previously discussed literature was that the MSCEIT correlated moderately with Agreeableness (r = 0.33), and was also significantly related to Conscientiousness. However, again only somewhat keeping in line with previous findings, ability EI as measured by the understanding emotions branch of the MSCEIT exhibited a moderate significant correlation with cognitive intelligence (r = 0.39). In addition, there was not a significant relationship between the total ability EI score and trait EI. This is also similar to the findings of previous research, and the differences between trait and ability EI will be further clarified in the next section of this chapter. With regards to the social network variables, the managing emotions branch of the MSCEIT was related to both positive relations with others and social network quality/support. The authors state that the total ability EI score was negatively correlated with the negative aspects of social network quality, as measured by the Network of Relationships Inventory. Lopes et al. (2003) conducted a multiple regression analysis, which indicated that both ability EI and personality were significant predictors of the social network variables.

Given that the literature which has been discussed in this section indicates that there is a weak relationship between personality and ability EI, further research must be conducted in order to determine how these two different constructs are related to social networks.

1.1.6 Trait EI

Trait EI was first identified about the time that Mayer and Salovey (1997) introduced their four branch model of emotional intelligence. It seems that the original intention of the developers of self report measures of EI was to fall in line with the original emotional intelligence theory. However, the form of measurement is one of the main ways in which trait and ability EI differ. As discussed previously, ability EI is the capability of an individual to perceive, facilitate, manage, and understand emotions, is measured by performance and is moderately related to cognitive intelligence. On the other hand, trait EI is a dispositional attribute that involves the capacity of an individual to recognize, generate, and respond appropriately to emotions in interpersonal situations. While the two concepts seem very similar, the way in which they are measured is the main thing that differentiates between the two. Ability EI is seen as more of a cognitive ability as it is measured in a manner somewhat similar to cognitive intelligence. Trait EI is dispositional, rather than cognitive, and is measured by self-report and seen as part of the personality of an individual (Petrides, Pita, & Kokkinaki, 2007). Trait EI has also been called mixed-model EI (Pérez, Petrides, & Furnham, 2005), though will currently be referred to as trait EI. Essentially, trait EI has been characterized as: "a constellation of emotion-related self-perceptions

and dispositions located at the lower levels of personality hierarchies"
(Austin et al., in press).

1.1.6.1 Measurement

In 1998, Schutte et al. developed a self report emotional intelligence measure based on the construct of EI put forth by Salovey and Mayer (1990), which is slightly different from the current model employed by Mayer and Salovey (1997). In order to do this, a study was conducted which involved a generated 62-item pool from which items that fit within the EI construct proposed by Salovey and Mayer were taken. After having 346 participants complete the 62-item questionnaire factor analysis was carried out, this resulted in 33-items that loaded onto a single factor. This new self report questionnaire to measure emotional intelligence was stated to represent "appraisal and expression of emotion in self and others, regulation of emotion in the self and others and utilization of emotions in solving problems" (Schutte et al., 1998, p. 175), which falls into the original EI construct (Salovey and Mayer, 1990). Though not originally intended to create a construct separate from the original concept of EI, this study was essentially the first to measure trait EI, as it was a self report measure in which participants are asked how well they are able to recognize and respond to emotions, but they are not required to actually show their ability to do so. This measure is seemingly the most commonly used measure of trait EI. As this was the trait EI measure used in the studies which will be discussed in subsequent chapters, the main focus of this section will involve studies conducted using the Schutte et al. (1998) emotional intelligence scale,

though other measures of trait EI will be described at the conclusion of this section.

Chapman and Hayslip (2005) conducted a study of 292 undergraduate students in order to examine the incremental validity of the Schutte et al. (1998) emotional intelligence scale and the big five factors of personality. Personality was assessed using the NEO-FFI (Costa & McCrae, 1992), and related to trait EI, grade point average (GPA), cognitive intelligence, and life stress. The results indicated correlations between trait EI and all of the big five personality factors. The highest correlation found was between trait EI and Extraversion ($r = 0.53$), with Agreeableness and Conscientiousness both correlating around .40 with trait EI. Neuroticism showed a negative correlation with trait EI ($r = -0.34$), which would be expected as N is a lack of Emotional Stability, while EI is the capacity of an individual to recognize and deal with emotions. The correlation between the Schutte et al. (1998) trait EI scale and Openness was the lowest, at only $r = 0.19$ (Chapman & Hayslip, 2005). Regardless of the relationship between trait EI and the personality factors, trait EI was still a significant predictor of personal and social stress, as well as loneliness. This seems to fit in with the overall emotional intelligence construct; perceiving, understanding, and managing emotions could all be related to life stress and loneliness. This evidence would seem to indicate a strong similarity between trait and ability EI.

Despite Schutte et al.'s (1998) self report measure seemingly falling in line with the ability concept of EI, Petrides and Furnham (2000) argued for two separate types of EI which they termed trait EI and information-processing EI. They stated that it is the type of measurement, performance versus self-

report, that determines which type of EI is being measured. Also trait EI "is concerned with cross-situational consistencies of behaviour . . . as opposed to information processing EI, which concerns abilities" (Petrides & Furnham, 2000; 314). Essentially, trait EI is closely related to personality and is exhibited in behaviours such as empathy, recognizing and responding to non-verbal cues, and optimism. In contrast, information processing EI (which is now commonly known as ability EI) is related to traditional psychometric measures of cognitive intelligence and is measured through performance (Petrides & Furnham, 2000). In a study of 260 men and women Petrides and Furnham (2000) asked participants to fill out the Schutte et al. (1998) scale in order to determine if the factor structure indicated factors that were in line with the original EI construct. The results of this study indicate that the self report Schutte et al. (1998) measure loads on 4 factors, rather than the one factor proposed in the original study. Given the results of the confirmatory factor analysis, Petrides and Furnham (2000) labelled the four factors they identified as mood regulation, appraisal of emotions, utilization of emotions, and social skills. They also argued that the Schutte et al. (1998) emotional intelligence scale is not a measure of the original EI construct proposed by Mayer and Salovey (1990), but rather the now identified trait EI which is stable across interpersonal situations and has characteristics similar to some of the Big Five factors of personality. They also suggest that the concept of EI cannot be validated through correlational studies, but rather it is necessary to conduct experimental analysis in order to ascertain the validity, and that more research of both trait and ability EI was necessary in order to confirm the validity and reliability of the paradigm. The self report measures of trait EI allow participants to express their dispositional capacity to recognize and respond to the emotions both of themselves and others. It

is a separate concept from the original EI construct in that it is indicative of an innate capability of an individual to process emotional material. It was at this point that the recognition of the two different types of emotional intelligence was recognized.

Given the disparity in the literature regarding the factor structure of the Schutte et al. (1998) emotional intelligence scale, Saklofske, Austin, and Minski (2003) conducted a factor analysis of the scale used to measure the trait EI in 354 undergraduate university students in Canada. The outcome of their principal components analysis resulted in a "scree diagram [that] suggested that either one or four factors should be extracted…" (Saklofske et al., 2003, p. 711). The four factor solution was similar to that reported by Petrides and Furnham (2000), and the factors were given the same labels as those suggested by Petrides and Furnham (optimism/mood regulation, social skills, appraisal of emotion, and utilization of emotion). However, internal reliabilities indicated that the Cronbach's α for the single factor total EI score was 0.89, which was higher than the internal reliabilities for the four factors, which ranged between 0.57 and 0.80. This would suggest that both a single factor trait EI score and a multifactor score for trait EI could be reasonable.

Austin, Saklofske, Huang, and McKenney (2004) carried out a related study to endeavour to improve upon the original Schutte scale. They argued that a possible issue with the Schutte et al. scale was the lack of reverse keyed items, which could result in social desirability in responding because the socially desirable responses would be more obvious. In order to remedy this situation, nine of the original items were re-worded in order to be reverse

keyed, and eight new items were added to the scale in order to improve the overall reliability. The Austin et al. (2004) study examined 500 undergraduate students, and measured their trait EI using both the new version of the Schutte et al. (1998) emotional intelligence scale, and the short version (41-item) of the Bar-On Emotional Quotient Inventory (EQ-i; Bar-On, 2002). The results of the study were examined in order to determine how the enhanced version of the Schutte scale compared with the original, as well as how this related to the EQ-i. Intriguingly, in contrast to the previous study, after conducting factor analysis the authors reported that both versions of the Schutte scale resulted in three factors, all of which had acceptable internal reliability (greater than 0.6), which the authors then labelled as: optimism/mood regulation, utilisation of emotions, and appraisal of emotions (Austin et al., 2004, p. 559). Interestingly, the internal reliabilities of the new version of the Schutte et al. (1998) emotional intelligence scale were comparable to the original version. This would suggest that the lack of reverse keyed items is not detrimental to the overall reliability of the original scale. With regards to the relationship between the two measures of trait EI, all of the subscales of the EQ-I were significantly positively correlated with the newly identified subscales of both the new and original version of the Schutte et al. (1998) emotional intelligence measure. This would indicate that the different measures of trait EI are measuring the same thing, as opposed to how measures of trait EI relate to measures of ability EI. Essentially indicating that the core of self-report EI does not seem to be strongly dependent on the theoretical model used in constructing the scale.

While the Schutte et al. (1998) emotional intelligence scale may be the most commonly used brief (public domain) trait EI measure, other measures of trait EI also exist which will now be briefly described. Another fairly common measure of trait EI is the previously mentioned Emotional Quotient Inventory (EQ-i, Bar-On, 1997). The full EQ-i consists of 15 subscales measuring 5 dimensions with a total of 133 items, though a short, 41-item, version is also available. The intrapersonal dimension consists of: emotional self-awareness, assertiveness, self-regard, self-actualization, and independence. The interpersonal dimension involves: empathy, interpersonal relationship, and social responsibility. The adaptation dimension encompasses: problem solving and reality testing. The stress management dimension examines: flexibility, stress tolerance, and impulse control. Happiness and optimism make up the general mood dimension (Bar-On, 1997). Bar-On also reports that the EQ-i contains four items which indicate social desirability (or lack thereof) in the responses of the participant. Research indicates that the EQ-i has good internal reliability (Bar-On, Brown, Kirkcaldy, & Thomé, 2000; Dawda & Hart, 2000). However, after examining the literature, Matthews et al. (2002) suggest that there seems to only be support for 10 of the 15 subscales, and argue that:

> "Bar-On (2000) retains, however, the five remaining scales (optimism, self-actualization, happiness, independence, and social responsibility), calling them facilitators of social and EI. Since this information has yet to filter through to the test uses of the EQ-i, it is probable that this unusual reformulation will lead to considerable confusion" (Matthews et al., 2002, p. 208).

The uncertainty that comes with the discrepancy between the scales on the test and the number of scales for which there is empirical support is the main issue with using the EQ-i. In addition, the length of the full measure (133-items) makes it more difficult to use than a shorter trait EI measure, such as the Schutte et al. (1998) scale. Finally, a problem which arises with both the EQ-i is that it is not a public domain measure. Therefore, it can run into the same problem of budgetary restrictions that go along with using the MSCEIT.

The TMMS was originally created to measure overall EI through three scales: attention to emotion, emotional clarity, and emotion repair (Salovey, Mayer, Goldman, Turvey, & Palfai, 1995). However, Davies, Stankov, and Roberts (1998) reported that results from a study of 300 people indicated that both the emotion repair and the emotional clarity subscales both showed correlations of $r = 0.48$ with Agreeableness, and negative correlations of $r = -0.47$ and -0.50, respectively, with Neuroticism. Furthermore, while the attention to emotion scale showed weak or no correlations with the personality variables, it was also independent of cognitive ability. Given the rather high correlations with both A and N, it seems that further research with the TMMS could be beneficial to determine how it relates to other measures of trait EI, and its usefulness of an overall measure of trait EI.

Another measure of trait EI is the Trait Emotional Intelligence Questionnaire (TEIQue; Petrides & Furnham, 2003). The TEIQue is a 144-item self report measure with 15 subscales, similar to the EQ-i: adaptability, assertiveness, emotion expression, emotion management (others), emotion perception, emotion regulation, empathy, happiness, impulsiveness, optimism,

relationship skills, self-esteem, self-motivation, social competence, and stress management. The correlation between the TEIQue and the big five factors of personality is comparable to the previously discussed trait EI measures, as well as being related to mood in a similar manner to the EQ-i (Petrides & Furnham, 2003). Finally, there exist lesser known tests such as the Wong and Law Emotional Intelligence Scale (2002) (Tett, Fox, & Wang, 2005). However, given that such tests have very limited support or empirical evidence, they will not be discussed further.

In order to investigate the validity of six trait EI measures, Tett et al. (2005) conducted a review of literature that examined the results of 33 studies. The trait EI measures examined in this study were the Schutte et al. (1998) emotional intelligence scale, the EQ-i, the TMMS, the TEIQue, and two commercially available trait EI measures. The results relate to a number of psychometric properties of all the measures. All of the measures exhibited acceptable internal reliabilities of over .70, as well as test-retest reliability (Tett et al., 2005). Examination of incremental and construct validity by the authors indicated that while trait EI was correlated with personality, it did explain significant additional variance on three measures of life satisfaction. Finally, given that responses on trait EI tests, or any self report measure, may be susceptible to social desirability, Tett et al. (2005) reported that "desirability accounts for relatively modest proportions of reliable scale variance (M = 20%)" (2005, p. 885). They conclude that the proportion of responses affected by social desirability does not reduce the overall validity of trait EI measures. Overall, the literature seems to indicate that measures of trait EI are reliable and valid. There is some question of how much trait EI is related to personality, which will now be addressed in the next section.

1.1.7 Trait EI, personality, and validity

Research in the area of personality has been carried out for nearly a hundred years, with the 1917 Woodsworth's Personal Data Sheet arguably the first personality measure (Goldberg, 1999). Personality research increased in popularity with the introduction of the EPQ by Eysenck (1985). The EPQ measures the 'Giant Three' factors of personality: Extraversion, Neuroticism, and psychoticism, as well as including a lie scale. However, subsequent research identified five personality traits as a more broad-bandwidth measure of personality (Costa & McCrae, 1989). Currently, the most common theoretical framework in personality research is the big five factors of personality. The big five factors are: Agreeableness (A), Conscientiousness (C), Extraversion (E), Neuroticism (N; sometimes referred to as its inverse, Emotional Stability: ES), and Openness to experience (O; though labelled, when measuring personality using the International Personality Item Pool, as Intellect/Imagination: I). Agreeableness refers to how trusting, altruistic, and sympathetic an individual is, while Conscientiousness entails how disciplined an individual is in seeking to meet goals and setting and meeting standards. Extraversion describes how social, energetic, and cheerful a person is, whilst Neuroticism is a tendency to be negatively affected by stressful life events and to have an unstable mood. Finally, Openness to experience is characterized by imagination, an inquisitive intellect, and being receptive to new things (Costa & McCrae, 1992).

Historically, there was an ongoing debate amongst researchers about whether or not EI is merely another aspect of personality, as in whether or not EI displays incremental validity. However, at this point the evidence seems to indicate that trait EI is a lower order personality trait, which is essentially a facet of one of the main personality factors (Petrides & Furnham, 2001; Petrides, Pita, & Kokkinaki, 2007). In which case, the question becomes: does trait EI need incremental validity? However, some would argue that "incremental validity is of limited theoretical importance to the construct of trait EI" (Austin et al., in press, p. 15). This argument is based on the function of trait EI as a predictor regardless of its relationship with personality, and that EI does not need to explain further variance in the dependent variable beyond what is explained by personality. Furthermore, there are studies (which will discussed later in this section) that indicate that trait EI maintains significant relationships with some variables such as life satisfaction and social network size even controlling for the effects of personality (Austin 2004, 2005; Austin, Saklofske, & Egan, 2003; Engelberg & Sjöberg, 2004; Furnham & Petrides, 2003; Mavroveli, Petrides, Rieffe, & Bakker, 2007; Spence, Oades, & Caputi, 2004). These studies are explained further later in this chapter, when discussing trait EI as a predictor.

In order to examine the relationship between trait EI and personality with regards to incremental validity, Petrides and Furnham (2001) measured trait EI and personality in university students across two studies. The argument given in the paper is that if trait EI is a dispositional construct that is stable across conditions, it is possible that the relationship between trait EI and other variables can be explained by the big five factors of personality. In the first study, Petrides and Furnham (2001) looked at the relationship between

trait EI as measured by the Bar-On Emotional Quotient Inventory (EQ-i; (Bar-On, 1997) and the Eysenck personality profile (Eysenck, 1985). The results of factor analysis indicated that trait EI loaded onto the personality factors as a low order personality trait in a factor solution that explained 53.9% of the variance of trait EI. The second study examined how the EQ-i related to the big five factors of personality as measured by the NEO-PI-R (Costa & McCrae, 1992). Factor analysis of the results indicated that the relationship between trait EI and personality measured by the NEO-PI-R were similar to the results when personality was measured by the Eysenck scale, in that trait EI loaded onto the Big Five factors of personality as a lower order personality trait. The factor loadings did differ due to the NEO-PI-R being a measure of the Big Five, while the Eysenck personality profile measures the Giant Three. Therefore, in the second study trait EI also loaded onto Agreeableness, and somewhat onto Conscientiousness, which are not measured by the Eysenck personality profile, which meant that when trait EI was factored onto personality measured with the NEO the factor solution explained 64.5% of the variance. Petrides and Furnham concluded that overall, "trait EI can be conceptualized as a distinct composite construct at the primary level of hierarchical trait structures" (2001, p 425). Essentially, while trait EI is related to personality, a lower order trait even, it can still be useful as a predictor. Furthermore, Petrides and Furnham conducted another follow-up study in 2003 in which they argued that trait EI as a construct is a valuable predictor regardless of its relationship to personality. They looked at a subset of high and low trait EI participants drawn from a larger pool in order to examine how EI related to personality and mood induction. Trait EI was measured by both the EQ-i and the TEIQue, while personality was measured by the NEO-PI-R (Petrides and Furnham, 2001).

Although trait EI did correlate with all of the big five factors of personality as measured by the NEO-PI-R, the authors concluded that it is an independent construct and valuable because it relates meaningfully to other variables in a way that is separate from personality. For example, trait EI was still related to how sensitive participants were to mood induction after personality was partialled out, as well as trait EI being a significant predictor of mood recovery after partialling out the effects of personality. These results seem to indicate that trait EI is a valuable construct as a predictor despite its lack of incremental validity.

Another joint factor analysis between trait EI and personality was carried out by Petrides, Pita, and Kokkinaki (2007). In a design similar to the previously discussed factor analysis, they examined 274 undergraduate students in order to explore the relationship between trait EI as measured by the TEIQue, personality as measured by both the Eysenck personality questionnaire and the Traits Personality Questionnaire (TEXAII; Tsaousis, 1999), and the criterion variables of life satisfaction, emotion control, and coping. The factor analysis produced results that indicated that trait EI was able to load onto the personality factors of both measures, though with a better fit with the TEXAII, which accounted for 61% of the variance of trait EI, as compared to 53% of the variance explained by the Eysenck model (Petrides, Pita, and Kokkinaki, 2007). In addition to the factor loading, the results indicated that trait EI was correlated to the TEXAII measurement of the personality factors with a correlation of $r = -0.25$ with Neuroticism, Agreeableness showed a small correlation ($r = .16$) with trait EI, Conscientiousness resulted in a medium effect ($r = 0.27$), Extraversion showed $r = 0.31$, and Openness correlated with trait EI ($r = 0.24$). These

results are similar to those discussed previously, with Extraversion showing the largest correlation with trait EI, while the correlation with Agreeableness is weak, and the remaining three personality factors show a similar moderate correlation with trait EI. After determining the results of the factor analysis, the authors conducted multiple regression analysis in order to determine if personality and trait EI were able to predict the criterion variables. The results of the regression analysis indicate that trait EI was a significant predictor of life satisfaction (R^2 = .353), rumination (R^2 = .324), and both rational (R^2 = .412) and emotional coping (R^2 = .524). From these results the authors conclude that trait EI shows "incremental predictive utility" (Petrides, Pita, and Kokkinaki 2007, p. 285). Essentially, though trait EI may not have incremental validity over personality, it is still a valuable predictor variable.

1.1.8 Trait EI as a predictor

As mentioned previously, a number of studies have been conducted that investigate how trait EI relates to variables ranging from information processing to interpersonal relationships and happiness (Austin 2004, 2005; Austin, Saklofske, & Egan, 2003; Engelberg & Sjöberg, 2004; Furnham & Petrides, 2003; Mavroveli, Petrides, Rieffe, & Bakker, 2007; Saklofske, Austin, & Minski, 2003; Schutte et al., 2001; Spence, Oades, & Caputi, 2004). In this section, these studies will be discussed in order to look at trait EI as a predictor.

Given that cognitive intelligence has been shown to be related to information processing and inspection time (Deary, 2000), it would seem

that emotional intelligence should be related to emotional inspection time tasks as those individuals high in EI should be able to process emotional material quickly in a manner similar to how those high in cognitive intelligence could process information quickly (Austin, 2005). Information processing can be assessed using an inspection time (IT) task. An IT task provides information for a brief period of time (< 1 sec.), and the participant is then asked to identify the information and success in the task is based on the number of correct responses. For example, an angry face may be shown for 50ms, and the participant will be asked to decide if the face was happy, sad, or angry. Deary (2000) showed intelligence related to success on non-emotional inspection time tasks (such as identifying a word or non-word). Given this, it seems logical to think that trait EI predicts scores on an emotional inspection time task, such as recognizing facial expression. In 2004, Austin conducted a study looking at the relationship between trait EI, verbal ability, personality and emotional task performance in the form of a facial emotion inspection time task. Participants (N = 102) were required to decide if the expression shown on a face that was presented for 17, 25, 33, 42, 50, 58, 67, 75, 83, 100, 150, 200, 250, and 350ms was either happy or neutral in the happy condition, or sad or neutral in the sad condition (Austin, 2004). Participants correctly identified the expression that was shown nearly all the time for the longer durations and for the shortest durations the correct responses were approximately at chance levels. The results indicated that neither personality nor cognitive ability was correlated with the emotional inspection time task. However, the emotion appraisal aspect of trait EI was significantly correlated with the score on the emotional inspection time task (happy IT, r = 0.22, sad IT, r = 0.25, p < .05 for both). These results seem to

indicate that an individual high in EI is better at processing emotional material than one who is not.

A similar follow-up study was conducted by Austin (2005) in which 95 participants were again required to identify facial emotions for different durations than in the previous study (6, 11, 16, 19, 25, 31, 38, 44, 50, 56, 63, 69, 75, 82, 88, 100, 150, 250, and 400ms). In addition, an emotional word inspection time task required participants to identify the difference between words (emotional and non-emotional) and non-words. Also, Raven's matrices (Raven, Raven, & Court, 1998) were used to measure cognitive intelligence and trait EI was measured by both the Schutte et al. (1998) emotional intelligence scale and the Bar-On EQ-i. The results of this study correspond with those of the previous study. The EQ-i did not show significant relationships with any of the IT tasks. However, the interpersonal subcomponent of the Schutte et al. (1998) scale was reported to be significantly correlated ($r = 0.21$, $p < .05$) with the total score on the emotional inspection time task. The author suggests this result may be due to the Bar-On scale focusing on social skills and understanding emotions, while the Schutte et al. scale also includes items that related to how well an individual is able to recognize nonverbal behaviour (Austin, 2005). There is some indication from these results that trait EI is weakly related to more cognitive abilities, such as emotional information processing, in the form of emotional inspection time tasks.

Another study looking at the relationship between trait EI, personality, and cognitive ability was conducted by Furnham and Petrides (2003) to investigate how these two predictor variables related to happiness. The

Oxford Happiness Inventory (Argyle, Martin, & Crossland, 1989) was used to measure happiness in 88 participants (11 males, 77 females). Personality was assessed using the NEO-FFI (Costa & McCrae, 1992), trait EI was measured with the TEIQue, and cognitive ability was calculated using a combination of the Wonderlic Personnel Test (Wonderlic Personnel Test Inc., 1998), the Baddeley Reasoning Test (Baddeley, 1968), AH5- Part 1 (Heim, Watts, & Simmonds, 1970), and the WAIS Vocabulary Subscale (Weschler, 1981), which were combined to form an overall 'g' score (Furnham & Petrides, 2003). The results of a multiple regression analysis indicated that trait EI explained 51.9% of the variance of happiness. In fact, while cognitive ability ($r = 0.26$, $p < .05$), Extraversion ($r = 0.35$, $p < .01$), Openness ($r = .38$, $p < .01$), and Neuroticism ($r = -0.37$, $p < .01$) all showed significant correlations with happiness, trait EI was the only significant predictor of happiness shown in the regression analysis. This result contributes to the argument that trait EI has value as a predictor of well-being despite its lack of incremental validity from personality.

The relationship between trait EI and interpersonal relationships was examined by Schutte et al. (2001). In a combination of seven studies, Schutte et al. examined how trait EI related to a number of aspects of social relationships, including: social skills, cooperation, desire and experience of affection, and marital satisfaction. The combined results of these studies indicated that trait EI was significantly related to higher self monitoring ($r = 0.59$, $p < .001$), improved social skills ($r = 0.41$, $p < .001$), more cooperation with others ($r = 0.72$, $p < .001$), a higher desire and experience of affection ($r = 0.33$, $p < .05$), increased marital satisfaction ($r = 0.51$, $p < .001$), and partners rated high in EI were also rated as significantly more likely to be part of a

satisfying relationship ($t(51) = 10.71$, $p < .001$; Schutte et al., 2001). These results show the array of variables with which trait EI shows significant relationships. Many of these significant correlations show how trait EI is related to social relationships and overall well-being.

Engelberg and Sjöberg (2004) conducted a study to determine how trait EI was related to affect intensity and social adjustment in 282 students at the Stockholm School of Economics. Trait EI was measured by the Schutte et al. (1998) emotional intelligence scale, and the aspects of social adjustment that were assessed included: empathy, alexithymia, Emotional Stability, work/leisure balance, and loneliness. The regression analysis results of this study demonstrated that trait EI was a significant predictor ($R^2 = .37$, $p < .001$) of affect intensity. This result is not terribly surprising, given the aspects of EI such as emotion management and emotion perception, therefore, it seems reasonable that EI should predict how strongly an individual experiences emotional reactions (Engelberg & Sjöberg, 2004). Furthermore, trait EI was significantly correlated with two aspects of social adjustment (work/leisure balance, $r = 0.20$, $p < .001$ and loneliness, $r = -0.29$, $p < .001$), though not with empathy. Interestingly, though not entirely surprisingly, trait EI showed a strong negative correlation with alexithymia ($r = -0.77$). Emotional intelligence was also strongly correlated with Emotional Stability ($r = 0.64$), which would be expected given the previously discussed relationship between trait EI and Neuroticism.

In order to further examine how trait EI related to well-being, Spence, Oades, and Caputi (2004) conducted a study looking at the trait EI, personal striving or goal integration, and emotional well-being, assessed as positive and

negative affect, of 95 undergraduate students. The results of the study indicate that both positive (r = 0.34, p < .01) and negative affect (r = -0.32, p < .01) are significantly related to the mood regulation aspect of EI (Spence et al., 2004). However, trait EI was not a significant predictor of goal integration, which is essentially the proportion of intrinsically oriented goals (e.g. relationships and citizenship behaviours) and extrinsically oriented goals (e.g. financial success). Though trait EI was not a predictor of personal striving, it is not surprising that it is a significant predictor of emotional well-being. The next studies to be discussed will illustrate the relationship between trait EI and some aspects of overall well-being.

Saklofske et al. (2003) conducted a study investigating the relationships among trait EI, personality, alexithymia (which is a deficiency in recognizing and describing emotions), life satisfaction, happiness, loneliness, depression proneness, and social desirability in 354 undergraduate students, with a subset completing a traditional intelligence measure. Trait EI was shown to be distinct from intelligence given that there was no significant relationship between the two variables. It also showed significant positive relationships with happiness and life satisfaction (r = 0.45 and 0.39, p<0.001), as well as significant negative relationships with family, social, and romantic loneliness (r = -0.29, -0.33, and -0.19 respectively, p<0.001) as well as depression proneness (r = -0.38, p <0.001). These results all remained significant after controlling for the big five factors of personality, however, the strength of the correlations was decreased. The correlation between both happiness and life satisfaction decreased after personality was partialled out (r = 0.15, p<0.01 and r = 0.20, p<0.001). The size of the correlation between trait EI and family, social and romantic loneliness was also reduced (r = -0.14,

-0.13, and   -0.12, p<0.05), as it was for depression (r = -0.14, p<0.05).

Regression analysis indicated incremental validity and showed the amount of variance of the variables which was explained by trait EI. The change in R^2 when trait EI was added into the regression model with personality indicated that for happiness the change was 1.3%, for life satisfaction it was 2.8%, for family, social, and romantic loneliness it was 1.4%, 0.3%, and 1.2% respectively, while for depression proneness it was 1.0%. This indicates that while the correlation between trait EI and these variables does remain significant after controlling for personality, little additional variance is explained by it. Interestingly, in contrast to previously discussed research, this study indicated that trait EI was potentially a predictor (explaining small amounts of the variance) for variables such as happiness (1.3%), life satisfaction (2.8%), loneliness (1.2%), and depression proneness (1%). It would seem that the five factors of personality are more valuable as predictors as they explain 48% of the variance for happiness, 26.5% for life satisfaction, 25.5%, 19.8%, and 8.6% for family, social, and romantic loneliness, and 51% of the variance in the depression proneness score.   In addition, alexithymia was a better predictive variable for the negative variables, the three types of loneliness and depression proneness, than trait EI. Further factor analysis of the results conducted by Saklofske et al. (2003) indicated that though both trait EI and alexithymia show predictive variance for positive and negative variables respectively, it does not appear that trait EI is merely an opposite of alexithymia. The difference was shown when a factor analysis combined both alexithymia and trait EI onto one factor, then changing to a two-factor model showed a significant decrease in the χ^2, indicating that trait EI and alexithymia do not have one common factor. So while trait EI is not merely the opposite of alexithymia, the results of this

study are interesting as they are somewhat in contrast to previously discussed literature (Furnham & Petrides, 2003). However, trait EI does continue to exhibit significant results after controlling for personality, again suggesting its value as a predictor.

A further study conducted by Saklofske et al. (2005) again looked at the relationship among trait EI, alexithymia, life satisfaction, social networks, and health behaviours such as alcohol consumption. In this study, a total of 704 participants (mean age 43.9, SD=19.8) were asked to complete questionnaires in order to measure trait EI, and the big five factors of personality, as well as the variables mentioned above. However, due to the length of the questionnaire packet not all participants completed all the questionnaires. Trait EI was significantly correlated with all the personality factors. It was significant and positive with Extraversion, Openness, and Agreeableness (r = 0.45, 0.21, 0.58, respectively, p<0.01 for all), but not Conscientiousness. The correlation between trait EI and Neuroticism was significant and negative (r = -0.31, p<0.001), and trait EI was also significantly negatively correlated with alexithymia (r = -0.57, p<0.001) as would be expected. Trait EI was also significantly correlated with social network size (r = 0.36, p<0.01), satisfaction with social networks (r = 0.17, p<0.01), life satisfaction (r = 0.30, p<0.01), and number of alcohol units consumed per week (r = -0.19, p<0.05). However, when personality was partialled out, only social network size continued to have a significant correlation with trait EI (r = 0.21, p<0.05). These results are in contrast with the previous study in which trait EI was found to be significantly correlated with life satisfaction after controlling for personality.

1.1.9 Implications of EI

Considering the results of the previous research related to emotional intelligence, it seems that there is evidence of EI as a significant predictor of a variety of outcome variables. However, also given that there are some contradictory results in the previously discussed research, additional research must be conducted in order to determine if its significance as a predictor remains stable across a number of studies. Also, a few of the results of the research discussed in this chapter seem to indicate that emotional intelligence is related to social networks, as well as other measures of well-being, both physical and mental (e.g. life satisfaction). Therefore, in the next chapter a more in-depth review of the literature will be carried out to further discuss the relationship between both trait and ability emotional intelligence, health, and well-being, and how that relates to the studies which will be described subsequently.

Chapter Two

As mentioned in the previous chapter, emotional intelligence is the capacity of an individual to recognize, manage, understand, and utilize emotions. It involves an aptitude for both interpersonal and intrapersonal situations, such as using social skills and managing stress. Interpersonal EI could relate to how an individual recognizes and responds to the emotions of others, and should, therefore, be positively correlated with social network quality and size. Meanwhile, intrapersonal EI relates to managing and understanding emotions, which should allow an individual to better deal with stress and have increased well-being, which means that it should negatively correlate with life stress and depression. In this chapter, there will be a discussion of research which indicates that EI is related to health and well-being and examines the relationship between EI and both physical and mental health (Ciarrochi, Deane, & Anderson, 2002; Leible & Snell, 2004; Parker, Taylor, & Bagby, 2001; Saklofske, Austin, Galloway, & Davidson, 2007). Also, research which looks at how EI relates to variables that are described as aspects of well-being, such as social network quality and size and life stress will be discussed (Gohm, Corser, & Dalsky, 2005; Mavroveli, Petrides, Rieffe, & Bakker, 2007; Schutte, Malouff, Thorsteinsson, Bhullar, & Rooke, 2007).

This chapter will identify an important gap in the EI literature with regards to social networks, life stress, and psychological well-being. Though some of the studies which will be discussed have examined how EI relates to these outcome variables, there remains a question of how much it accounts for the variance beyond what is explained by personality. Therefore, first this chapter will examine the literature that looks at EI, health, and well-being.

Next there will be a discussion of the literature which examines personality and well-being. Finally, the research which looks at the relationship between social networks and psychological well-being will be examined.

2.1 Emotional Intelligence, health, and well-being

The relationship among health behaviours, coping, and emotional intelligence was investigated by Saklofske, Austin, Galloway, & Davidson (2007). They assessed the big five factors of personality, trait EI, coping, and health locus of control and behaviours in 362 Canadian university students. Personality was assessed using the 40-item personality mini-marker scale (Saucier, 1994), while trait EI was measured with the Schutte et al. (1998) emotional intelligence scale, and coping with the Coping Styles Questionnaire (CSQ; Roger, Jarvis, & Najarian, 1993). Health locus of control was measured with the Multidimensional Health Locus of Control scale (Walston, 1978) which determines if an individual's locus of control is internal, external, or chance, as in whether the person feels that s/he is in control of his/her health, if external events control his/her health, or if it is due to random chance. In addition, information about health behaviours, such as smoking, exercise, alcohol consumption, and diet was collected. The results of the study indicated correlations between trait EI and personality similar to those discussed in the previous chapter (N: $r = -0.14$; E: $r = 0.32$; O: $r = 0.31$; A: $r = 0.37$; C: $r = 0.26$; $p < .01$ for all). Significant positive relationships were found between EI and both rational coping ($r = 0.38$, $p < .001$) and internal locus of control ($r = 0.15$, $p < .01$), though with very different levels of effect size. In contrast, EI was significantly negatively correlated with both emotional coping ($r = -0.26$, $p < .001$) and chance locus

of control (r = -0.14, p < .01). With regards to self reported health behaviours, Neuroticism was significantly correlated with smoking (r = 0.11, p < .05), and negatively related to self reported health (r = -0.15, p < .01). Exercise showed significant correlations with Extraversion, Conscientiousness, and trait EI (r = 0.11, 0.15, and 0.16 respectively, p < .05 for all), which means that E, C, and trait EI are all significantly related to well-being. Alcohol consumption and number of drinks per week were both significantly positively related to Extraversion (r = 0.18 and 0.15, p < .01). However, both Agreeableness and Conscientiousness showed significant negative correlations with number of drinks (r = -0.13 and -0.19, p < .05). Diet was significantly related to Agreeableness, Conscientiousness, and trait EI (r = 0.20, 0.24, and 0.19, p < .001 for all three). Smoking showed a positive relationship with Openness (r = 0.12, p < .02), and a significant negative correlation with Conscientiousness (r = -0.20, p < .01). Overall, the results of this study indicate that both personality and trait EI are significantly related to physical health behaviours.

In a similar study, Saklofske, Austin, Rohr, and Andrews (2007) carried out a study looking at the relationship among personality, emotional intelligence, exercise, and health beliefs in 497 Canadian students. Emotional intelligence was measured using the short form of the Bar-On EQ-i (EQ-i:S; Bar-On, 2002), while personality was assessed with a 40-item mini-marker scale (Saucier, 1994), to assess how trait EI and personality relate to well-being. A 42-item measure of exercise attitudes was developed in order to gauge attitudes towards susceptibility, particularly to heart disease and obesity, severity of possible outcome diseases, self-assessed level of activity, and both benefits and barriers to exercise. Finally, the participants were asked

about their current regular exercise behaviour, as in whether or not they participated in 15-20 minutes of planned exercise per week. The results of the study indicated that both the interpersonal and general mood subscales of the EQ-i:S were significantly correlated with attitudes towards benefits of exercise ($r = 0.09$ and 0.09, $p < .05$). For the personality factors, Neuroticism displayed a small negative correlation with positive attitude toward exercise, susceptibility to disease, benefits of exercise, and level of activity. Openness showed a significant positive correlation with barriers to exercise ($r = 0.14$, $p < .01$) and a negative relationship with activity level ($r = -0.11$, $p < .05$). The other three personality factors did not display significant relationships with any of the dependent variables. Structural equation modelling revealed that EI mediated the relationship between personality and exercise, which the authors propose means that EI can act like coping (Saklofske et al., 2007). For example, this means that while an individual may be fairly high in N, which is negatively correlated with exercise behaviour, the emotional intelligence of that individual could allow him/her to still participate in exercise behaviour despite his/her high neuroticism. On the whole, the results of this study further indicate that both EI and personality significantly relate to aspects of well-being, such as health behaviours. Essentially the results showed EI correlated positively with positive aspects of health and well-being, and negatively with the negative aspects.

In 2001, Parker, Taylor, and Bagby conducted a study of 734 people to investigate the relationship between emotional intelligence and alexithymia. They predicted that there would be a strong inverse relationship between the two variables given that alexithymia consists of a difficulty with

recognizing and describing emotions, limited empathy, and a restricted capacity to discriminate between emotions (Parker et al., 2001). In order to assess EI, participants in the study completed the Bar-On EQ-i (1997), as well as filling out the Toronto alexithymia scale (TAS-20; Bagby et al., 1994) in order to determine the level of alexithymia of participants. Interestingly, the results of this study indicated that the men (N = 329) scored higher on alexithymia than the women in the study (t (732) = 3.99, p < .001), while the women (N = 405) scored significantly higher than the men on the EQ-i (t (732) = 3.52, p < .001). The results for the total sample also indicate that overall EI was correlated with the total TAS-20 score, as well as the three EQ-i subscales: identify feelings (r = -0.64), describe feelings (r = -0.61), and externally oriented thinking (r = -0.42). The authors also conducted a confirmatory factor analysis which indicated that, despite the strong correlations between the TAS-20 and the EQ-i, they are independent constructs. Furthermore, they conclude from the results of the study that "the findings… raise the possibility that high emotional intelligence might be a protective factor for mental and physical health" (Parker et al., 2001, p.112). Further, related, research will now be discussed in order to investigate how research relates to the accuracy of this statement.

To further assess the relationship between emotional intelligence and mental health, Leible and Snell (2004) conducted a study examining the relationship between trait EI and borderline personality disorder. Borderline personality disorder (BPD) is characterized by instability in interpersonal relationships and affect, as well as difficulty controlling emotions, particularly anger. Given these characteristics of BPD, it seems reasonable to hypothesize a relationship with EI. Leible and Snell (2004) predicted a negative

relationship between BPD and EI, particularly the emotion regulation and emotional clarity aspects of EI. This study did not use a clinical population to measure BPD, but rather 1418 undergraduate university students. Borderline personality disorder was measured using the Personality Diagnostic Questionnaire-4+ (Hyler, 1994), which is a true/false measure of personality disturbance. This measure assesses the twelve personality disorders defined in the Diagnostic and Statistical Manual IV (DSM-IV, American Psychiatric Association, 1994), and has been used with both clinical and non-clinical samples (Hyler & Reider, 1987; Fossati et al., 1998). To measure emotional intelligence, Leible and Snell (2004) used the Trait Meta-Mood Scale (TMMS; Salovey et al., 1995) as well as the Multidimensional Emotional Awareness Questionnaire (MEAQ; Snell, 1999). The results of this study indicate that the TMMS subscales of emotional regulation and emotional clarity both showed significant negative correlations with borderline personality disorder. In addition, emotional monitoring as measured by the MEAQ was also significantly correlated with borderline personality disorder (Leible & Snell, 2004). Given the deficit of emotion regulation associated with borderline personality disorder, it is interesting to see that non-clinical BPD symptoms in students show an inverse relationship with trait EI. The results of this study further support the relationship between emotional intelligence and mental health.

Mavroveli, Petrides, Rieffe, and Bakker (2007) conducted a study in order to assess how trait EI related to psychological well-being and social competence. The study was carried out with a sample of 282 Dutch children (mean age = 13.87). In this study, the children completed a Dutch version of the Trait Emotional Intelligence Questionnaire- Adolescent Short Form

(TEIQue-ASF; Petrides, Sangareau, Furnham, & Frederickson, 2006), a Dutch measure of adolescent coping styles, the Children's Depression Inventory (CDI; Kovacs, 1985; Timbremont & Braet, 2001), the Somatic Complaints List (SCL; Rieffe, Meerum, Terwogt, & Bosch, 2004), and a peer assessment in which children nominated classmates that fitted certain descriptions (e.g. – cooperative, disruptive, etc.). The results of this study indicated that trait EI showed significant negative relationships with depression ($r = -0.60$, $p < .01$), somatic complaints ($R = -0.40$, $p < .01$), and maladaptive coping ($r = -0.22$, $p < .01$). Meanwhile, it showed a significant positive correlation with adaptive coping ($r = 0.35$, $p < .01$). Interestingly, trait EI was also significantly correlated with social support, but the strength of the association differed for boys ($r = 0.19$, $p < .05$) and girls ($r = 0.33$, $p < .01$). Essentially, Mavroveli et al. (2007) conclude that trait EI is positively related to adaptive coping and social support, while showing an inverse relationship with depression. Therefore, this study again seems to support the notion that EI is related to mental health and well-being.

In order to examine how EI might relate to both mental health and stress, Ciarrochi, Deane, and Anderson (2002) conducted a study of 302 university students. The authors measured trait EI using the Schutte et al. (1998) emotional intelligence scale, while life stress was assessed with the Hassles scale (Kanner et al., 1981). The Life Experience Survey (LES; Sarason et al., 1978) asked participants to identify the occurrence of certain experiences over the past six months, as well as how desirable they found those experiences to be (e.g.- academic achievement). Mental health was assessed with the Suicide Ideation Questionnaire (SIG; Reynolds, 1987), the Beck Depression Inventory-II (BDI-II; Beck et al., 1996), and the Beck

Hopelessness Scale (BHS; Beck et al., 1974). Finally, the participants completed an emotion perception task which involved reading six stories and identifying the strength of seven different emotions present in the story (Mayer & Geher, 1996). The results of the study indicated that stress was related to all three of the mental health measures: depression, hopelessness, and suicidal ideation. In addition, life stress was also inversely related to the managing emotions subscale of EI ($r = -0.15$, $p < .05$). The results also showed that the emotion perception task was not related to EI or any of the other variables (Ciarrochi et al., 2002). However, the trait EI managing emotions subscale showed a strong negative correlation with hopelessness ($r = -0.57$. $p < .01$). The authors also carried out a hierarchical regression analysis which indicated a significant interaction between life stress and emotion perception for all of the mental health variables (depression: $\beta = .18$; hopelessness: $\beta = .16$; suicidal ideation: $\beta = .15$; $p < .01$ for all). The results of this study are interesting in that emotion perception was not directly related to any of the mental health variables, yet it did show an interaction between stress and mental health. Based on the results obtained in this study, the authors suggest that future studies should examine the relationships among stress, mental health, managing emotions, and social support to "examine whether social support does indeed mediate the relationship" between managing emotions, life stress, and mental health (Ciarrochi et al., 2002, p.206).

In a related study, Gohm, Corser, and Dalsky (2005) examined the relationships among both trait and ability EI, perceived stress, affect intensity, self-esteem, and coping in 158 first-year undergraduate university students. In this study, ability EI was measured using the MSCEIT (Mayer

et al., 2002), while trait EI was assessed with the Trait Meta Mood Scale (TMMS; Salovey et al., 1995). To assess coping, the authors used the Cope Scale (Carver, Scheier, & Weintraub, 1989), which asks participants to identify the degree to which they use certain strategies to deal with stress. Somewhat in contrast to the previously discussed study, the results found by Gohm, Corder, and Dalsky (2005) indicated that there was not a significant relationship between ability EI and stress. However, there was a moderate negative relationship between the TMMS (Salovey et al, 1995) and stress (r = -0.30, p < .01). The only variable with which ability EI was significantly related was affect intensity (r = 0.16, p < .05), though trait EI, as measured by the TMMS, was not significantly correlated with affect intensity, but was significantly related to self esteem (r = 0.27, p < .05). The results of this study are interesting in that the correlations with other variables differ between trait and ability EI. Trait EI was significantly related to stress and self esteem, while ability EI related to affect intensity. These results seem to support the urge by Ciarrochi et al. (2002) for further research in the area of EI and both affect and life stress.

In a somewhat contrasting study, Gannon and Ranzijn (2005) carried out a study which looked at how emotional intelligence related to life satisfaction. In the study, a community sample of 191 participants complete the NEO Five Factor Inventory (NEO-FFI; Costa & McCrae, 1992), the Satisfaction With Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985), a measure of cognitive intelligence called the ACER B40 Advanced Test (B40 IQ; ACER, 1983), and finally, the Swinburne University Emotional Intelligence Test (SUEIT; Palmer & Stough, 2001). The SUEIT is based on the ability model of EI, and has five subscales: emotional recognition and expression,

understanding of emotions external, emotion direct cognition, emotion management, and emotion control. The results of this study indicated that life satisfaction was not significantly correlated with cognitive intelligence, but was significantly related to emotional intelligence ($r = 0.49$, $p < .01$), as well as all of the personality factors except Openness (N: $r = -0.55$, $p < .01$; E: $r = 0.44$, $p < .01$; A: $r = 0.24$, $p < .01$; and C: $r = 0.37$, $p < .01$). Given the results of the correlations, Gannon & Ranzijn, (2005) conducted a hierarchical regression analysis to determine which variables were significant predictors of life satisfaction. The first regression analysis considered demographic variables in the first step, the big five factors of personality in the second step, and the total EI score in the third step. All three steps were significant, and together explained 67% of the variance of life satisfaction ($R^2 = 0.67$, $F (8, 181) = 17.89$, $p < .001$), though the standardised regression coefficients indicated that neither Openness nor Agreeableness were significant predictors of life satisfaction. Of the personality variables, N, E, and C were significant predictors ($\beta = -0.36$, 0.22, and 0.19 respectively, $p < .01$ for both), and the total EI score was also significant ($\beta = 0.17$, $p < .05$), though a weaker predictor than the personality variables. As the first regression analysis showed emotional intelligence to be a significant predictor of life satisfaction, a second hierarchical regression analysis was conducted which included the EI subscales on the third step, but was otherwise identical to the first regression. Interestingly, the results of the second regression analysis revealed that emotional management ($\beta = 0.24$, $p = .012$) was the only EI subscale which demonstrated a significant result as a predictor of life satisfaction (Gannon & Ranzijn, 2005). While the previously discussed studies showed that EI was related to life stress, which is arguably an

inverse of well-being, it is also significantly related to life satisfaction, which is synonymous with well-being.

Given the evidence that EI is related to health and well-being, Schutte, Malouff, Thorsteinsson, Bhullar, and Rooke (2007) conducted a meta-analysis to determine in what ways emotional intelligence related to mental health, psychosomatic health, and physical health. A search of literature in 2006 results in 35 studies published after 1995, and a total of 7898 participants, which were used for the meta-analysis. The authors operationalized mental health as that which was indicated by symptoms described in the Diagnostic and Statistical Manual-IV-TR (DSM-IV-TR; American Psychiatric Association, 2000), such as depression (Schutte et al., 2007). In addition, physical health was defined as measures that related to physical symptoms, such as pain, and psychosomatic health was indicated by aspects of both mental and physical health, presented in disorders such as chronic fatigue, or determined by measures which assessed both physical and mental health. The results of the meta-analysis indicated significant effect sizes among EI and all three types of health. Emotional intelligence explained just under 5% (4.84%) of the variance of physical health, nearly 8.5% of mental health, and over 9.5% of the variance for psychosomatic health. In addition, the type of EI significantly moderated the results, in that trait EI showed a significant correlation with mental health, while the relationship between mental health and ability EI was non-significant (Schutte et al., 2007). The authors also report that not enough studies were available to examine the moderator effect of EI type with either physical or psychosomatic health. In addition, gender provided a moderating effect between emotional intelligence and mental health, in that studies which

looked at only one gender showed higher effect sizes than studies which used a mix of gender of participants. Interestingly, neither age nor type of sample (e.g. students or community) showed a significant moderating effect between EI and health. Overall, Schutte et al. (2007) reported that the meta-analysis results indicated that "higher emotional intelligence was significantly associated with better health" (p. 927). This meta-analysis corroborates the results of the previously discussed studies, indicating a relationship among emotional intelligence, health, and well-being. However, given the strong correlation between trait EI and personality discussed in chapter one, the next section will discuss how the big five factors of personality relate to psychological well-being.

2.1.1 Personality and well-being

Previous research has indicated that there is a link between personality and well-being. While there is extensive evidence linking personality to physical well-being and health behaviours, this section will focus on the relationship between personality and psychological well-being, as the studies conducted by the author and discussed in subsequent chapters are concerned with psychological, rather than physical, well-being.

There are some expected relationships between each of the personality factors, social networks, and well-being. Agreeableness has been linked to better quality of social interaction, as it does involve kindness and trust, though it has also been shown that people high in Agreeableness are more likely to experience distress after encountering conflict with others (Matthews, Deary, & Whiteman, 2003). Interpersonal interactions and

understanding others relate to Openness (McCrae, 1996). Conscientiousness relates to accepting being respectful and organized (Matthews et al., 2003), so it would seem that Conscientiousness should relate negatively to life stress. Matthews et al. (2003) also report that Extraversion is related to social behaviour, which suggests it will also be positively related to social network quality and size. Neuroticism has been reliably related to well-being and stress, in that Emotional Stability is positively related to well-being (Diener, Suh, Lucas, & Smith, 1999). Further information about the relationship shown in the literature between these personality factors and psychological well-being will now be discussed.

One aspect of psychological well-being that has been examined with relation to personality is hopelessness. Velting (1998) conducted a study which examined the big five factors of personality along with hopelessness in 191 undergraduate university students. He measured personality using the NEO-PI-R (Costa & McCrae, 1992), while hopelessness was assessed with the Beck Hopelessness Inventory (BHS; Beck et al., 1974). In order to investigate the relationship between personality and hopelessness, Velting (1998) conducted a multiple regression analysis which resulted in 36% of the variance of hopelessness being predicted by personality. However, though the overall model of personality was significant, only Neuroticism, Extraversion, and Conscientiousness were significant predictors. The relationship between hopelessness and Neuroticism was positive, while both Extraversion and Conscientiousness were negatively related to hopelessness. The significant relationships found with both Neuroticism and Extraversion are not terribly surprising given that N is characterized by unstable mood and predisposition to be affected by negative life events, while E relates to

liveliness and activity which are very much the opposite of hopelessness. However, the relationship between hopelessness and Conscientiousness is somewhat surprising. Velting (1998) suggests that this result is due to individuals that are low in Conscientiousness being "careless, lacking in confidence, easily discouraged, and prone to quitting" (p. 919). This interpretation could explain the relationship found between C and hopelessness. However, it is also important to look at how personality relates to further characteristics of psychological well-being, such as depression.

In another study examining how personality relates to aspects of well-being Ross, Canada, and Rausch (2002) conducted a study investigating how Neuroticism and Conscientiousness related to self-handicapping. Self-handicapping refers to a maladaptive coping strategy in which an individual will withdraw when feeling that his/her self-esteem is threatened, as well as focus on the most negative aspects of a stressful event (Ross et al., 2002). For example, a self-handicapping individual might procrastinate and not finish a task, rather than risk failure and the negative effect it would have on his/her self-esteem. Ross, Canada, and Rausch asked 251 undergraduate students to complete the NEO-PI-R (Costa & McCrae, 1992) and a self-handicapping inventory, the Self-Handicapping Scale (SHS; Rhodewalt, 1990), which is a 25-item measure of "a tendency to create obstacles to successful achievement in performance or competitive situations in order to protect or enhance ones self-esteem" (Ross et al., 2002, p. 1178). The results of this study indicate that self-handicapping relates to both Neuroticism and Conscientiousness ($r =$ 0.63 and -0.65, respectively, $p < .001$ for both). Multiple regression analysis also showed both N and C as significant predictors of self-handicapping,

though none of the other personality traits showed significant results in the regression. Interestingly, when the authors conducted partial correlations in order to look for possible mediating effects, they found that when controlling for self-handicapping, the correlation between N and C changed from $r = -0.32$ ($p < .001$) to $r = 0.16$ ($p < .01$), indicating that self-handicapping provided a mediating effect between Neuroticism and Conscientiousness. In addition, the relationship between self-handicapping and both N and C did not change significantly when each was controlled for in a partial correlation. These results provide further evidence to support the relationship between personality and psychological well-being.

In order to assess how personality related to stress and psychological well-being, Deary et al. (1996) recruited 333 consultant doctors. The participants completed the NEO-FFI (Costa & McCrae, 1992) personality measure, the Coping Inventory for Stressful Situations (CISS; Endler & Parker, 1990) measure of coping strategies, psychological distress was measured with the General Health Questionnaire-28 (GHQ-28; Goldberg & Williams, 1988), burnout was measured with the Maslach Burnout Inventory (MBI: Maslach & Jackson, 1986), and both job-related stress and clinical workload were assessed with questions developed for the study. The results for the personality factors in this study indicate that Neuroticism and Extraversion showed significant relationships with the other variables. Neuroticism was significantly related to all three of the Maslach Burnout Inventory subscales: emotional exhaustion ($r = 0.56$, $p < .01$), depersonalization ($r = 0.40$, $p < .01$) and personal achievement ($r = -0.35$, $p < .01$). Psychological distress was also significantly related to N ($r = 0.56$, $p < .01$), and N and E both showed significant relationships with four out of five of the Coping Inventory

subscales: Inventory subscales: Emotion focused coping (N, r = 0.71, p < .01; E, non-significant), task oriented coping (r = -0.27 and r = 0.17, p < .01 for both), avoidance (r = 0.18 and r = 0.31, p < .01 for both), distraction (r = 0.26 and r = 0.18, p < .01 for both), and social diversion (N, non-significant and r = 0.36, p < .01 for Extraversion). With regards to the other variables, emotion focused coping resulted in the most significant correlations for the CISS, showing relationships with emotional exhaustion (r = 0.47, p < .01), psychological distress (r = 0.50, p < .01), total job stress (r = 0.41, p < .01), depersonalization (r = 0.40, p < .01) and personal achievement (r = -0.28, p < .01). Psychological distress was also significantly related to total job stress (r = 0.25, p < .01), depersonalization (r = 0.25, p < .01), and personal achievement (r = -0.27, p < .01). Deary et al. (1996) concluded that in this study, personality and coping related differently to personal achievement than they did to stress, an indication of the complexity of relationships that exist between personality and well-being.

One of the most important aspects of psychological well-being is mental health, and while the five factor model of personality is a measurement of normal personality characteristics, it seems reasonable to surmise that they would also relate to psychopathology. For example, in the previously discussed studies, both Neuroticism and Conscientiousness were shown to be related to hopelessness and self-handicapping. Given these relationships, it seems logical to think that personality could also relate to mental health by establishing an inclination towards mental health issues (high N), or perhaps providing a mediating effect, similar to the relationship that was found between both E and C and hopelessness (Velting, 1998). Rector, Hood, Richter, & Bagby (2002) describe two different models that might explain the

relationship between personality and psychopathology: the first is the pre-dispositional model that suggests that certain personality characteristics may make an individual more vulnerable to a mental health disorder, while the second suggests that personality may instead influence the way the symptoms are expressed (p. 1206).

Bagby et al. (1997) examined the relationship among personality, bipolar and unipolar depression, and schizophrenia in 137 men and women receiving treatment for residual symptoms in an outpatient psychiatric clinic. Sixty-two of the participants met the criteria for depression outlined in the Diagnostic and Statistical Manual III, Revised (DSM-III-R; American Psychiatric Association, 1987), while 34 qualified as bipolar, and 41 met the criteria for schizophrenia. All of the participants completed the NEO-PI (Costa & McCrae, 1989). Interestingly, the results indicate that there was not a significant difference between the three groups in either Neuroticism or Conscientiousness, though all three groups were a standard deviation above a normative sample (Bagby et al., 1997). There was a significant difference between mean scores for the three groups with regards to Extraversion (F (2, 14) = 2.42, p < .05), with the bipolar group scoring the highest and the schizophrenia group showing the lowest score. However, when groups were assessed looking at the lower order facets of E, positive emotions was the only one that displayed a significant difference between the groups (F (2,134) = 4.48, p < .05), with the bipolar group again showing the highest scores, but the unipolar depression group showing the lowest levels of positive emotions. A significant difference between the group scores was also shown for Openness (F (2,134) = 4.30, p < .001), with the bipolar group again having the highest score while the schizophrenia group showed the

lowest. However, the authors conducted a regression analysis, which included years of education and socioeconomic status, and found that O did not significantly predict either bipolar disorder or schizophrenia. The results for Agreeableness also indicated that the groups were significantly different (F (2,124) = 3.04, p < .05), though post-hoc tests indicate that while the unipolar depression group received a significantly higher mean Agreeableness rating than the schizophrenia group, the mean A scores for the unipolar and bipolar groups were not significantly different. The combined results suggest that there is a difference in the personality profile of patients experiencing different mental health issues, with the bipolar group showing the highest scores for both E and O, with the mean E score differing significantly between the unipolar and bipolar group. Meanwhile, the schizophrenia group had the lowest scores for both, as well as having significantly lower scores for A than the other two groups. The results of this study suggest that the measurement of normal personality traits can predict psychopathology.

Another study which examined how the big five factors of personality relate to bipolar depression was conducted by Lozano and Johnson (2001), who examined how the severity of both depression and manic episodes related to personality in 39 participants. The severity of the symptoms was measured using both the Modified Hamilton Rating Scale for Depression (MHRSD; Miller et al., 1985) and the Bech-Rafaelsen Mania Rating Scale (BRMS, Bech et al., 1979), and a baseline for the symptoms was determined by administering the measures across a six-month period. Personality was assessed with the NEO-PI-R (Costa & McCrae, 1992). The results of the study indicated that the clinical sample scored significantly higher on both

N and O, and lower on A, than the normal population (Lozano & Johnson, 2001). In addition, regression analysis was carried out in order to determine if any of the personality factors were significant predictors of symptom severity beyond the baseline symptom score, which was included in the first block of the regression. The regressions revealed that Neuroticism was a significant predictor of increased depression, as would be expected ($R^2 = 0.23$, $F (1, 36) = 14.68$, $p < .01$). In addition, the regression analysis which looked at mania as a dependent variable found that Conscientiousness was the only personality variable that was a significant predictor ($R^2 = 0.14$, $F (1, 36) = 7.42$, $p < .01$). This result is particularly interesting, and the authors suggest that perhaps those who are higher in C have an increased tendency to work harder, and a "workaholic lifestyle may promote sleep deprivation, a common trigger for mania" (Lozano & Johnson, 2001, p. 109). These results provide further evidence of the relationship between personality and mental health.

Rector, Hood, Richter, and Bagby (2002) carried out a study to look at how personality related to both depression and obsessive-compulsive disorder (OCD). The participants were recruited from an outpatient clinic, and were experiencing active symptoms of either depression (n = 98) or OCD (n = 98), with no co-morbid disorder. The participants completed the revised Beck Depression Inventory (BDI-II; Beck & Steer, 1987), personality was measured with the NEO-PI-R (Costa & McCrae, 1992), and participants in the depression group were matched in sex and age to those in the OCD group (58% women, mean age = 36.5). The authors carried out multivariate analysis of variance (MANOVA) in order to determine if the two groups differed in the personality factors as well as the facets of each factor. The

results showed that the participants in the OCD group had significantly higher Extraversion scores ($F_{(6,189)} = 5.26$, $p < .001$), Agreeableness ($F_{(6,189)} = 2.80$, $p < .01$), and Conscientiousness ($F_{(6,189)} = 2.51$, $p < .05$), while the depression group displayed a significantly higher mean score for Neuroticism ($F_{(6,189)} = 11.27$, $p < .001$) (Rector, Hood, Richter, & Bagby, 2002). In addition, the OCD group received significantly higher mean scores on both the warmth and positive emotions facets of Extraversion ($F_{(6,189)} = 2.77$ and 9.84 respectively, with $p < .01$ for both), as well as the altruism facet of Agreeableness ($F_{(6,189)} = 9.69$, $p < .01$) and both the competence and order facets of Conscientiousness ($F_{(6,189)} = 6.68$ and 6.36, $p < .01$). Rector et al. (2002) also examined the results of the BDI in order to determine if there was a significant difference in the depression score of the two groups ($t_{(154)} = 5.23$, $p < .001$), as well as to control for the severity of depression to establish if there was still a significant difference in the personality profiles of the two groups. The results after controlling for severity of depression were consistent with the previous results, except that the OCD group no longer showed a significantly higher Conscientiousness score. In essence, the results of this study continue to show the interplay between personality and mental health.

To further contribute to the literature investigating the relationship between personality and depression, Petersen, Bottonari, Alpert, Fava, and Nierenberg (2001) used the NEO-FFI (Costa & McCrae, 1992) to measure personality in 76 participants receiving outpatient treatment for depression. The mean scores for Agreeableness and Openness fell within approximately half a standard deviation of the normative mean. However, the mean N score was roughly 1.5 standard deviations above the normative mean, while

the mean scores for both E and C were around 1.5 standard deviations below the normative mean. In addition, the authors separated the group into three levels of Neuroticism. The first level included those that scored within one standard deviation of the mean, the second group scored between one and two standard deviation of the mean, and the third group scored above two standard deviations of the normative mean (Petersen et al., 2001). After conducting an analysis of variance (ANOVA) comparing the scores of the three N groups on the Hamilton Depression Scale (HAM-D; Hamilton, 1960), it was determined that those in the highest N group (mean score above two standard deviations) showed a significantly higher score on the HAM-D than the other groups (F = 3.96, p < .05). Overall, this study further indicates the different personality profiles that relate to psychological well-being.

The final study which will be discussed that related personality to psychological well-being was carried out by Hayes and Joseph in 2003 to look at how the big five factors of personality related to happiness, depression, and life satisfaction. In this study, 111 participants (75 women, 36 men, mean age = 37.77) completed the NEO-FFI (Costa & McCrae, 1992) along with the Oxford Happiness Inventory (OHI; Argyle et al., 1989), the Depression-Happiness Scale (DHS; Joseph & Lewis, 1998), and the Satisfaction With Life Scale (SWLS; Diener et al., 1985) in order to assess how personality related to overall subjective well-being. After controlling for sex and age, the results of the study indicate that the Depression-Happiness Scale and the Oxford Happiness Inventory were strongly correlated (r = 0.73, p < .001), indicating that they were measuring related constructs, evidently subjective happiness. In addition, the Satisfaction With Life Scale was also

significantly correlated with both the DHS (r = 0.61, p < .001) and the OHI (r = 0.56, p < .001), this relationship suggesting that these measures were assessing associated aspects of life satisfaction (Hayes & Joseph, 2003). The results also indicate that all three measures showed significant correlations with N, E, and C, though not the other two personality factors. Given these correlations, the authors conducted multiple regression analysis to determine if the personality factors were predictors of the DHS, OHI, and SWLS. The regressions indicated that the OHI was predicted by low N and high E (t = -3.00 and 5.17 respectively, p < .01 for both), though C was not a significant predictor of the OHI. However, increased C and reduced N was a significant predictor for both the DHS (t = 2.15, p < .05 and t = -6.70, p < .01) and the SWLS (t = 2.09, p < .05 and t = -3.77, p < .01). So while Neuroticism was related to all three measures of well-being, Extraversion was only a significant predictor of the Oxford Happiness Inventory. The results of this study that indicate that both E and N are related to well-being are in keeping with the previously discussed research. However, there is an inconsistency with regards to the relationship between the other three personality factors and psychological well-being. Further research discussing the relationship between well-being and other psycho-social variables, such as social networks, will now be discussed.

2.1.2 Social networks and psychological well-being

Aside from its relationship with both emotional intelligence and personality, well-being has been shown to be related to other psycho-social variables such as stress and social networks (Clark & Oates, 1995; Deary et al., 1996; Furman, 1985; Furman & Buhrmester, 1985; Kanner, Coyne, Schaefer, &

Lazarus, 1981; Ravindran et al., 2002; Russell & Cutrona, 1991; Sarason, Sarason, Shearin, & Pierce, 1987; Williams, Connolly, & Segal, 2001; Williams, Hagerty, Murphy-Weinberg, & Wan, 1995). This section will continue the discussion of psychological well-being, as well as consider the importance of social networks and life stress.

Williams, Hagerty, Murphy-Weinberg, and Wan (1995), carried out a study which looked at stress and depression among 408 nursing students. The participants were asked to complete the Hassles and Uplifts scale (Kanner, Coyne, Schaefer, & Lazarus, 1981), a 60-item coping styles questionnaire (Jalowiec, 1987), and the Symptoms of Stress Inventory (Leckie & Thompson, 1979), which includes a depression subscale. The results of the study indicated that stress, coping, and a biological variable (which was measured by mood related to menstrual cycle) accounted for 58% of the variance of symptoms of depression, with the hassles scale having the largest relationship with depressive symptoms ($r = 0.21$, $p < .05$). In addition, a path diagram showed that hassles also had an indirect effect on depressive symptoms through increased menstrual depression and use of drugs, evasive coping, and considering leaving the university program (Williams et al., 1995). Conversely, the authors found that uplifts had a reverse, though weaker, effect on depressive symptoms by influencing coping. Taken as a whole, the results of this study reveal a relationship between life stress, both positive and negative, and psychological well-being.

Another study which looked at how stress related to depression was carried out by Ravindran et al. (2002). The participants in this study had been recruited through an outpatient clinic in which they were being treated for

depression. Of the participants, 79 experienced typical dysthymia, while 69 were diagnosed with atypical dysthymia, 29 were being treated for a typical major depressive episode, while another 39 had atypical major depression, and 44 participants were in a control group (Ravindran et al., 2002). In order to assess the severity of depression, the participants completed the Hamilton Depression Rating Scale (HAM-D; Hamilton, 1967), the Montgomery-Asberg Rating Scale (MADRS; Montgomery & Asberg, 1979), and the Beck Depression Inventory (BDI; Beck et al., 1961), as well as completing the Hassles and Uplifts Scale (Kanner et al., 1981), the Coping Strategies Scale (Beckham & Adams, 1984), and the Life Events Scale (Paykel et al., 1971) which assesses major life events which have occurred in the six months preceding completing the measure. The results of the study revealed that all four of the clinical groups differed significantly from the control group with regards to coping styles, and perceived hassles, uplifts, and quality of life (Ravindran et al., 2002). The control group reported significantly more uplifts (t (252) = 6.89, p < .05) and fewer hassles (t (252) = 7.42, p < .05) than the clinical participants. Interestingly, a regression analysis indicated that the depressed participants were more likely to use emotional coping strategies, particularly social support seeking (β= 0.17, p < .05). Ravindran et al. (2002) suggest that this is due to depressed participants initially seeking out social support, then that this coping strategy "would wane among those with chronic illness" (p. 127). However, it is interesting to see that, at least initially, those who are feeling depressed seek out social support in an attempt to alleviate their mood.

In an effort to examine how life stress related to both sociotropy and autonomy, Clark and Oates (1995) assessed 94 undergraduate students.

They describe sociotropy as typifying individuals who "place high value on interpersonal relationships and so try to satisfy their needs for security and self-worth by pleasing others and winning their approval and acceptance" (Clark & Oates, 1995, p. 819). The participants were asked to complete the Sociotropy-Autonomy Scale (SAS; Beck et al., 1983), as well as the Beck Depression Inventory (BDI; Beck et al., 1961), the Negative Experiences Inventory and Life Threatening Experiences (Brugha, Bebbington, Tennant, & Hurry, 1985), and the revised Hassles and Uplifts Scale (DeLongis, Folkman, & Lazarus, 1988). The correlation results of this study display a significant correlation between the total BDI score and sociotropy ($r = 0.45$, $p < .05$), solitude/autonomy ($r = 0.22$, $p < .05$), negative interpersonal events ($r = 0.31$, $p < .01$), negative autonomous events ($r = 0.57$, $p < .05$), hassles ($r = 0.23$, $p < .05$), and negative interpersonal stressors ($r = 0.38$, $p < .05$). Given the correlations that stress and sociotropy showed with depression, the authors carried out a hierarchical regression analysis to determine which of the variables was a significant predictor of depression. The results of the regression analysis indicated that solitude, and negative interpersonal and autonomous events accounted for 35% of the variance for the total BDI score ($F_{(4, 88)} = 22.63$, $p < .001$), while uplifts did not account for any of the variance of the depression scores. A second regression analysis which included sociotropy, rather than solitude, along with negative life events accounted for 51% of the variance of depression scores ($F_{(4, 88)} = 30.31$, $p < .001$). In essence, while solitude is a significant predictor of depression, sociotropy, which may be seen as an excessive reliance on social networks and a lack of comfort with solitude, is an even better predictor of depression, though life stress was also indicated as a significant predictor.

Two separate longitudinal studies were carried out to examine the effects of life stress on psychological well-being. In the first, Kanner et al. (1981) assessed the life stress and psychological well-being of a community sample of 100 middle-aged (45 to 64 years old) adults over a period of 10 months. The participants were asked to fill out the Hassles and Uplifts Scale (Kanner et al., 1981), which is a measure of both positive and negative daily life stressors. In order to fully assess life stress, the questionnaire asks participants to respond to both the frequency of events that occurred, as well as the severity of the events as measured on a 3-point Likert scale. They were also asked to fill in the Hopkins Symptom Checklist (HSCL; Dergotis et al., 1970) to measure psychological symptoms, the Bradburn Morale Scale (Bradburn, 1969) which measures positive and negative affect, as well as report major life events that occurred both during the study and for 2.5 years prior to the beginning of the study. Given that the Hassles and Uplifts scale had been administered monthly over the 10 month period, a mean life stress score was calculated for both hassles and uplifts (Kanner et al., 1981). The results of the study indicate a significant correlation between frequency hassles and uplifts ($r = 0.51$, $p < .001$), as well as the intensity of both ($r = 0.8$, $p < .01$). There was also a significant correlation found between the mean negative affect score and the mean frequency of hassles score ($r = 0.34$, $p < .001$). In addition, the mean frequency of uplifts was positively correlated with positive affect ($r = 0.33$, $p < .05$). Interestingly, negative affect showed a small, non-significant, relationship with uplifts for men, but was significantly positively correlated with uplifts for women ($r = 0.25$, $p < .05$). Furthermore, frequency of hassles also displayed a significant positive correlation with pre-study significant life events ($r = 0.21$, $p < .05$). In order to calculate the correlations between hassles and uplifts and the

psychological symptoms measured by the HSCL, the results from the HSCL at month 2 and month 10 were compared with the mean hassles and uplifts scores. The results of this show that hassles were significantly correlated with psychological symptoms at both month 2 ($r = 0.60$, $p < .001$) and month 10 ($r = 0.49$, $p < .001$). In order to determine if daily hassles and uplifts were better predictors of psychological symptoms than major life events, a regression analysis was carried out. The results of the regression analysis show that during month 9 of the study, frequency of hassles explained 47% of the variance of psychological symptoms ($p < .001$), while the addition of pre-study life events explained only another 1% of the variance. Similarly, when major life events that occurred during the study were added to the regression analysis, they explained only an additional 3% of the variance. Overall, the results of the study indicated that life stress, as measured by the Hassles and Uplifts scale, was a better predictor of psychological well-being and positive and negative affect than major life events. Kanner et al. (1981) suggest that daily life stress may be a better measure to predict psychological well-being than a measure of major life events.

In a different longitudinal study, Russell and Cutrona (1991) examined how depression related to life events, life stress, and social support in 301 participants, aged 65 or above, over a period of 12 months. The participants were interviewed at 6-month intervals, and completed the Zung Self-Rating Depression Scale (Zung, 1965), the Social Provisions Scale (Cutrona & Russell, 1987) as a measure of social support, and life stress was measured using both the Geriatric Social Readjustment Rating Scale (Amster & Krauss, 1974) and the hassles portion of the Hassles and Uplifts Scale (Kanner et al., 1981). The results of the study display a significant correlation between the

initial depression score and social support (r = -0.33, p < .05), as well as positive correlations between initial depression and both daily hassles (r = 0.41, p < .05) and depression score at follow-up (r = 0.55, p < .05). Social support also showed significant negative correlations with both daily hassles (r = -0.35, p < .05) and depression score at follow-up (r = -0.38, p < .05). Follow-up depression scores were significantly related to both hassles (r = 0.43, p < .05) and major life events (r = 0.24, p < .05). Russell and Cutrona (1991) also tested a causal model which displayed a good fit for initial depression, social support, and daily hassles predicting depression score at follow-up (χ^2 (69,283) = 151.32, p < .001, GFI = .927). The authors also found that the results of their study indicated that both social support and depression were significant predictors of daily hassles. These results are similar to the results found by Ravindran et al. (2002) indicating that more depressed participants were more likely to identify daily hassles. Interestingly, Russell and Cutrona (1991) also found that daily hassles actually mediated the relationship between negative life events and depression. This would seem to suggest that the participants that were used to dealing with daily hassles were better equipped to cope with negative life events. The longitudinal nature of the two studies just discussed lends additional support to the relationship between daily life stress and psychological well-being.

With the objective of further exploring the relationship between social networks and psychological well-being, Sarason, Sarason, Shearin, and Pierce (1987) conducted a study in which 182 participants completed both the original Social Support Questionnaire (SSQ; Sarason et al., 1983) and a newly developed 3-item version of the SSQ (SSQ3; Sarason et al., 1987) in

which participants list the number of members in their social network and their satisfaction with these in response to 3 questions. In addition, participants completed the Multiple Adjective Affect Check List (MAACL; Zuckerman & Lubin, 1965), the UCLA Loneliness Scale (Russell et al., 1980), the Beck Depression Inventory (BDI; Beck et al., 1961), and the Social Competence Questionnaire (Sarason et al., 1985). Of the original 182 subjects, a subset of 106 participants (61 females and 45 males) was retested after 3-4 weeks in order to provide test-retest reliability of the new measure. The test-retest reliability resulted in strong correlations for the SSQ3 ($r = 0.84$, $p < .001$ for part number in social network and $r = 0.85$, $p < .001$ for satisfaction). The correlations with the other variables showed a strong negative relationship between loneliness and both the number of people in the social network ($r = -0.50$, $p < .001$) and satisfaction with the social network ($r = -0.57$, $p < .001$). In addition, the social network number was also significantly negatively correlated with both the BDI ($r = -0.21$, $p < .05$) and depression measured by the MAACL ($r = -0.27$, $p < .001$), as was the satisfaction score ($r = -0.22$, $p < .05$, and $r = -0.21$, $p < .01$ respectively). Social competence also showed a moderate significant relationship with both social network size ($r = 0.41$, $p < .001$) and satisfaction ($r = 0.17$, $p < .05$). The results just reported were the correlations between the SSQ3 and the other variables, which were very similar to the correlations shown between these variables and the original 27-item SSQ (Sarason et al., 1987). These results are particularly interesting because they are not only an indication of the connection between psychological well-being and social networks, but they also demonstrate the value of a brief social network measure.

Williams, Connolly, and Segal (2001) carried out a further study examining the relationship between social networks and depression. They recruited 72 adolescent females (mean age = 17.7 years) who did not have depression, which was assessed by having a total Beck Depression Inventory-II (BDI-II; Beck, Steer, Ball, & Ranieri, 1996) of less than 18, which is the cut-off for clinical depression on that measure. The participants completed the Network of Relationships Inventory (NRI; Furman & Buhrmester, 1985), which is a social network measure that assesses the intimacy that the participants feel with both friends and family. In addition, all participants completed the Dysfunctional Attitude Scale (DAS; Weisman & Beck, 197), which measure negative beliefs about life, the Visual Analog Scales (VAS; Teasdale & Fogarty, 1979) to measure current mood, and the Mood Manipulation Verification Questionnaire which was created by the authors of the study to determine the effectiveness of the mood induction technique (Williams et al., 2001). The study was carried out in two parts. In the first session participants completed the NRI and some demographic information. In the second session, which occurred a mean of 26 days later, the participants completed the BDI-II and DAS, and took part in a mood induction in which they listened to sad music and reflected on a sad event for 7 minutes, then again filled in the DAS, as well as the mood manipulation questionnaire (Williams et al., 2001). The results of this study indicate a significant positive correlation between the DAS scores pre- and post mood induction ($r = 0.81$, $p < .01$), as would be expected. An ANOVA was carried out in order to assess differences in relationship intimacy with best friends, romantic partners, mothers, and fathers. The ANOVA showed a significant difference between all of the different types of relationships ($F(3,168) = 87.4$, $p < .001$), with post hoc tests revealed that intimacy with best

friends was significantly higher than the level of intimacy in other relationships identified by the participants, and that romantic relationship intimacy was significantly lower than that of best friends, but higher than with either parent ($F(1,55) = 8.3$, $p < .01$). In order to assess the hypothesis that adolescent females with low intimacy in their social networks experience greater cognitive reactivity, Williams, Connolly, and Segal (2001) carried out a multiple regression analysis in which the post mood induction DAS score was the dependent variable. The results of the regression analysis revealed a significant interaction between intimacy in romantic relationships and negative mood change ($R^2 = .03$, $F (1, 48) = 6.09$, $p < .05$). Essentially, this result supports the hypothesis that adolescent females with little intimacy in relationships had greater cognitive reactivity to negative mood. The findings of this study point to an important association between social networks and psychological well-being.

The final study which will be discussed which looks at qualities of social networks was conducted by Furman and Buhrmester (1985). This study looked at ten different aspects of social relationships: reliable alliance, enhancement of worth, instrumental help or guidance, companionship, affection, intimacy, relative power, conflict, satisfaction, and importance of the relationship. A total of 199 young adolescent participants (aged 11 to 13 years) completed the Network of Relationships Inventory (NRI; Furman & Buhrmester, 1985) to assess the relationships of the participants with their (step-)mothers, (step-)fathers, grandparents, older brother, younger brother, older sister, younger sister, best friend, and teacher. In order to obtain the results, the authors of the study conducted 2-way ANOVAs which assessed sex and type of relationship (mother, father, grandparent, sibling, friend,

and teacher). In order to carry out the analysis, 20 of the participants were excluded due to not having all 6 types of relationships (Furman & Buhrmester, 1985). The results of the ANOVA for reliable alliance showed a significant difference in relationship type (F (5, 870) = 236.74, p < .001), with parents being the most important, and females scoring significantly higher on the mean ratings than males (F (1, 174) = 4.27, p < .01). The ANOVA for affection indicated a significant interaction between relationship type and sex (F(5, 870) = 7.64, p < .001), showing that males rated parents and grandparents highest for affect, with siblings being lower than these, but higher than friends, while females rated parents and grandparents highest, with siblings and friends next receiving equal importance. The ratings for enhancement of worth showed significant differences with relationship type (F (5, 870) = 79.83, p < .001), surprisingly showing teachers receiving the lowest ratings. Nurturance ratings also showed significant differences in relationship types (F (5, 870) = 82.52, p < .05), and the results displayed parents as being the most important for nurturance, followed by teachers, friends, grandparents, and finally, siblings. However, friends were rated the highest for companionship, with the ANOVA results revealing a significant difference in relationship type (F (5, 870) = 237.11, p < .001). Friends and parents also received significantly higher ratings than the other relationship types for intimacy (F (5, 870) = 116.78, p < .001). Relative power also showed significant differences for relationship type (F (5, 870) = 209.95, p < .001), with relative power being highest in friend and sibling relationships, and lowest with parents and teachers. Relationships with siblings showed the greatest amount of conflict, while grandparent relationships received the lowest score (F (5, 870) = 101.74, p < .001). The ANOVA results for importance of relationship revealed main effects for both type of

relationship (F(5, 875) = 192.31, p < .001) and sex (F(1, 175) = 5.01, p < .05), indicating that females placed more importance on relationships, and that both males and females saw parents as the most important, followed by grandparents and siblings, then friends, and finally teachers. The final ANOVA which was carried out revealed a main effect for relationship type for satisfaction (F (5, 870) = 3.60, p < .001). Post hoc analysis revealed the order of importance for satisfaction as: mothers, fathers, friends and grandparents, siblings, and teachers. Principally, Furman and Buhrmester (1985) found that young adolescents rated parental relationships as the most important for affection, reliable alliance, enhancement of worth, and instrumental aid, and mothers specifically received the highest companionship and satisfaction ratings. In addition, females reported higher ratings for friends on the intimacy, affection, and enhancement of worth dimensions than males. The results of this study display some of the fundamental importance that different social relationships have for young adolescents. One of the most interesting aspects of this study is the comparisons that can be made to the previously discussed study (Williams et al., 2001), which revealed different results, particularly with intimacy, in slightly older adolescents. The importance of social networks seems clear, yet the difference in results between ages would indicate the necessity of further research.

2.1.3 Summary and statement of purpose

The literature which has been discussed in this chapter has revealed a number of interesting findings. The studies which looked at the correlates of emotional intelligence have shown total trait EI to be positively related to a

variety of well-being variables, such as: rational and adaptive coping, internal locus of control, diet and exercise, self esteem, mental health and social networks, particularly for females (Gohm, Corser, & Dalsky, 2005; Mavroveli, Petrides, Rieffe, & Bakker, 2007; Saklofske, Austin, Galloway, & Davidson, 2007; Schutte et al., 2007). These same studies found negative relationships between total trait EI scores and emotional and maladaptive coping, chance locus of control, symptoms of bipolar disorder in a student sample, somatic complaints, stress, and depression. In addition, Ciarrochi, Deane, & Anderson (2002) carried out a study which found significant correlations between well-being variables and two of the trait EI subscales of the Schutte et al. (1998) emotional intelligence scale: emotion perception and life satisfaction, and managing emotions negatively related to stress, hopelessness, and depression. Ability EI was found to be significantly negatively correlated with alexithymia, and positively related to affect intensity and life satisfaction (Gannon & Ranzijn, 2005; Gohm et al., 2005; Parker et al., 2001). Meanwhile, the studies of personality demonstrated the relationship between Neuroticism and a number of psychological well-being variables, including: life satisfaction, coping, hopelessness, self-handicapping, burnout, and depression (Deary et al., 1996; Gannon & Ranzijn, 2005; Hayes & Joseph, 2003; Lozano & Johnson, 2001; Petersen et al., 2001; Rector et al., 2002; Ross et al., 2002; Velting, 1998). These studies also revealed a relationship between Extraversion and happiness, coping, OCD, hopelessness, and depression. Also, Bagby et al. (1997) found differences in both E and O among participants with schizophrenia, bipolar, and unipolar depression. Conscientiousness was found to predict self-handicapping and depression, as well as be significantly correlated to hopelessness, mania, and OCD (Hayes & Joseph, 2003; Lozano & Johnson, 2001; Petersen et al., 2001;

Rector et al., 2002; Ross et al., 2002; Velting, 1998). Rector, Hood, Richter, and Bagby (2002) demonstrated that participants with OCD scored significantly higher on Agreeableness than those with depression. Finally, a number of studies indicated that social networks and daily life stress were related to depression (Kanner et al., 1981; Ravindran et al., 2002; Russell & Cutrona, 1991; Sarason et al., 1987; Williams et al., 2001; Williams et al, 1995).

When examining the summary of these results, it is clear that both EI and personality are related to psychological well-being. Furthermore, a relationship among social networks, daily life stress, and depression is represented in the literature. However, while the studies of personality display significant results between N and E and psychological well-being, the results for C, O, and A are more mixed. This would suggest the necessity for further research looking at these relationships. In addition, while trait EI does show some significant relationships with psychological well-being, there still seems to be a question about its incremental validity. In the previous chapter, a study conducted by Petrides and Furnham (2001) which found that trait EI was a lower-order personality trait was discussed. However, many of the studies discussed in this chapter looking at how trait EI related to well-being did not control for the effects of personality. Therefore, it is difficult to say how much of the variance of the outcome variables is explained by trait EI above and beyond that which is explained by personality. It is also difficult to determine the stability of trait EI as a predictor variable when it is unknown how much additional variance it explains beyond personality.

Furthermore, while many studies have looked at how trait EI relates to other variables, the number which measure ability EI are more limited, and few include both trait and ability EI, and those that do find either a small relationship, or fail to find a relationship between the two. While it is possible to equate this to the relationship between self report and performance measures of intelligence, this small (or absent) relationship between the two types of EI seems to bring about the question of the psychometric issues related to EI. While some researchers regard it as an ability to be assessed through performance and its relationship to cognitive intelligence, others define EI as a trait to be measured by self-report and related to personality. Yet even with the disagreement about the types of measurement, given that these are both said to be aspects of the emotional intelligence paradigm, it would seem that a significant relationship should be found between them as they were developed from the same concept. Without further clarification on this issue, the true nature of EI is obscured, and there is a continuation of the argument in the literature (Mayer, Roberts, & Barsade, 2008). Given this, and the fact that EI is a relatively new construct in psychology, further research must be carefully conducted to examine the value that trait EI has as a predictor variable, above and beyond what can be found with the big five factors of personality.

As a final point, while the literature investigating social networks, life stress, and depression find fairly stable relationships among these three variables, the direction in which they effect each other remains unclear. While it seems clear that there is a significant correlation between life stress, particularly hassles, and depression, it cannot be determined if those that are depressed are more aware of daily hassles, or if life stress is a factor in the development

of depression. However, it would seem that the inclusion of other possible predictor variables, such as personality or EI, could help clarify this. Perhaps a person who is high in N, and therefore has an unstable mood, is more likely to be aware of daily life stress and become depressed. In contrast, an individual high in C may be better able to deal with daily life stress by reducing it through organization, while an individual high in E could recruit members of his/her social network for support., Essentially, it could be that after the effects of personality or EI are partialled out the significance among the other variables changes.

Given the results of previous research discussed above, the hypotheses for the following studies are:

H1: Extraversion, Agreeableness, and Openness will show significant positive correlations with social network quality and size.

H2: Trait EI will be significantly positively correlated with social network quality and size after controlling for personality.

H3: There will be a significant correlation between trait and ability EI.

H4: Life stress and depression will be significantly correlated.

H5: Neuroticism will be positively correlated with depression and life stress, while both Extraversion and Conscientiousness will show significant negative correlations with both.

Further exploratory aims of the study will be to examine the data in order to investigate if personality, EI, or social networks affect the relationship between life stress and depression, as well as to explore the relationships between both Openness and Agreeableness and psychological well-being (life stress and depression).

Chapter Three

3.1 Study One

3.1.1 Introduction

The objectives of the two studies discussed in this chapter were to examine how both trait and ability EI related to personality, social network quality and size, life stress and depression. As will be discussed in more detail shortly, the first study looked at how trait EI was related to personality, and if either of these variables were predictors of social network quality and size. After the completion of the first study, further participants were recruited to take part in the second study, which looked at how trait and ability EI related to each other, as well as personality, social network quality and size, life stress, and depression. In addition, the results from the second study were combined with the results from the first study to get a more complete picture of how trait EI, personality, and social network quality and size were related. Finally, after the completion of the second study, a supplementary study was carried out in order to look at the relationship between two measures of ability EI. Figure 3.1 displays the number of participants in the first study and the second study, as well as showing the total number of participants from both studies that completed measures of trait EI, personality, and social network quality and size. Finally, Figure 3.1 also displays the number of participants that completed the MSCEIT, as well as the total number that took part in the supplementary study. The reason that the number of participants that completed the MSCEIT differs from the total number in study two is that budgetary limitations meant that it was not possible to purchase a number of MSCEITs equal to the number of

participants that had been recruited for the second study. Further details of these studies are discussed later in this chapter. All of the measures used in these studies were selected on the grounds of reliability and validity, and all were used in previous research and can be regarded as well established. Further information regarding the specific reliability and validity of each measure will be given in the materials section below.

Figure 3.1 – Recruitment of participants
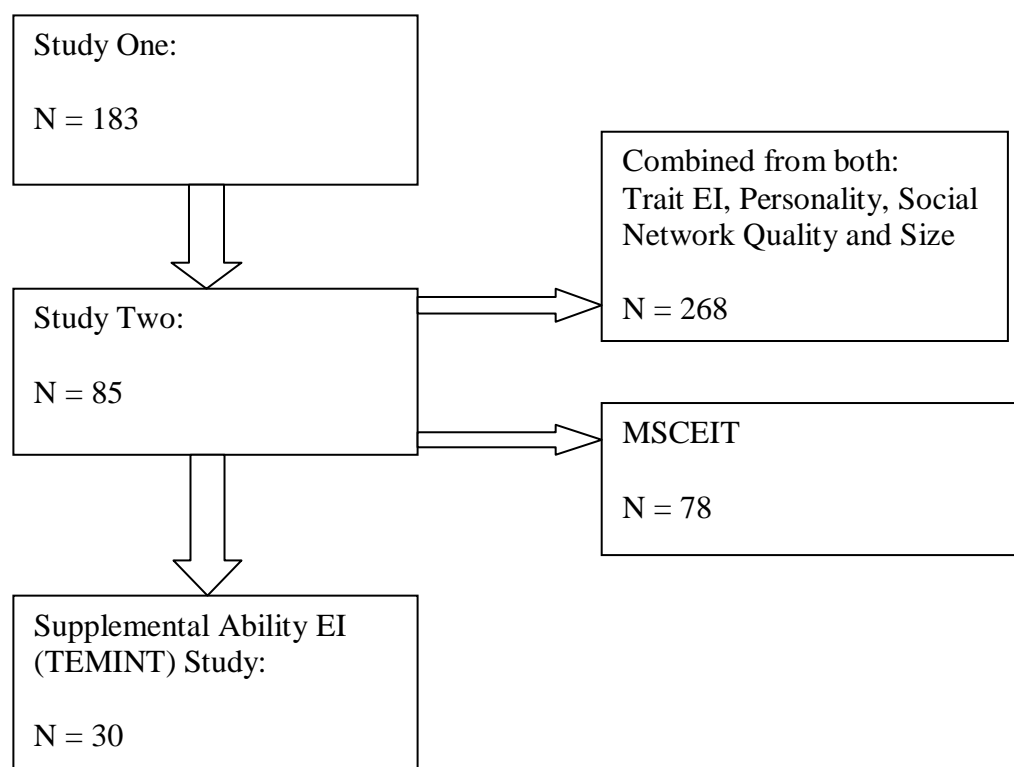
3.1.2 *Study Design*

In order to ascertain the relationship among trait emotional intelligence, personality, and social network quality and size, participants were recruited to self report on these factors. Participants were recruited both from the

volunteer panel at the University of Edinburgh and from students at the University. The University of Edinburgh volunteer panel is a group of individuals who have provided their contact details to the university with the understanding that they are willing to be recruited to take part in research that is being carried out. Recruitment of members of the volunteer panel is regulated by the University, and all studies carried out must pass a human subjects ethics committee. Members of the volunteer panel were in some way previously associated with the University of Edinburgh (alumni for example), and many are currently retired, which does effect the mean age of the sample, as will be further addressed later in this chapter.

This study is a correlational design that measures the variables without manipulating them. The variables measured in this study are trait emotional intelligence, personality, and social network quality and size. Given that the big five factors of personality are measured using the International Personality Item Pool (IPIP), Emotional Stability will be assessed, rather than Neuroticism, and Openness is labelled as Intellect/Imagination. Emotional Stability is merely the inverse of Neuroticism. The hypotheses for this study are:

H1: Extraversion, Agreeableness, and Intellect/Imagination will show significant positive correlations with social network quality and size.

H2: Trait EI will be significantly positively correlated with social network quality and size after controlling for personality.

In addition, the data will be explored in order to investigate other relationships that may be displayed among the variables.

3.1.3 Participants

There were 183 participants that ranged in age from 18-84, with a mean age of 48.06 (SD=22.12). However, the mode age of the participants was 19, with nearly a quarter (23.6%) of participants being either 18 or 19 years old, while the median age was 32.5. This is due to 49 of the participants being undergraduate students, with a mean age of 19.83 (SD = 4.10) and 144 of the participants being recruited from the volunteer panel with a mean age of 59.69 (SD = 14.84). Both females (77.2%) and males (22.8%) participated in the study.

3.1.4 Procedure

Participants took part on an entirely voluntary basis and did not receive monetary compensation. The volunteer panel participants (144) were sent the packet of questionnaires by post. They were asked to fill out the questionnaires and return them in the postage paid envelope provided. The remaining participants (49) were undergraduate university students recruited from their Psychology 1 tutorial. The researcher was given permission by the tutors running the practical sessions to come in at the end of the class and request the students to voluntarily take a few minutes to fill out the questionnaires. They were given the option of staying after the practical session ended to complete the questionnaires, or take them home and return them to the researcher at a later time. The students were assured

participation would not affect their Psychology 1 practical mark in any way and that participation was entirely voluntary. Participants were given packets that contained four questionnaires, the Schutte et al. (1998) emotional intelligence scale, the International Personality Item Pool (IPIP; Goldberg, 1999) to measure personality, the Networks of Relationships Inventory (NRI; Furman & Buhrmester, 1985) which measures social network quality, and the Social Support Questionnaire 3-item version (SSQ3; Sarason et al., 1987) which measures both social network quality and size.   .

3.1.5 Materials

3.1.5.1 Schutte et al. (1998) Trait Emotional Intelligence Scale

The Schutte et al. (1998) emotional intelligence scale is a 33-item self report measure of trait emotional intelligence. The scale was created in an initial study of 346 participants responding to 62 items. A factor analysis of the original 62 items was conducted, and the final 33-items that were chosen all loaded at 0.40 or above. It contains 30 forward keyed items and 3 reverse keyed items which fall into 3 categories. The appraisal and expression of emotion category contains 13 items, while the regulation of emotion and utilization of emotion categories each contain 10. The responses to questions such as "I am aware of the non-verbal messages I send to others," are measured on a Likert scale of 1, strongly disagree, to 5, strongly agree. The original study showed a Cronbach's alpha of 0.90 for internal consistency.

The Schutte et al. (1998) emotional intelligence scale has been validated in a number of studies (Austin et al., 2004; Chapman & Hayslip, 2005; Saklofske

et al., 2003). Although it was originally developed to be a measure of overall emotional intelligence, other research has identified 3 to 4 dimensions: optimism/mood regulation, appraisal of emotions, social skills, and utilization of emotions (Austin et al., 2004; Petrides & Furnham, 2000).

Austin et al. (2004) reported an internal reliability of 0.84 for the overall EI score of the Schutte et al. (1998) emotional intelligence scale. The same study found a correlation of 0.67 between the EI scores derived from the Schutte scale and from the Bar-On EQi:S (Bar-On, 2002). The EQi:S is a 51-item scale designed to measure a total Emotional Quotient, as well as intrapersonal EQ, interpersonal EQ, adaptability EQ, stress management EQ, and general mood EQ. Factor analysis of the Schutte et al. (1998) emotional intelligence scale by Austin, Saklofske, Huang, and McKenny indicated three factors, similar to the four found by Petrides and Furnham (2000): optimism/mood regulation, utilization of emotions, and appraisal of emotions. However, while the third factor, appraisal of emotions, was reported to be similar, the first two were reported as more appropriately being labelled regulating/using emotions and optimism/positivity. Internal reliabilities for the three factors were 0.78, 0.68, and 0.76 respectively. While the study was conducted in order to test a modified 41-item version of the Schutte scale, the conclusions based on the internal reliabilities of both the original and modified versions was that the findings "do not suggest strong advantages of using this scale rather than the original EI measure…" (Austin et al., 2004)

A study conducted by Saklofske et al. (2003) found an internal reliability for the overall Trait EI score of the Schutte et al. (1998) scale of 0.89. This study also looked at correlations between the big five factors of personality,

measured by the NEO-S, and Trait EI. All personality factors showed a significant correlation with EI. Neuroticism was negatively correlated with EI, while correlations for all the other factors were positive. Extraversion showed the highest correlation with EI (r=0.51). Chapman and Hayslip (2005) also found significant correlations with the Schutte et al. (1998) EI scale and the big five factors of personality measured by the NEO-PI-R. The findings were similar to Saklofske et al. (2003) with a -0.34 correlation between EI and Neuroticism. The other four personality factors were all significantly positively correlated with EI, the largest correlation being between EI and Extraversion (r=0.53).

3.1.5.2 International Personality Item Pool

The International Personality Item Pool (IPIP) is a web based resource (http://ipip.ori.org) designed to measure the same big five factors of personality as those assessed by the NEO-FFI (Costa & McCrae, 1992; Goldberg, 1999). The IPIP is a self-report measure of personality requiring participants to respond to statements marking a Likert scale from 1 (very inaccurate) to 5 (very accurate). The 50 items of the IPIP used in this study contained ten questions for each of the five factors of personality with approximately equal numbers of forward and reverse scored items for each factor. The five factors are Agreeableness, Conscientiousness, Emotional Stability, Extraversion, and Intellect/Imagination. The IPIP looks at Emotional Stability as the reverse of Neuroticism, and Intellect/Imagination as the measure of Openness.

The IPIP has been developed as a collaborative effort based at the Oregon Research Institute (ORI; Goldberg, 1999). It was designed in order to provide a public domain broad-bandwidth measure to assess all five factors of personality. Prior to the development of the IPIP the public domain measures of personality were apt to be restricted to three or fewer personality traits. There are two main issues with copyrighted measures of the five factors of personality. The first is that copyrighted measures tend to have an associated research cost, which can cause budgetary problems. The second problem associated with copyrighted measures is that they are less likely to include new research and are revised infrequently (Goldberg, 1999; Goldberg et al., 2006). However, some of the goals of the ORI in developing the IPIP were to provide a good quality public domain personality measure that continues to be revised as further research is conducted.

Gow, Whiteman, Pattie, and Deary (2005) looked at internal consistencies and correlation of the IPIP with other personality measures. In a sample of students (n=201), they found the Cronbach's alpha for all Big Five Factors of the IPIP to be at least 0.73. Intellect/Imagination was the factor with the lowest alpha (0.73), while Emotional Stability had the highest internal reliability of 0.87. The same study investigated the correlation between the IPIP and both the NEO Five Factor Inventory (NEO-FFI) and the Eysenck Personality Questionnaire- Revised Short Form (EPQ-R). The EPQ-R is a 48-item questionnaire that measures Extraversion, Psychoticism, and Neuroticism, and also includes a Lie Scale, while the NEO-FFI is a 60-item questionnaire measuring the Big Five Factors of personality. All five of the IPIP personality factors were significantly correlated ($p < 0.01$) with all five of the NEO-FFI factors, suggesting very good concurrent validity. IPIP

Emotional Stability was negatively correlated with the NEO-FFI Neuroticism (-0.83, p<0.01), while all the other factors showed positive correlations: IPIP Extraversion was significantly positively correlated with the EPQ Extraversion score (0.85, p<0.01), while Emotional Stability measured by the IPIP was significantly negatively correlated with the EPQ Neuroticism score (-0.84, p<0.01).

The IPIP was chosen for the present study for a number of reasons. First, the 50-item inventory is easy for participants to complete in a reasonable period of time. Second, it is a public domain measure which reduces research costs. Also, previous research carried out showed considerable shared variance between trait EI and the Big Five measured by the NEO-PI-R. Therefore, the IPIP was chosen for this study in order to determine if it also shows a significant relationship with trait EI (Brackett & Mayer, 2003).

3.1.5.3 Network of Relationships Inventory

The Network of Relationships Inventory (NRI) was developed by Furman and Buhrmester in 1985. It was originally developed to look at the quality of relationships that children have with both family members and peers. The relationship qualities that are measured by the NRI with the ten subscales are: companionship, conflict, instrumental aid, antagonism, intimacy, nurturance, affection, admiration, relative power, and reliable alliance. For the most part the subscales are self-explanatory, but for further clarification: instrumental aid refers to the amount of guidance the participant feels that s/he receives from that member of his/her social network, while intimacy refers to the amount of disclosure within the relationship. These subscales

each contain 3-items to which the participant responds using a five-point Likert scale. The scale for the majority of the questions ranges from 1, a little or none, to 5, more than anyone else. The relative power items require a response to items from 1 (s/he always), through 3 (about the same, the neutral response) to 5 (I always). In the original study Cronbach's alpha = .80 for the overall NRI social network quality score, while the internal reliabilities of all the subscales was at least 0.60 or greater.

In the current study the NRI was administered in order to assess the quality of relationship between the participant and a chosen member of his/her social network. The first question of the self-report NRI requires the participants to identify a member of his/her social network, state the length of the friendship, and if the person is still a friend. Participants were specifically asked to identify a friend, (which could include a partner/spouse). The participant was then asked to respond to the questions regarding the quality of relationship s/he experienced with the chosen person.

The NRI was originally designed to measure relationships between children and their social networks, though Furman and Buhrmester (1985) also believe that it is valuable in assessing relationships more generally. The NRI has been used to investigate the relationship between individuals and one or two other members of their social networks. Williams, Connolly, and Segal (2001) used the NRI to investigate the relationships between late adolescent girls (16-20 years old) and best friends and romantic partners and how the intimacy in these relationships effected their cognitive vulnerability to depression. Results of the study indicate that girls in romantic relationships

with little or no reported intimacy "had a significantly greater increase in cognitive reactivity than those… with moderate to high intimacy…" (Williams et al., 2001). The NRI was, therefore, chosen for the current study in order to assess the quality of relationships that participants report having. The relationships of the participants were broken down in order to investigate both the subscales and an overall NRI.

3.1.5.4 Social Support Questionnaire 3-item Version

The Social Support Questionnaire 3-item version (SSQ3; (Sarason et al., 1987) has three, two-part items that measure both social network quality and social network size. It is a self-report measure that asks participants to identify up to nine members of their social network that: "1, accepts you totally, including your best and worst points, 2, you can count on to tell you, in a thoughtful manner, when you need to improve in some way, and 3, truly loves you deeply. After identifying the members of his/her social network in each question, the participant is asked to identify satisfaction with the support on a Likert scale of 1, very dissatisfied, to 4, very satisfied.

The original 27-item Social Support Questionnaire was developed by Sarason et al. in 1983. The 3-item version came about in order to provide a representative form that was quicker and easier to complete. Sarason et al. (1987) conducted a study looking at the test-retest reliability and internal reliability of the SSQ3 and the correlation with the original SSQ. Participants (n=182) were given the SSQ3 and the original SSQ, with the SSQ3 items removed, and retested after a month. Results for the test-retest reliability indicated a correlation of 0.84 (p<0.001) for the number of people each

person lists in response to the questions, and a correlation of 0.85 (p<0.001) for the satisfaction with the support. Internal reliability for the number of people listed was 0.75 while the Cronbach's alpha for the satisfaction with support on the 3 items was 0.79. The number of people in the social network listed on the SSQ3 correlated with the number of people listed on the SSQ (r = 0.80, p<0.001), while the correlation for the satisfaction with support on both scales was 0.84 (p<0.001). The Cronbach's alphas for the original SSQ were 0.97 for both number of people and satisfaction with support. While the internal reliabilities for the original SSQ are higher, the SSQ3 has acceptable levels for the internal reliability. The SSQ3 also has significant positive correlations for test-retest measures, and was significantly correlated with the original SSQ. This would suggest that the SSQ3 is an acceptable substitution for the longer SSQ.

3.1.5.5 Demographics

After completing the questionnaires, the participants were asked to provide some demographic data. They were asked their age, gender, and either degree subject or occupation.

3.2 Results

3.2.1 Descriptive statistics and sex differences

Internal reliabilities for all of the scales were assessed using Cronbach's alpha. All of the scales showed acceptable alpha levels of above .70. The Schutte et al. (1998) emotional intelligence scale showed an internal reliability of .90. The internal reliabilities for the personality factors showed

as .87 for Extraversion, .81 for Agreeableness, .79 for Conscientiousness, .89 for Emotional Stability, and .78 for Intellect/Imagination. The internal reliability for the NRI total score was .93. The ten subscales of the NRI also all showed acceptable alphas with the lowest being instrumental aid at .76 and the highest being affection with .94. The internal reliability for companionship was .82, conflict was .92, antagonism was .85, and intimacy and nurturance were both .83, admiration was .85, relative power .81, and reliable alliance was .93. The SSQ3a had a Cronbach's alpha of .83 and the SSQ3b showed an internal reliability of .82.

Table 3.1 shows the total sample descriptive statistics for trait EI, the big five factors of personality and the total NRI score as well as the ten subscales, and both parts of the SSQ3, as well as the sex specific means and t-test results which will be discussed shortly.   Eight of the ten NRI subscales indicate a range of twelve and a maximum score of 15. Reliable alliance has a range of 11 and a mean of 11.94 and relative power has a range of 10 with a maximum of 13 and a mean of 8.88. The means for the negative subscales of the NRI were both fairly low with antagonism having a mean of 4.37 (SD = 2.39) and conflict 4.12 (SD = 2.45), the lowest mean of a positive subscale was 8.76 for instrumental aid (SD = 2.95) which was more than 1.5 standard deviations above the means of the negative subscales. All of the personality factors had a possible maximum score of 50, though both Conscientiousness and Extraversion showed a maximum score of 48. The Intellect/Imagination factor had the smallest range (26), while Emotional Stability had the largest range (38). Emotional Stability also showed the lowest mean (30.43, SD = 7.70), while the mean for Agreeableness was 40.72 (SD = 5.51).

An independent samples t-test was carried out in order to determine if the sample showed gender differences in any of the variables, Levene's test of equality of variance indicated equal variance for all variables except conflict, for which a correction was applied. The sex specific means and standard deviations, as well as the t-test results can be found in Table 3.1. A Bonferroni correction was applied to the NRI and its subscales in order to control for the multiple comparisons (.05/11), so the level of significance was determined to be p < .0045. A significant difference was found for the total trait EI scores (n = 183, 41 males and 142 females). The mean trait EI score for females in the sample was 123.55 and the mean score for males was 111.63. The results of the t-test indicate there is a significant gender difference in trait EI scores (t (179) = 4.68, p < .001). Agreeableness also showed a significant gender difference in scores with the mean score for females being 41.82 and the male mean Agreeableness score being 37.02 (t (181) = 5.30, p < .001). The other four personality factors did not show significant gender differences in scores. There was also a significant sex difference found with the SSQ3a, with the females scoring significantly higher than the males.

Though initially four of the ten NRI subscales showed significant gender differences with an independent samples t-test, the difference was no longer deemed significant after applying the Bonferroni correction

Table 3.1 – Descriptive statistics for whole sample, sex specific means, standard deviations, and t-test results

	N	Mean (SD)	Female	Male	t	df	Sig. 2-tailed
admiration	176	10.91 (2.56)	11.02 (2.55)	10.53 (2.56)	1.08	174	0.28
affection	179	11.08 (2.83)	11.1 (2.77)	11 (3.07)	0.2	177	0.84
antagonism	179	4.37 (2.39)	4.14 (2.24)	5.17 (2.71)	-2.47	177	0.015
companions	178	9.2 (3.52)	9.09 (3.51)	9.56 (3.55)	-0.74	176	0.46
conflict	179	4.12 (2.45)	3.86 (2.27)	5 (2.83)	-2.68	177	0.008
intimacy	178	11.29 (3.19)	11.57 (3.22)	10.33 (2.95)	2.199	176	0.03
instru aid	179	8.76 (2.95)	8.81 (2.98)	8.59 (2.88)	0.43	177	0.67
nurturance	178	9.22 (3.3)	9.18 (3.2)	9.37 (3.64)	-0.31	176	0.756
relat power	179	8.88 (1.52)	8.83 (1.52)	9.05 (1.52)	-0.8	177	0.427
reliable allian	178	11.94 (3.02)	12.22 (2.98)	10.95 (3)	2.38	176	0.018
nri total	173	86.74 (17.41)	86.46 (17.24)	87.64 (18.18)	-0.37	171	0.715
ssqa total	181	12.65 (6.54)	13.28 (6.53)	10.43 (6.15)	2.468	179	0.015
ssqb total	177	9.64 (2.68)	9.53 (2.79)	10.05 (2.25)	-1.09	175	0.277
trait EI	181	120.85 (15.14)	123.55 (13.7)	111.63 (16.31)	4.684	179	.000
A	183	40.72 (5.51)	41.82 (4.68)	37.01 (6.48)	5.3	181	.000
C	183	34.86 (6.24)	35.04 (6.38)	34.26 (5.78)	0.71	181	0.48
ES	183	30.43 (7.7)	30.23 (7.63)	31.07 (8.02)	-0.62	181	0.54
E	182	32.3 (6.88)	32.43 (7.03)	31.83 (6.41)	0.49	180	0.62
I	182	36.7 (5.38)	36.40 (5.49)	37.4 (4.97)	-0.97	180	0.33

3.2.2 Correlations and partial correlations

Table 3.2 shows the correlations among trait EI, personality, and social
networks. In this discussion of the results, when effect size are mentioned
they will be described as small (r = 0.10 to 0.29), medium (r = 0.30 to .49), or
large (r ≥ .50). Trait EI scores were significantly and positively correlated
with all of the big five factors of personality (p < 0.01). It showed large
effects with both with Agreeableness and Extraversion, and had a weak (r
< .30) correlation with Conscientiousness, Emotional Stability, and
Intellect/Imagination. Trait EI was also significantly correlated with five of
the ten NRI subscales (p < .05). The correlation was significant and positive
with the admiration, affection, and intimacy subscales, and negatively
significant with antagonism and conflict. The social network size portion of
the SSQ3a also showed a significant positive correlation with trait EI.

The personality factors showed inter-correlation. Agreeableness was
significantly and positively correlated with Extraversion (r = .31, p < .01).
Emotional Stability showed a significant positive correlation with
Conscientiousness (r =.26, p < .05) as well as with Extraversion (r = .28, p
< .01). Extraversion also showed a significant positive correlation with
Intellect/Imagination (r = .28, p < .01).

The personality factors also showed significant correlations with social
network quality and size. Agreeableness showed significant positive
correlations, though with a small effect size, with the intimacy subscale of
the NRI, as well as the total for the SSQ3a section, which measures social

network size. Conscientiousness was significantly negatively correlated with the NRI total score (r = -.17, p < .05) as well as five of the subscales and a small effect with the SSQ3b total score. Of the NRI subscales with which it was significantly correlated, Conscientiousness indicated a negative correlation with antagonism and conflict (r = -.22, r = -.21, p < .01), and somewhat surprisingly, a small effect with both instrumental aid and nurturance. There was a small effect between Conscientiousness and reliable alliance. Emotional Stability showed a significant negative correlation with the antagonism and conflict subscales of the NRI, as well as a significant positive correlation with the reliable alliance subscale (r = -.30, r = -.21, r = .21, p < .01). The SSQ3 showed a significant positive correlation with Emotional Stability with both the SSQ3a total, measuring social network size, and the SSQ3b total, measuring overall rating of social network quality (r = .19, r = .23, p < .01). Extraversion showed a small positive effect with three of the NRI subscales: admiration, affection, and reliable alliance. The SSQ3a total was also significantly positively correlated with Extraversion (r = .33, p < .001). Intellect/Imagination showed a significant correlation with the affection subscale of the NRI (r = .198, p < .01) as well as with the admiration subscale (r = .207, p < .01). The NRI showed significant whole-part correlations with all ten of its subscales.

The total score for the SSQ3a showed significant positive small effects with the admiration, affection, intimacy, and reliable alliance subscales of the NRI. Both antagonism (r = -.20, p < .01) and conflict (r = -.18, p < .05) displayed significant negative correlations with the SSQ3a total. Somewhat surprisingly, the total NRI score did not exhibit a significant correlation with either the SSQ3a or the SSQ3b total. The SSQ3a and "b" demonstrate a

significant positive correlation (r = .31, p < .001), as would be expected. The SSQ3b showed a significant and positive correlation with only the companionship subscale of the NRI (r = .22, p < .01). The SSQ3 is significantly correlated with the big five factors of personality as reported above.

Table 3.2 – correlation among big five personality factors, trait EI, and social networks

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 admiration	1.00																	
2 affection	0.81**	1.00																
3 antagon	-0.01	0.13	1.00															
4 compan	9.48**	0.54**	0.27**	1.00														
5 conflict	-0.03	0.07	0.87**	0.24**	1.00													
6 intimacy	0.56**	0.58**	0.15*	0.53**	0.11	1.00												
7 intrumaid	0.57**	0.51**	0.21**	0.56*	0.23*	0.42**	1.00											
8 nurture	0.61**	0.64**	0.31**	0.70**	0.28**	0.51**	0.70**	1.00										
9 relatpow	0.17*	0.13	0.15*	0.14	0.20**	0.13	0.11	0.11	1.00									
10 reliablali	0.50**	0.48**	-0.18*	0.25**	-0.15*	0.38**	0.31*	0.31*	0.13	1.00								
11 nri_tot	0.72**	0.76**	0.49**	0.79*	0.48*	0.70**	0.74*	0.84**	0.36**	0.36**	1.00							
12 ssqatot	0.22**	0.21**	-0.20**	0.09	-0.18*	0.19*	0.14	0.10	0.07	0.40**	0.12	1.00						
13 ssqbtot	0.11	0.14	0.03	0.22**	-0.06	0.08	0.10	0.12	0.03	0.08	0.14	0.31*	1.00					
14 trait EI	0.25**	0.18*	-0.20**	0.07	-0.20**	0.19*	-0.03	-0.02	0.10	0.14	0.06	0.32**	0.09	1.00				
15 A	0.07	-0.02	-0.15*	-0.01	-0.11	0.15*	-0.05	-0.06	0.00	0.01	-0.03	0.15*	0.00	0.55**	1.00			
16 ES	0.04	0.01	-0.30**	0.07	-0.21**	0.04	-0.04	0.01	0.00	0.21**	-0.06	0.19*	0.23**	0.28**	0.09	1.00		
17 E	0.22**	0.16*	-0.14	0.03	-0.08	0.11	0.08	0.01	0.12	0.15*	0.09	0.33**	0.06	0.46*	0.31**	0.28**	1.00	
18 I	0.21**	0.20**	-0.06	0.14	-0.08	0.12	0.05	0.09	0.09	0.05	0.12	-0.03	-0.11	0.28**	0.13	-0.02	0.28**	1.00
19 C	0.01	-0.12	-0.22**	-0.05	-0.21**	-0.03	-0.19*	-0.15*	-0.06	0.17*	-0.17*	0.10	0.17*	0.20**	0.04	0.26*	0.00	-0.06

**Correlations significant at $p < .01$, *Correlations significant at $p < .05$

Partial correlation analysis was carried out on the data in order to control for the effects of the big five factors of personality. Table 3.3 displays the results from the partial correlations, in which the effects of all five factors of personality were partialled out. When controlling for the effects of personality trait EI showed a significant positive correlation with admiration, but was no longer significantly correlated with any of the other NRI subscales or the SSQ3. The NRI was still significantly positively correlated with all ten of its subscales. In fact, the correlation coefficients increased for all ten of the subscales. The largest increase was between the total NRI score and reliable alliance, which was previously the lowest correlation, and the correlation coefficient increased by 0.06 to from .36 to .42. Interestingly, after controlling for personality, the total NRI score was significantly correlated with both the SSQ3a ($r = .16$, $p < .05$) and the SSQ3b ($r = .22$, $p < .01$). Controlling for the effect of personality also changed some of the inter-correlations among the NRI subscales. Relative power no longer showed a significant correlation with admiration ($r = .13$, $p = .11$), but it was significantly correlated with companionship ($r = .17$, $p < .05$). Also reliable alliance was no longer significantly correlated with either antagonism ($r = -.06$, $p = .45$) or conflict ($r = -.02$, $p = .77$).

The correlations between the SSQ3 and some of the NRI subscales were also altered when controlling for the effects of personality. The SSQ3a no longer showed a significant correlation with either antagonism ($r = -.09$, $p = .27$) or conflict ($r = -.10$, $p = .21$). The SSQ3a and nurturance showed a significant positive correlation when controlling for personality ($r = .16$, $p < .05$). The partial correlations between the SSQ3a and SSQ3b and instrumental aid were significant ($r = .20$, $r = .19$, $p < .05$). Unexpectedly, when controlling for

the effects of personality, the SSQ3a and the SSQ3b were no longer significantly correlated (r = .11, p = .19).

Table 3.3 - Partial correlations controlling for the effects of the big five factors of personality

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 admiration	1.00												
2 affect	0.84**	1.00											
3 antagonism	0.04	0.15	1.00										
4 compan-ship	0.52**	0.56**	0.30**	1.00									
5 conflict	0.04	0.12	0.87**	0.25**	1.00								
6 intimacy	0.58**	0.62**	0.18*	0.54**	0.13	1.00							
7 inst aid	0.61**	0.55**	0.20*	0.59**	0.20*	0.50**	1.00						
8 nurturance	0.66**	0.68**	0.31**	0.70**	0.25**	0.56**	0.71**	1.00					
9 relative power	0.13	0.10	0.26**	0.17*	0.32**	0.15	0.09	0.14	1.00				
10 reliable alli	0.49**	0.50**	-0.06	0.30**	-0.02	0.43**	0.37**	0.39**	0.07	1.00			
11 NRI total	0.75**	0.77**	0.51**	0.79**	0.48**	0.72**	0.75**	0.85**	0.39**	0.42**	1.00		
12 ssq3a	0.18*	0.20*	-0.09	0.13	-0.10	0.21**	0.20*	0.16*	-0.02	0.33**	0.16*	1.00	
13 ssq3b	0.14	0.14	0.15	0.28**	0.04	0.14	0.19*	0.15	0.08	-0.00	0.22**	0.11	1.00
14 trait EI	0.19*	0.14	-0.03	0.04	-0.06	0.08	0.07	0.05	0.06	0.02	0.09	0.15	0.01

** Correlations significant at $p < 0.01$, * Correlations significant at $p < 0.05$

3.2.3 Regression analysis

Hierarchical regression analysis was performed on the data to investigate the incremental validity of trait EI over personality in predicting social network quality and size scores. Each of the social network quality and size variables were investigated in three steps. The first block was age and sex, the second block was the five personality factors, and the third block added trait EI. The reason for including personality in the second block, before trait EI, was to determine if trait EI was able to explain significant variance of the outcome variables beyond what was explained by the big five factors of personality. The regressions were run for all ten of the NRI subscales, the total NRI score, and both of the SSQ3 scores.

The first regression run was for the admiration subscale of the NRI as the dependent variable. In the first step age and sex were added, though they were not significant predictors (R^2_{adj} = .00). The second step, in which the personality factors were added, also did not indicate any of the variables to be significant predictors (R^2_{adj} = .029). Trait EI was included in the third step, and was approaching significance as a predictor for admiration (R^2_{adj} = .049, F (1, 122) = 3.51, p = .06, standardized beta = .23).

The regressions for both conflict and intimacy showed only the first block to be a significant predictor. For conflict the R^2_{adj} = .081 (p = .002) for sex and age, though neither personality nor trait EI showed as significant predictors. The same was true for intimacy where the R^2_{adj} = .045 (p = .018).

The variables in the first two blocks were significant predictors for both antagonism and the SSQ3a. Antagonism showed an R^2_{adj} = .105 (p < .001) for age and sex, and the personality factor block showed an R^2_{adj} = .16 (p = .03). The third block, which added trait EI to the model, was not significant. The results were similar for the SSQ3a which had an R^2_{adj} = .11 (p < .001) for the first block, and the second block had an R^2_{adj} = .276 (p < .001), and a non-significant results for the third block. Reliable alliance also showed sex and age to be significant predictors with the R^2_{adj} = .031 (p = .049) for the first block, and the personality factors in the second block approaching significance as predictors with the R^2_{adj} = .076 (p = .055). The SSQ3b did not have a significant result for the first block, but the R^2_{adj} = .11 (p = .001) for the second block, indicating that personality is a significant predictor of the total SSQ3b score. Neither reliable alliance nor the SSQ3b had a significant result with the addition of trait EI in the third block.

The regression run for companionship showed the first block, sex and age, to be a significant predictor (R^2_{adj} = .05, p = .014). The personality factors in the second block were also significant predictors (R^2_{adj} = .098, p = .043), though trait EI did not have a significant result in the third block. Investigation of the coefficients showed that the standardized beta for participants age was -.242 (p = .005), while the standardized beta for sex was non-significant (β = .087, p > .3). This is in keeping with the t-test results, presented earlier, which demonstrated a non significant result for gender differences.

Similar results were displayed with both nurturance and the total NRI score. The first block of the regression analysis for nurturance showed a significant

results (R^2_{adj} = .068, p = .004). The second and third blocks did not demonstrate a significant predictor for nurturance. As with companionship, examination of the coefficients showed a significant standardized beta for age as -.281 (p = .001), and the standardized beta for sex as non-significant (β = .068).

The total NRI score exhibited a significant result with the first block of the regression analysis (R^2_{adj} = .084, p = .002). The results for the second and third blocks were non-significant results with the NRI total. As with both companionship and nurturance, investigation of the coefficients for the total NRI score showed a standardized beta of -.314 (p < .001) for age, but sex was clearly non-significant with the standardized beta of .033. Both the total NRI score and nurturance had non-significant results for the previously presented t-test looking at sex differences.

The regressions run for affection, instrumental aid, and relative power showed no significant results. None of the variables were significant predictors of the overall score for these two NRI subscales.

Given that trait EI was not a significant predictor for any of the social network variables; a hierarchical regression analysis was run looking at age and sex in the first block, and the five personality factors in the second block. The regression analysis showed a significant result for sex and age in the first block (R^2_{adj} = .154, p < .001). The personality factors in the second block were also significant predictors of trait EI (R^2_{adj} = .501, p < .001). Overall, sex, age, and personality are able to predict more than 50% of the variance of trait EI.

Table 3.4 – Results of multiple regression analysis

		R²	R²adj	R² change	F change	df1	df2	Sig. F change
Admiration								
	1	0.02	0.00	0.02	1.16	2	128	0.32
	2	0.08	0.03	0.06	1.71	5	123	0.14
	3	0.11	0.05	0.03	3.51	1	122	0.06
Affection								
	1	0.01	0.00	0.01	0.98	2	130	0.38
	2	0.08	0.03	0.06	1.73	5	125	0.13
	3	0.10	0.04	0.02	2.95	1	124	0.09
Antagonism								
	1	0.12	0.11	0.12	8.74	2	130	0.00
	2	0.20	0.16	0.08	2.65	5	125	0.03
	3	0.20	0.15	0.00	0.12	1	124	0.73
Companionship								
	1	0.06	0.05	0.06	4.45	2	129	0.01
	2	0.15	0.10	0.08	2.37	5	124	0.04
	3	0.15	0.09	0.00	0.54	1	123	0.47
Conflict								
	1	0.09	0.08	0.09	6.79	2	130	0.00
	2	0.16	0.11	0.07	2.00	5	125	0.08
	3	0.17	0.11	0.01	0.80	1	124	0.37
Intimacy								
	1	0.06	0.05	0.06	4.14	2	130	0.02
	2	0.11	0.06	0.05	1.53	5	125	0.18
	3	0.12	0.06	0.00	0.66	1	124	0.42
Inst. Aid								
	1	0.03	0.01	0.03	1.95	2	130	0.15
	2	0.07	0.02	0.04	1.17	5	125	0.33
	3	0.07	0.01	0.00	0.00	1	124	0.98
Nurturance								
	1	0.08	0.07	0.08	5.76	2	129	0.00
	2	0.12	0.07	0.03	0.93	5	124	0.46
	3	0.12	0.06	0.00	0.04	1	123	0.84
Relat. Pow.								
	1	0.00	-0.01	0.00	0.09	2	130	0.91
	2	0.02	-0.03	0.02	0.53	5	125	0.76
	3	0.03	-0.03	0.01	1.48	1	124	0.23
Reli. Alli.								
	1	0.05	0.03	0.05	3.08	2	128	0.05
	2	0.13	0.08	0.08	2.24	5	123	0.05
	3	0.13	0.08	0.01	0.90	1	122	0.34
NRI_tot								
	1	0.10	0.08	0.10	6.85	2	126	0.00
	2	0.13	0.07	0.03	0.76	5	121	0.58
	3	0.13	0.08	0.01	1.08	1	120	0.30
SSQ3a								
	1	0.12	0.11	0.12	9.15	2	130	0.00
	2	0.31	0.28	0.19	6.97	5	125	0.00
	3	0.32	0.28	0.01	1.88	1	124	0.17
SSQ3b								
	1	0.01	-0.01	0.01	0.48	2	127	0.62
	2	0.16	0.11	0.15	4.38	5	122	0.00
	3	0.16	0.10	0.00	0.00	1	121	0.96

Step 1: Sex and Age; Step 2: Sex, Age, and Personality Factors, Step 3: Sex, Age, Personality, Trait EI

After running the regression analysis with personality in block two in order to determine if trait EI explained significant variance of the outcome variables beyond what was explained by personality, a second set of regression analyses was carried out with trait EI in block two. In the second set of regression analyses, sex and age remained in the first block, trait EI was in the second block, and the personality factors were in the third block. In this second set of analyses, the result which differed from the first set of analyses showed trait EI to be a significant predictor of admiration (R^2adj = .05, p < .01), intimacy (R^2adj = .07, p = .03), and the SSQ3a (R^2adj = .19, p < .001). Meanwhile, personality in the third block remained insignificant for admiration and intimacy, and was significant for the SSQ3a (R^2adj = .28, p = .001). Essentially, these results further indicate that while trait EI does explain significant variance of some of the outcome variables, it does not seem to be beyond what is explained by personality.

3.3 Study One Discussion

The aim of this study was to investigate the relationships amongst trait EI, personality, and social network quality and size. Trait EI has previously been linked with social network size (Austin et al., 2005; Ciarrochi et al., 2001; Palmer et al., 2002). The relationship between trait EI and personality has been addressed in previous research (Petrides & Furnham, 2001; Petrides et al., 2007) and the results from this study are similar to previously found correlations between trait EI and personality.

The results from this study indicate that trait EI was significantly correlated with social network quality and size. It had significant positive relationships

with the social network quality subscales of admiration, affection, intimacy, and social network size as measured by the SSQ3a. It also showed significant negative correlations with antagonism and conflict, as would be expected.

An interesting, and rather surprising, result was that both the SSQ3a and the SSQ3b showed a significant relationship with the total NRI score after controlling for personality, but not before. In addition, the SSQ3a was also significantly correlated with five of the ten NRI subscales both before and after controlling for personality. Admiration, affection, intimacy, antagonism, and conflict were all significantly related to social network size (antagonism and conflict demonstrating the expected significant negative relationships with the SSQ3a). The SSQ3b was only significantly related to companionship both before and after controlling for personality. The lack of significant relationships between the NRI and the SSQ3, prior to controlling for personality, clearly indicates that the big five factors of personality affect the relationship between the two social network measures. After all, it would seem reasonable to expect that an individual who reports high levels of interaction with a significant member of his/her social network on the NRI would also report satisfaction overall with his/her social network.

Personality was also significantly correlated with both social network quality and size. Antagonism and conflict showed significant negative correlations with Emotional Stability and Conscientiousness, while just antagonism showed a significant negative correlation with Agreeableness. Interestingly, Agreeableness and Emotional Stability both show fairly strong correlations with trait EI. Agreeableness also showed a significant positive

relationship with intimacy, one of the NRI subscales correlated with trait EI.
Extraversion showed a strong positive correlation with trait EI as well as
with admiration and affection, which were also significantly correlated with
trait EI. Admiration and affection also displayed significant relationship
with Intellect/Imagination. Another interesting result indicated that the
SSQ3a, measuring social network size, was significantly positively related to
Agreeableness, Extraversion, and Emotional Stability, all of which had
moderate to large correlations with trait EI. In addition, regression analysis
indicated that sex, age, and personality predicted 27.6% of the variance in
the SSQ3a scores, but trait EI was not a significant predictor. Overall, while
these results do provide evidence in support of the first hypothesis, they also
show that all five of the personality factors were related to social network
quality.

Trait EI was significantly correlated with social networks before partialling
out the effects of personality. However, after controlling for personality,
trait EI maintained its significance with only one subscale of the NRI:
admiration. Multiple regression analysis was performed in order to
determine which of the variables were significant predictors.   The
regression analysis indicated that trait EI was approaching significance as a
predictor of admiration with an R^2adj = .049 (p = .06). Interestingly, despite
significant positive correlations with both Extraversion and
Intellect/Imagination, none of the personality factors were significant
predictors of admiration in the regression analysis. This result is
particularly worthy of note given the question of the incremental validity of
trait EI over personality that was discussed in the first chapter (Austin et al.,
in press: Petrides & Furnham, 2001; Petrides et al., 2007). This result seems

to indicate that trait EI is able to explain an additional portion of the variance of admiration beyond what is explained by personality.

EI is conceptually linked to social competence and would be expected to correlate with social network factors, and previous research has indicated a significant relationship between trait EI and social network quality and size (Austin et al., 2005; Ciarrochi et al., 2001; Palmer et al., 2002).   In the current study trait EI was found to correlate significantly with measures of both social network quality and size, however, other than the admiration subscale of the NRI, trait EI did not maintain significant correlations with the social network variables after controlling for personality.   In addition, none of the variables were shown to be significant predictors of the admiration subscale in multiple regression analysis (though trait EI was approaching significance when it was in the third block of the regression analysis, and did display significance in the second set of analyses in which it was in the second block). This perhaps suggests that trait EI is not able to explain additional variance in social network variables above and beyond the Big Five. Yet there is considerable face validity to the concept that an individual with skills in emotion perception (both in the self and others), emotion management, and able to utilize social skills (all of which are characteristics of trait EI) would have successful and satisfactory social networks. Also, the results indicate that the personality factors most strongly correlated with trait EI (Agreeableness, $r = 0.55$ and Extraversion, $r = 0.46$) are also significantly correlated with the social network variables with which trait EI is significantly correlated. Hierarchical regression analysis also indicated that sex and age accounted for approximately 15% of the variance of trait EI, while the big five factors of personality accounted for an additional 35%, for

a total R^2_{adj} = 0.501. Therefore, the second experimental hypothesis, stating that trait EI will maintain a significant relationship with social network quality and size after controlling for personality, must be rejected.

The results of this study suggest a number of directions for future studies. The research discussed in the previous chapter indicated that trait EI was positively related to rational and adaptive coping, while being significantly negatively correlated with emotional and maladaptive coping (Mavroveli et al., 2007; Saklofske et al., 2007). Possibly EI acts to mediate the effects of stressful events, if it can be used to "guide future behaviour from information about feelings and emotions, as well as… mentally regulate negative or extreme emotional state" (Austin et al., in press, p 20). It could conceivably be used in a manner similar to a coping mechanism as a buffer to life stress in a way that would mitigate a negative mood state, such as depression. Previous research has indicated that individuals who are experiencing a depressed mood will seek out social support as a coping mechanism (Ravindran et al., 2002). Given this, it may be that social networks affect the relationship between life stress and depression. Also, perhaps with regards to social networks it is ability EI which is more related to success given that previous research indicates that ability EI and personality are significant predictors of social network quality (Lopes, Salovey, & Straus, 2003). Given this, a follow-up study was conducted in order to investigate the relationships among trait and ability EI, personality, social network quality and size, life stress, and depression

3.4 Study Two Methods

3.4.1 Study Design

As a follow up to the first study which investigated trait EI, personality, and social network quality and size, a second study was conducted looking at the relationship among all of the variables measured in the first study, as well as ability EI, life stress, and depression. This study was conducted in order to examine how trait and ability EI related to each other, as well as how EI related to personality, social network quality and size, life stress, and depression. This study was a correlational survey design that measured the variables without manipulating them. The participants were recruited both from the volunteer panel at University of Edinburgh and from students at the University of Edinburgh to complete self report measures on all of the variables except ability EI, which is measured using a computer based performance measure.

The hypotheses for this study were:

H1: There will be a significant correlation between trait and ability EI.

H2: Life stress and depression will be significantly correlated.

H3: Neuroticism will be positively correlated with depression and life stress, while both Extraversion and Conscientiousness will show significant negative correlations with both.

3.4.2 Participants

The data from the participants from the first study was brought forward to study 2, and combined with the data from 85 new participants. These were undergraduate and post-graduate students who were recruited from Student and Graduate Employment at the Careers Services (SAGE), and were paid £5 for participation in the study. These new participants were invited to complete all the Study 1 questionnaires. The final sample comprised of a total of 268 participants (199 females, 69 males). As with the first study, the age distribution was very large (18 to 84), due to some of the participants being members of the volunteer panel and some of the participants being students at the University of Edinburgh. For the participants recruited from the volunteer panel (N = 151) the mean age was 59.69 (SD = 14.84), while the student participants (N = 57) had a mean age of 22.24 (SD = 4.92), and 60 of the participants (both from study one and two) did not provide their ages. The two groups are not separated in further analysis.

3.4.3 Procedure

After agreeing to take part in the study, participants were contacted to schedule a testing session and told that they could either complete the Mayer Salovey Caruso Emotional Intelligence Test (MSCEIT) online before coming in for the session, or during the session. When participants arrived at the Psychology department of the University of Edinburgh for their testing session, they were met by the researcher and given a packet of questionnaires that contained: the Schutte et al. (1998) emotional intelligence

scale to assess trait EI, the International Personality Item Pool (IPIP; Goldberg, 1999) to measure personality, the Networks of Relationships Inventory (NRI; Furman & Buhrmester, 1985), and the Social Support Questionnaire 3-item version (SSQ3; Sarason et al., 1987); the Hassles and Uplifts Scale (Kanner et al., 1981) to calculate life stress, and the Beck Depression Inventory (BDI; Beck et al., 1961). The time needed to complete the questionnaires was approximately 20 minutes, while the average time taken to complete the MSCEIT was approximately 45 minutes.

Before completing the questionnaires the participants were all given an informed consent form to sign. In addition, they were provided with an information sheet that included the name and contact information of the researcher, as well as contact information for the Samaritans, in case they became distressed by any content of the study, particularly the questions about life stress and depression.

3.4.4 Measures

3.4.4.1 Ability EI

Ability EI was measured by the Mayer Salovey Caruso Emotional Intelligence Test (MSCEIT) which is a computer based test that looks at the capacity of each individual to recognize the emotions in each given scene or picture. The MSCEIT was designed in order to provide an ability based measure of EI. It is a computer based test that requires participants to look at scenes, pictures, or descriptions and determine which emotions that are depicted or would be useful in a given scenario. The results show an overall

total ability EI score, as well as four scores for subscales designed to measure the four branches of EI identified by Salovey and Mayer (1997): perceiving, facilitating, understanding, and managing emotions. These four branches are given as the four factors of ability EI, measured using a hierarchical structure that is similar to those used in cognitive intelligence tests (Austin et al., in press). Essentially, the MSCEIT model results in the total EI score, then two main areas of ability EI: experiential, which is related to the ability of an individual to identify and integrate emotions, and strategic, which is the area related to understanding and managing emotions. The two areas are then divided into the four branches, perceiving emotions and facilitating thought for experiential ability EI, and understanding and managing emotions make up strategic ability EI.

The method that will be used in this study for scoring of the MSCEIT is consensus scoring (for further discussion of consensus scoring, please refer to chapter one). The developers of the test, Mayer, Caruso, and Salovey, report that the MSCEIT is meant to be similar to a cognitive intelligence test in that it requires people to solve problems/puzzles. The face task may seem to be the most related to recognizing emotions, though the tasks for the other branches are meant to be more similar to a traditional intelligence test. The authors of the MSCEIT report the overall split-half reliability for the American consensus scores as $r = 0.93$ and the branches as $r = 0.91$ for perceiving, facilitating $r = 0.79$, $r = 0.80$ for understanding and $r = 0.83$ for managing emotions. Palmer, Gignac, Manocha, and Stough (2005) report similar split-half reliabilities for the branches with perceiving $r = 0.90$, facilitating $r = 0.73$, understanding, $r = 0.71$, and managing $r = 0.76$. The total ability EI score of the Australian sample showed a correlation of $r = 0.99$ with

the American consensus scores. The scoring is done by Multi-Health Systems (MHS), so researchers who use the MSCEIT receive reports that include the scores for the branches, subscales, and overall EI. This makes it possible to conduct a split-half reliability using the two subscales for each branch, as the items are heterogeneous.   The MSCEIT is currently the only broad-bandwidth measure of ability EI.

3.4.4.2 Life Stress

Life stress was measured by the Uplifts and Hassles Scale (Kanner et al., 1981). This looks at both the positive and the negative life stress of each participant. The participants are invited to fill out a questionnaire that consists of 254 total questions for both positive and negative life stress. Of these questions there are 118 hassles items and 136 uplifts for which participants are requested to self report on a Likert scale how often each event occurred in the past month from 0 being did not happen to 3 extremely often. There are no reverse keyed items and participants receive a total score for hassles and a total uplifts score. Hassles are daily negative life stress items, such as having enough money to pay bills, while uplifts are positive life events that are still a source of stress, such as becoming pregnant. The final question of each section provides a place for the participant to write in and rate hassles or uplifts that were not previously mentioned. A copy of the Uplifts and Hassles Scale (Kanner et al., 1981) is provided in the Appendix.

In the original study the test-retest reliability was assessed over a nine-month period (Kanner et. al, 1981). The frequency of the hassles scale

resulted in a correlation coefficient of r = 0.79 while for the uplifts scale r = 0.72. There was a lower correlation coefficient for both scores for the intensity, though that is not surprising given that the ratings are for the previous month and events causing life stress are fairly prone to change.

Studies have also indicated that there is a relationship between life stress, as measured by the Uplifts and Hassles scale, and depression scores (Clark & Oates, 1995; Ravindran, Matheson, Griffiths, Mirali, & Ansiman, 2001; Williams et al., 1995). These studies looked at the relationship among uplifts and hassles and other variables, such as depression, in a variety of samples, from undergraduate students, nurses, and people in out-patient therapy for depression or dysthymia.

Clark and Oates (1995) used the Uplifts and Hassles scale to measure life stress in a study looking at how major and minor life stress events related to depression. This study of ninety-four undergraduate students was designed to investigate if daily hassles significantly predict depressed mood in different cognitive-personality traits. Though the internal reliability of the Uplifts and Hassles scale was not reported, the results of the study did indicate a significant correlation between the Hassles scale and the Beck Depression Inventory (Clark & Oates, 1995).

In a study of "symptoms of depression among female nursing students" Williams et al. (1995) used the Uplifts and Hassles scale to measure life stress. This study assessed 408 female nursing students, and reported the Cronbach's alpha coefficient for the Uplifts and Hassles scale to be 0.90. The results of this study also indicated that the Hassles scale had both a direct

effect on depression and also an effect on depression through its effect on coping strategies, particularly evasive coping (Williams et al., 1995). The Uplifts portion of the scale had a significant relationship with confrontive coping, which in turn had a negative relationship with depression.

Ravindran et al. (2002) conducted a study of outpatients at a mood disorder clinic looking at depression, coping, and life stress as measured by the Uplifts and Hassles scale. The results of the study indicated a significant difference in the perception of daily hassles between the control group and the participants attending the mood disorder clinic. Also, those participants who were attending the mood disorder clinic were more likely to use emotion coping strategies as opposed to cognitive coping strategies. The most common emotion coping strategy was "emotional expression/social support seeking" (Ravindran et. al, 2002, p. 125). Ravindran et al. concluded that depressive symptoms were associated with elevated perception of daily hassles, as well as social support seeking.

The Uplifts and Hassles scale was chosen for the current study due to previous research linking the results significantly with depression scores. Also, the previous research discussed above, looked at daily life stressors and their relationship to coping strategies. Though the current study is not looking specifically at coping strategies, it is looking at EI and social networks as variables that may affect the relationship between life stress and depression. Therefore, the Uplifts and Hassles scale was chosen as an appropriate measure of life stress.

3.4.4.3 Depression

Depression was measured by the Beck Depression Inventory (BDI), a 21-item self report measure of depressed mood (Beck et al., 1961). Participants are asked to respond on a scale or 0 to 3 for each item regarding how they have felt over the past 2 weeks. For example, the sadness item is scored as follows:

- (0) I do not feel sad.

- (1) I feel sad.

- (2) I am sad all the time and I can't snap out of it.

- (3) I am so sad or unhappy that I can't stand it.

The strength of response increases as the numbers increase. The total score is determined by summing all the responses, with possible results being from 0 to 63. Scores 9 and below are considered not depressed, 10-18 is consistent with mild depression, a score of 19-29 indicates moderate depression, and a score of above 30 indicates severe depression. Participants in this study were given contact information not only for the primary researcher as well as the Samaritans who provide confidential support at no cost, as well as being advised to contact their GP if they were feeling worried about things. A copy of both the BDI (Beck et al., 1961) and the participant consent form are provided in the Appendix.

There has been a great deal of research conducted using the BDI to measure depressive symptoms since its origin in 1961. A recent search on PsychINFO revealed 6768 results of studies that had used the BDI both for clinical and

non-clinical samples. Therefore, a discussion of the reliability of the BDI will be confined in this situation to a meta-analysis of twenty-five years of research utilizing the BDI (Beck, Steer, & Garbin, 1988). This study found that over 25 years of studies the mean alpha reliability for non-clinical samples was 0.81 (range = 0.73 to 0.92), with clinical samples having an even higher reliability of 0.86 (range = 0.76 to 0.95). Concurrent validity was also reported with a large mean correlation (r = 0.76) between the BDI and the Zung Self-reported Depression scale for clinical populations and a mean correlation coefficient of r = 0.71 for a non-clinical sample. The overall conclusions of this study were that the BDI is both reliable and valid.

The BDI was chosen for the current study due to the wide ranging use in previous research. The meta-analysis discussed above indicates that the BDI is an appropriate measure of depressive symptoms in a non-clinical sample.

3.4.5 Supplementary Study

3.4.5.1 The Test of Emotional Intelligence (TEMINT)

Shortly after the conclusion of Study 2, a second follow-up was conducted in order to investigate the relationship between the "Test of Emotional Intelligence" (TEMINT; Schmidt-Atzert & Buhner, 2002) and both the MSCEIT and Schutte et al. (1998) EI measures. The TEMINT became available in an English version after the original study had been completed, and therefore the follow up study was carried out in order to determine how this new, public domain, ability EI test related to both trait EI and the current most popular measure of ability EI, the MSCEIT. Although it was

not part of the initial study, the release of an English version of the TEMINT resulted in a subset of participants completing it in order to compare the results to the results of the other EI measures.

The TEMINT is a paper based ability EI test developed in 2002 by Schmidt-Atzert and Buhner in which twelve scenarios are described and participants are requested to rate the strength of different emotions felt by the person in the scenario. Each scenario lists ten emotions: dislike, anger, fear, unease, sadness, guilt, happiness, pride, affection, and surprise. The participants are asked to rate all of the emotions listed above on a three point scale (not at all to very weak, weak to medium, strong to very strong). The type of scoring used for the TEMINT is target scoring, which means that the person described in the scenario is the target, and the participant is asked to identify the extent to which the target person is feeling each emotion. A more detailed discussion of target scoring can be found in chapter one. The following scenario is the example given on the TEMINT (Schmidt-Atzert & Buhner, 2002), and a full copy of the TEMINT can be found in the Appendix:

Female Student, 24 years
"I have failed an important exam and therefore have to retake it"
Put yourself in the position of the 24-year-old student.
How strongly did she feel? Please check the box for each emotion.

The TEMINT has only recently been translated into English from its original German format. Amelang and Steinmayr (2006) reported the TEMINT as showing "low to moderate correlations with personality constructs and intelligence (Kapp-Rudolph, 2003; Schmidt-Atzert & Buhner, 2002)

comparable to those coefficients found for the MSCEIT" (Amelang &
Steinmayr, 2006). To date, however, there has not been a study conducted
which looks directly at the correlation between the TEMINT and more
established EI measures. To this end, the participants who took part in the
ability EI, life stress, and depression study and had completed both the
Schutte et al. (1998) trait EI measure and the MSCEIT were contacted and
requested to complete the TEMINT. A total of thirty participants completed
the TEMINT in order to assess its relationship with the other EI measures.

3.5 Study Two Results

3.5.1 Results

The results reported in this section will be for both the second study
conducted, as well as the combined results for the first and second study (n =
268). The internal reliabilities and descriptive statistics given for trait EI,
personality, and social network quality and size are for the combined results.
The results given for life stress, depression, and the MSCEIT will be from the
second study only, with the TEMINT results being from the follow-up study
conducted in order to examine how it related to more widespread measures
of EI.

3.5.2 Descriptive statistics and sex differences

Internal reliabilities for all of the scales were assessed using Cronbach's
alpha. All of the scales showed acceptable alpha levels of above .75, with the
exception of the TEMINT that showed an internal reliability of standardized

items of .65. However, the alpha for the TEMINT was based on a small sample of N = 30. The Uplifts and Hassles scales showed particularly high alpha levels of .96 and .97, respectively. Table 3.5 illustrates the internal reliability for all of the measures used.

Table 3.5 – Cronbach's alphas for all measures

	Cronbach's standardized α
BDI	0.90
NRI	0.91
Hassles	0.97
IPIP	0.86
Schutte EI scale	0.90
SSQ3	0.78
TEMINT	0.65
Uplifts	0.96

Table 3.6 shows descriptive statistics for total depression score based on the BDI, hassles and uplifts, the big five factors of personality, trait EI, the MSCEIT total and branches, the total NRI and its subscales, and the TEMINT. Some of the scale totals are a bit lower both because of missing data and because some of the data was collected in both the first and second study, while some of the data was only collected in the second study. Therefore, the descriptives for trait EI, personality, the NRI, and the SSQ3 are all based on the combined data from the first and second study, while the BDI and Uplifts and Hassles scales are based on the participants recruited to take part in the second study (N = 85). However, due to budgetary constraints the MSCEIT total N = 78. The TEMINT results are based on a follow-up study (N = 30). For a chart illustrating the recruitment of participants for these

studies, please see Figure 1, at the beginning of this chapter. The descriptive statistics for the whole sample, as well as sex specific means and standard deviations and t-test results can all be found in Table 3.6.

The means for those variables measured in both studies are largely similar to the means found in study one. The mean age of participants for this study dropped to 40.6, compared to 48.3 in study one, although this difference is only about a third of a standard deviation.

An independent samples t-test was carried out in order to determine if there were significant gender differences and given that Levene's test for equality of variances was non-significant for all of the variables, equal variance was assumed. A Bonferroni correction was applied to the NRI and its subscales for the multiple comparisons (.05/11), so the significance level was found to be $p < .0045$. As in the first study, significant sex differences were shown in only two variables, intimacy and overall trait EI, but after Bonferroni correction only trait EI remained significant. Agreeableness and Intellect/Imagination were significantly higher in women, as was trait EI ($t(265) = 3.88$, $p < .001$). The SSQ3a also showed a significantly higher mean for females ($t(266) = 2.33$, $p < .05$). Interestingly, while the MSCEIT did not display significant sex differences, the results did indicate that the TEMINT showed females having significantly higher EI.

Table 3.6 - Descriptive statistics for the entire sample, sex specific means and standard deviations, and t-test results

	N	Total Mean (SD)	Female Mean (SD)	Male Mean (SD)	t	df	Sig. (2-tailed)
admiration	260	11.19 (2.42)	11.24 (2.44)	11.05 (2.39)	0.57	258	0.57
affection	263	11.53 (2.70)	11.51 (2.67)	11.59 (2.78)	-0.20	261	0.84
antagonism	264	4.59 (2.48)	4.46 (2.49)	4.99 (2.43)	-1.51	262	0.13
companionship	263	9.41 (3.49)	9.30 (3.50)	9.71 (3.46)	-0.82	261	0.41
conflict	264	4.27 (2.48)	4.13 (2.49)	4.66 (2.41)	-1.54	262	0.13
intimacy	263	11.49 (3.09)	11.74 (3.10)	10.75 (2.96)	2.30	261	0.02
intrumaid	263	9.07 (2.80)	9.14 (2.83)	8.88 (2.72)	0.65	261	0.52
nurturance	263	9.54 (3.18)	9.46 (3.10)	9.78 (3.42)	-0.71	261	0.48
relatpower	264	8.92 (1.52)	8.85 (1.57)	9.10 (1.35)	-1.18	262	0.24
reliablealli	263	12.05 (3.01)	12.14 (3.07)	11.81 (2.85)	0.78	261	0.44
nriqualtot	255	89.09 (16.73)	88.85 (16.97)	89.78 (16.11)	-0.39	253	0.70
traitei	264	120.57 (15.11)	122.62 (14.11)	114.54 (16.39)	3.88	262	0.00
ssqatotal	268	13.48 (6.77)	14.05 (6.68)	11.86 (6.83)	2.33	266	0.02
ssqbtotal	264	9.68 (2.68)	9.67 (2.61)	9.71 (2.88)	-0.10	262	0.92
bditotal	85	7.08 (7.27)	7.34 (7.73)	6.52 (6.28)	0.49	83	0.63
hassletot	82	67.73 (43.50)	66.81 (44.50)	69.84 (41.92)	-0.29	80	0.77
uplifttot	82	184.54 (54.26)	186.38 (48.67)	180.78 (65.03)	0.40	40.78	0.69
MSCEIT	78	95.87 (10.94)	95.99 (11.36)	95.58 (10.15)	0.15	76	0.88
TEMINT	30	63.60 (10.06)	60.82 (8.95)	71.25 (9.39)	-2.79	28	0.01
A	268	40.22 (5.79)	41.25 (5.22)	37.28 (6.37)	5.14	266	0.00
C	268	34.73 (6.30)	34.65 (6.46)	34.94 (5.86)	-0.33	266	0.74
ES	268	30.35 (7.59)	29.90 (7.56)	31.65 (7.60)	-1.66	266	0.10
E	267	32.07 (7.01)	32.42 (7.15)	31.03 (6.53)	1.42	265	0.16
I	267	36.72 (5.63)	36.31 (5.76)	37.90 (5.11)	-2.03	265	0.04

3.5.3 Correlations

The correlations among personality, trait and ability EI, social network quality and size, life stress, and depression are all given in Table 3.7. Cohen's effect sizes for correlations will be used to classify the size of the correlations (small = .1 to .29, medium = .3 to .5, and large = > .51). The personality factors showed some small but significant intercorrelations. Conscientiousness showed a small significant correlation with Emotional Stability (r = 0.266). Extraversion showed a small significant correlation Emotional Stability (r = 0.245) and medium sized correlation with Agreeableness (r = 0.343). Imagination also showed a small significant correlation with Agreeableness (r= 0.209).

Conscientiousness showed a small significant positive association with reliable alliance. It also had small significant negative relationships with the total NRI score, antagonism, and conflict. Both the BDI and total hassles score showed a medium effect size for their negative significant correlations with Conscientiousness. Emotional Stability had small significant positive effects with the SSQ3a, SSQ3b, reliable alliance, and the total uplifts score. The significant negative correlations between Emotional Stability and both antagonism and conflict both had small effect size. Emotional Stability also showed a large significantly negative relationship with the BDI, as would be expected. Extraversion had significant small positive relationships with the total NRI score, admiration, affection, and intimacy. The significant positive correlation between uplifts and Extraversion demonstrated a medium effect size. Intellect/Imagination exhibited a small effect size for its significant positive correlations with the total NRI score as well as the admiration, affection, intimacy, relative power, and reliable alliance subscales.

Agreeableness was significantly positively correlated with both intimacy and uplifts and displayed a small effect size for both relationships.

All of the big five factors of personality were significantly and positively correlated with trait EI. Conscientiousness and Intellect/Imagination both had small correlations, Emotional Stability showed a significant correlation at the low end of the medium range. Extraversion and trait EI had a medium correlation, and Agreeableness also showed a medium correlation with trait EI, though toward the high end of the medium range. Trait EI showed small significant positive correlations with both the SSQ3a and the SSQ3B. It also had small significant positive correlations with five of the NRI subscales: admiration, affection, intimacy, relative power, and reliable alliance. Trait EI showed small significant negative correlations with both antagonism and conflict. The BDI had a small negative significant correlation with trait EI. The total uplifts score was significantly positively correlated with trait EI and showed a medium effect.

The SSQ3a and b had a medium positive correlation, as would be expected. The SSQ3a also had small significant positive correlations with the total NRI score as well as the admiration, affection, instrumental aid, intimacy, and nurturance subscales. The significant positive correlation between the SSQ3a and the reliable alliance subscale of the NRI had a medium effect size. Interestingly, the total hassles score had a small significant relationship with the SSQ3a, while the uplifts showed a medium positive correlation. The SSQ3b showed small significant positive relationships with the total NRI score as well as its admiration, companionship, instrumental aid, and nurturance subscales.

The NRI showed the expected part-whole correlation with its subscales, as well as a medium positive correlation with the total uplifts score. Three of the NRI subscales, admiration, instrumental aid, and nurturance, also showed a medium significant positive correlation with the total uplifts score. The significant positive correlation between antagonism and the total hassles score had a small effect size. The hassles score had a medium significantly positive relationship with the BDI. Interestingly, the hassles and uplifts scores showed a significant positive correlation with a medium effect size.

The MSCEIT total score also showed the expected part-whole correlations with the four branches. The perceiving emotions branch showed a small negative correlation with the total uplifts score. Understanding emotions branch demonstrated a small significant correlation with reliable alliance. The managing emotions branch displayed significant positive correlations with the SSQ3b and companionship with a small effect size with both.

Interestingly, the TEMINT demonstrated a large effect size for its significant negative correlations with the SSQ3b, the MSCEIT total score, and both the facilitating thought and managing emotions branches of the MSCEIT. The scoring of the TEMINT is such that a low score means high ability EI. Therefore, high ability EI was significantly correlated with the SSQ3b. Even more interesting is the strong significant relationship between the TEMINT and the MSCEIT, particularly the very strong relationship with the managing emotions branch. These results seem to indicate that the TEMINT is measuring some of the aspects of the MSCEIT subscales which look at how an individual is able to use his/her emotions, as well as how an

individual uses emotions in making decisions for him/herself and with others. It does seem somewhat surprising that there was not a significant relationship between the TEMINT and either the understanding emotions or the perceiving emotions branches of the MSCEIT. Particularly given that the tasks in the understanding emotions branch of the MSCEIT are somewhat similar to those in the TEMINT, as in, the participant is asked to read a scenario and determine which emotions are present.

Table 3.7 – Correlations among EI, personality, social network quality and size, life stress, and depression

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1 admirat	1.00																										
2 affection	0.79**	1.00																									
3 antagon	0.02	0.13*	1.00																								
4 compan	0.43**	0.50**	0.28**	1.00																							
5 conflict	0.01	0.11	0.84**	0.25**	1.00																						
6 intimacy	0.55**	0.58**	0.11	0.47**	0.08	1.00																					
7 intrumaid	0.57**	0.48**	0.19**	0.52**	0.22**	0.39**	1.00																				
8 nurtur	0.59**	0.61**	0.29**	0.64**	0.28**	0.48**	0.67**	1.00																			
9 relatpow	0.19**	0.16**	0.12*	0.15*	0.19**	0.11	0.10	0.16**	1.00																		
10 reli_alli	0.46**	0.42**	-0.17**	0.18**	-0.15*	0.30**	0.25**	0.26**	0.17**	1.00																	
11 nri_tot	0.72**	0.75**	0.49**	0.75**	0.49**	0.67**	0.72**	0.83**	0.38**	0.31**	1.00																
12 ssqatot	0.26**	0.24**	-0.07	0.09	-0.08	0.21**	0.21**	0.14*	0.12	0.32**	0.20**	1.00															
13 ssqbtot	0.14*	0.17**	0.06	0.19**	-0.01	0.06	0.15*	0.12*	0.09	0.10	0.18**	0.30**	1.00														
14 A	0.12	0.01	-0.12	0.04	-0.10	0.16**	0.01	-0.01	0.02	0.08	0.03	0.16**	0.02	1.00													
15 C	0.01	-0.10	-0.23**	-0.05	-0.21**	-0.04	-0.16*	-0.11	-0.04	0.18**	-0.15*	0.04	0.12*	0.10	1.00												
16 ES	0.02	-0.02	-0.29**	0.05	-0.22**	0.00	-0.02	0.04	0.00	0.24**	-0.08	0.17**	0.18**	0.05	0.27**	1.00											
17 E	0.22**	0.12*	-0.05	0.08	-0.02	0.14*	0.13*	0.04	0.08	0.11	0.14*	0.30**	0.07	0.34**	-0.02	0.25**	1.00										
18 I	0.22**	0.19**	-0.02	0.07	-0.03	0.14*	0.01	0.07	0.13*	0.14*	0.13*	0.01	-0.08	0.21**	0.09	-0.02	0.28**	1.00									
19 bditotal	0.18	0.20	0.05	0.01	0.01	0.20	-0.03	-0.08	-0.01	0.03	0.09	-0.13	-0.11	0.04	-0.33**	-0.52**	-0.04	-0.03	1.00								
20 hasslttl	0.10	-0.10	0.25*	0.12	0.03	-0.05	0.11	0.10	0.04	-0.20	0.12	0.24*	-0.08	-0.01	-0.34**	-0.22	0.14	-0.09	0.34**	1.00							
21 upliftot	0.31**	0.10	0.20	0.12	0.16	0.11	0.34**	0.36**	0.15	0.16	0.32**	0.43**	0.04	0.23*	0.03	0.26*	0.38**	0.08	-0.16	0.33**	1.00						
22 traitei	0.24**	0.13*	-0.14*	0.07	-0.17*	0.18**	-0.02	0.04	0.16*	0.14*	0.08	0.26**	0.12*	0.48**	0.19**	0.31**	0.43**	0.29**	-0.29**	-0.03	0.34**	1.00					
23 TEMINT	0.05	-0.12	0.07	-0.05	0.10	-0.01	0.21	0.01	-0.07	0.03	0.00	0.23	-0.63*	-0.09	0-.22	-0.15	-0.17	-0.04	0.09	0.24	0.11	-0.32	1.00				
24 MSCEIT	0.03	0.09	-0.02	0.16	0.10	0.14	-0.10	0.03	0.19	0.16	0.18	-0.04	0.15	0.00	-0.06	0.02	-0.07	0.07	-0.11	-0.24*	-0.20	-0.02	-0.48**	1.00			
25 faciliting	-0.02	0.01	0.05	0.14	0.14	0.11	0.04	0.06	0.06	0.09	0.17	-0.02	0.16	0.05	0.05	0.02	-0.04	0.00	-0.08	-0.22	-0.16	-0.02	-0.46**	0.69**	1.00		
26 mangng	0.14	0.01	-0.09	0.26*	-0.09	0.13	-0.01	0.05	0.21	0.14	0.16	-0.01	0.27*	0.15	0.05	0.13	0.09	-0.02	-0.15	-0.13	0.12	0.14	-0.74**	0.64**	0.33**	1.00	
27 undrstd	0.02	0.13	-0.01	0.08	0.12	-0.04	-0.14	-0.04	0.15	0.22*	0.08	-0.06	0.03	-0.08	-0.11	-0.06	-0.12	0.13	-0.03	-0.17	-0.22	-0.05	-0.16	0.57**	0.05	0.34**	1.00
28 perceiv	-0.01	0.12	-0.07	0.01	0.06	0.12	-0.15	0.03	0.13	0.06	0.07	-0.03	0.01	-0.07	-0.05	-0.01	-0.14	0.10	-0.05	-0.19	-0.27**	-0.09	-0.19	0.79**	0.48**	0.20	0.30**

** Correlations significant at p < .01, * Correlations significant at p < .05

3.5.4 Partial correlations

Partial correlation analysis was carried out with the data in order to control for the effects of the big five factors of personality. Table 3.8 displays the results of the partial correlation analysis. Partial correlations were carried out before the regression analysis in order to look at how personality affected the other variables, but not just as a predictor. In this way it is possible to see how personality affects the relationships between the other variables. Oddly, after partialling out the effects of personality the BDI showed a large significant positive relationship with reliable alliance, yet the BDI score was no longer significantly correlated to the total hassles score. When controlling for the effects of personality the SSQ3a no longer showed significant correlations with any of the other variables. The results for the SSQ3b were similar, the only significant correlation the SSQ3b showed after controlling for personality was with the TEMINT. The MSCEIT total score also developed a significant positive relationship with reliable alliance which exhibited a medium effect size. The MSCEIT total score was also still significantly negatively correlated with the total hassles score. After controlling for personality the TEMINT continued to show medium to large negative effects with both the SSQ3b and the managing emotions branch of the MSCEIT. Interesting, the TEMINT and MSCEIT no longer showed a significant relationship after partialling out personality. Another interesting result was that the TEMINT developed a significant positive correlation with instrumental aid that exhibited a medium effect size.

Table 3.8 – Partial correlations – controlling for the big five factors of personality: Agreeableness, Conscientiousness, Emotional Stability, Extraversion, and Imagination

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1 admirat	1.00																					
2 affection	0.63**	1.00																				
3 antagon	-0.10	-0.20	1.00																			
4 compan	0.66**	0.61**	0.01	1.00																		
5 conflict	0.20	0.16	0.70**	0.21	1.00																	
6 intimacy	0.65**	0.80**	-0.36	0.52*	-0.07	1.00																
7 inst_aid	0.72**	0.40	-0.25	0.71**	0.14	0.43	1.00															
8 nurtur	0.79**	0.64**	-0.01	0.72**	0.29	0.62**	0.66**	1.00														
9 rel_pow	0.37	0.24	0.16	0.39	0.32	0.15	0.32	0.51*	1.00													
10 rel_alli	0.17	0.23	-0.11	0.14	0.05	0.21	0.00	0.30	0.22	1.00												
11 nri_tot	0.82**	0.74**	0.17	0.84**	0.50*	0.65**	0.69**	0.89**	0.58**	0.21	1.00											
12 bdi_tot	0.39	0.36	-0.45*	0.12	-0.22	0.47*	0.21	0.27	0.20	0.63**	0.22	1.00										
13 facilitat	0.03	0.14	0.05	0.16	0.07	0.23	0.04	0.27	0.36	0.62**	0.24	0.36	1.00									
14 manag	0.03	0.04	-0.09	0.05	-0.13	0.18	-0.04	0.00	0.29	0.10	0.06	-0.01	0.36	1.00								
15 perceiv	0.09	0.19	-0.05	-0.10	-0.21	0.20	-0.13	0.13	-0.14	0.38	0.00	0.24	0.49*	0.07	1.00							
16 undrstn	0.12	0.38	-0.17	0.13	0.02	0.06	-0.13	-0.09	-0.24	0.26	0.02	0.22	-0.23	-0.19	0.08	1.00						
17 MSCEIT	0.13	0.30	-0.04	0.07	-0.08	0.26	-0.11	0.12	0.08	0.56*	0.14	0.29	0.65**	0.51*	0.79**	0.28	1.00					
18 TEMINT	0.30	-0.07	0.09	0.19	0.25	-0.12	0.45*	0.25	0.02	0.02	0.21	-0.16	-0.17	-0.61**	-0.02	0.04	-0.25	1.00				
19 traitei	0.33	0.23	0.06	0.27	0.00	0.27	0.02	0.26	0.25	-0.10	0.29	0.34	-0.04	-0.11	-0.16	0.02	-0.19	-0.15	1.00			
20 ssqa	0.05	-0.02	0.35	0.32	0.31	-0.18	0.31	0.06	0.12	0.01	0.23	-0.17	-0.08	0.01	-0.35	-0.09	-0.20	0.07	-0.34	1.00		
21 ssqb	0.04	0.25	0.20	0.42	0.34	0.16	0.10	0.13	0.28	0.17	0.35	0.26	0.23	0.13	-0.24	0.10	0.03	-0.45*	0.17	0.36	1.00	
22 hassle	-0.14	-0.51*	0.36	-0.37	0.03	-0.48*	-0.24	-0.28	0.05	-0.51*	-0.29	-0.36	-0.54*	-0.14	-0.33	-0.24	-0.48*	0.08	0.24	-0.10	-0.18	1.00
23 uplift	0.24	-0.01	0.27	-0.04	0.29	0.05	0.01	0.32	0.12	-0.21	0.20	-0.24	-0.11	0.26	-0.20	-0.41	-0.22	-0.16	0.21	0.14	-0.14	0.25

** Correlation is significant at the 0.01 level; * Correlation is significant at the 0.05 level

3.5.5 Regression analysis

Hierarchical regression analysis was performed on the data to investigate the incremental validity of trait EI over personality in predicting social network quality and size, life stress, and depression. Each of the dependent variables was investigated in three steps. The first block was age and sex, the second block was the five personality factors, and the third block added trait EI. The regressions were run for all ten of the NRI subscales, the total NRI score, both of the SSQ3 scores, total BDI score, and both hassles and uplifts. The results of the regression analyses are displayed in Table 3.9.

The first regression run was for the admiration subscale of the NRI as the dependent variable. In the first step age and sex were added, they were not significant predictors, though the results were approaching significance (R^2_{adj} = .020, $F(2,197)$ = 3.01, p = .052). In the second step, the personality factors were significant predictors (R^2_{adj} = .057, $F(5, 192)$ = 2.57, p = .028). Trait EI was included in the third step, and was approaching significance as a predictor for admiration (R^2_{adj} = .070, $F(1, 191)$ = 3.60, p = .059).

For seven of the variables on the first block, sex and age were significant predictors. The regression analysis for affection indicated that sex and age were significant predictors (R^2_{adj} = .040, $F(2, 199)$ = 5.14, p < .01). However, neither the personality variables nor trait EI were shown to be significant predictors of affection. The results were similar for intimacy, which also showed only the first block of the regression analysis to be significant (R^2_{adj} = .047, $F(2, 200)$ = 5.95, p < .01). Instrumental aid was also only significantly predicted by sex and age (R^2_{adj} = .046, $F(2, 199)$ = 5.87, p < .01). The

regression analysis of nurturance showed only the first block to significantly predict the nurturance score (R^2_{adj} = .086, $F(2, 199)$ = 10.51, $p < .001$). Companionship also showed significant results with sex and age as predictors (R^2_{adj} = .049, $F(2, 199)$ = 6.16, $p < .01$). Similar results, significance only with the first block, were displayed for the total NRI score (R^2_{adj} =.125, $F(2, 193)$ = 14.91, $p < .001$).conflict. Finally, the conflict score was significantly predicted by the first block of the regression analysis (R^2_{adj} = .057, $F(2, 200)$ = 7.06, $p < .001$), as well as the second block showing a significant results (R^2_{adj} = .09, $F(5, 195)$ = 2.47, $p = .03$)

The regression analysis carried out for antagonism indicated that both of the first two blocks were significant predictors. Sex and age displayed an R^2_{adj} = .075 ($F(2, 200)$ = 9.24, $p < .001$), and the personality factors demonstrated R^2_{adj} = .134 ($F(5, 195)$ = 3.71, $p < .01$). The total SSQ3a score also showed the first two blocks of the regression analysis as significant predictors. Sex and age showed R^2_{adj} = .103 ($F(2,200)$ = 12.66, $p < .001$) and personality R^2_{adj} = .231 ($F(5, 195)$ = 7.65, $p < .001$). In contrast, relative power did not display significant results for either of the first two blocks, but was significantly predicted by trait EI in the third block (R^2_{adj} = .015, $F(1, 194)$ = 7.23, $p < .01$).

The last two social network dependent variables were significantly predicted by the personality factors, but not sex and age or trait EI. Reliable alliance was the only NRI subscale to be predicted only by personality (R^2_{adj} = .062, $F(5, 193)$ = 3.697, $p < .01$). The SSQ3b total was the only other social network variable that only showed significant predictors in the second block of the regression analysis (R^2_{adj} = .058, $F(5, 193)$ = 3.78, $p < .01$).

The results of the remaining variables, life stress and depression, could not be combined with the results from the first study for the regression analysis because the measures for these variables were only completed by the participants who took part in the second study, while the trait EI, personality, and social network quality and size measures were completed by participants in both the first and second studies. Neither the total hassles nor uplifts score displayed significant results with any of the predictor variables: that is, none of the personality traits or sex and age predicted hassles or uplifts. However, the total BDI score was significantly predicted by the personality variables (R^2_{adj} = .229, $F(5, 62)$ = 5.499, $p < .001$). Given that the BDI had developed a significant correlation with reliable alliance after controlling for personality, a second hierarchical regression analysis was run including reliable alliance in the fourth block in order to determine if it was a significant predictor of the total BDI score. The results of the regression analysis indicated that reliable alliance was a significant predictor of the total BDI score (R^2_{adj} = .348, $F(1,60)$ = 9,72, $p < .01$).

Table 3.9 – Hierarchical regression analysis results

		R^2	R^2adj	R^2 change	F change	df1	df2	Sig. F change
Admiration								
	1	0.03	0.02	0.03	3.01	2	197	0.05
	2	0.09	0.06	0.06	2.57	5	192	0.03
	3	0.11	0.07	0.02	3.60	1	191	0.06
Affection								
	1	0.05	0.04	0.05	5.14	2	199	0.01
	2	0.09	0.06	0.05	1.96	5	194	0.09
	3	0.10	0.06	0.00	0.77	1	193	0.38
Antagon								
	1	0.08	0.08	0.08	9.24	2	200	0.00
	2	0.16	0.13	0.08	3.71	5	195	0.00
	3	0.16	0.13	0.00	0.14	1	194	0.71
Compan								
	1	0.06	0.05	0.06	6.16	2	199	0.00
	2	0.09	0.06	0.03	1.26	5	194	0.28
	3	0.09	0.05	0.00	0.01	1	193	0.93

Table 3.9
continued

Conflict		R²	R²adj	R² change	F change	df1	df2	Sig. F change
	1	0.07	0.06	0.07	7.06	2	200	0.00
	2	0.12	0.09	0.06	2.47	5	195	0.03
	3	0.13	0.09	0.01	1.37	1	194	0.24
Intimacy								
	1	0.06	0.05	0.06	5.95	2	200	0.00
	2	0.10	0.07	0.05	2.00	5	195	0.08
	3	0.10	0.07	0.00	0.33	1	194	0.56
Inst_aid								
	1	0.06	0.05	0.06	5.87	2	199	0.00
	2	0.09	0.06	0.04	1.57	5	194	0.17
	3	0.10	0.06	0.00	0.88	1	193	0.35
Nurturance								
	1	0.10	0.09	0.10	10.51	2	199	0.00
	2	0.13	0.10	0.04	1.60	5	194	0.16
	3	0.13	0.10	0.00	0.01	1	193	0.94
Relat_pow								
	1	0.01	0.00	0.01	0.60	2	200	0.55
	2	0.02	-0.02	0.01	0.50	5	195	0.77
	3	0.05	0.01	0.04	7.23	1	194	0.01
Relli_alli								
	1	0.01	0.00	0.01	0.76	2	198	0.47
	2	0.09	0.06	0.09	3.70	5	193	0.00
	3	0.10	0.06	0.00	0.70	1	192	0.40
NRI total								
	1	0.13	0.12	0.13	14.88	2	193	0.00
	2	0.17	0.14	0.03	1.57	5	188	0.17
	3	0.17	0.13	0.00	0.32	1	187	0.57
SSQa								
	1	0.11	0.10	0.11	12.66	2	200	0.00
	2	0.26	0.23	0.15	7.65	5	195	0.00
	3	0.26	0.23	0.00	0.53	1	194	0.47
SSQb								
	1	0.00	-0.01	0.00	0.15	2	198	0.86
	2	0.09	0.06	0.09	3.78	5	193	0.00
	3	0.09	0.05	0.00	0.01	1	192	0.91
Hassles								
	1	0.01	-0.02	0.01	0.30	2	64	0.74
	2	0.15	0.05	0.14	2.01	5	59	0.09
	3	0.15	0.04	0.00	0.12	1	58	0.73
Uplifts								
	1	0.00	-0.03	0.00	0.08	2	65	0.92
	2	0.15	0.05	0.15	2.12	5	60	0.08
	3	0.17	0.06	0.02	1.29	1	59	0.26
BDI_total								
	1	0.00	-0.03	0.00	0.01	2	67	0.99
	2	0.31	0.23	0.31	5.50	5	62	0.00
	3	0.34	0.25	0.03	3.11	1	61	0.08

Step 1: Sex, and Age; Step 2: Sex, Age, Personality Factors; Step 3: Sex, Age, Personality, Trait EI

A second hierarchical regression analysis was performed on the data to investigate the incremental validity of ability EI (measured by the MSCEIT) over personality in predicting social network quality and size, life stress, and depression. The results given in Table 3.10 are from the subset of participants that completed the MSCEIT ($N = 78$). Again, the dependent variables were investigated in three steps with the first block containing age and sex, the second block the personality factors, and the third block including the total MSCEIT score. The results of the regression analysis can be seen in Table 3.10, though only the variables which showed the MSCEIT as a significant predictor are included given that the first two steps are the same. The regressions were run for all ten of the NRI subscales, the total NRI score, both of the SSQ3 scores, total BDI score, and both hassles and uplifts. The results of the regression analysis indicated that the total MSCEIT significantly predicted the variance for three of the variables. Interestingly, both the hassles and uplifts were significantly predicted by the MSCEIT. The total hassles score displayed $R^2_{adj} = .182$ ($F(1, 54) = 6.28$, $p = .015$). The uplifts score was also significantly predicted by the MSCEIT ($R^2_{adj} = .144$, $F(1, 55) = 5.28$, $p = .025$). The regression analysis for intimacy also indicated that the MSCEIT was a significant predictor ($R^2_{adj} = .059$, $F(1,56) = 5.32$, $p = .026$). The MSCEIT was also approaching significance as a predictor variable for the total NRI score ($R^2_{adj} = .089$, $p = .07$). Another set of hierarchical regression analyses were carried out including the branches of the MSCEIT in the third block, but none of the results were significant. The TEMINT was also not a significant predictor of any of the dependent variables. However, this is likely due to the small number of participants who completed the TEMINT.

Table 3.10 – Hierarchical regression analysis results with MSCEIT

	R^2	R^2adj	R^2 change	F change	df1	df2	Sig. F change
Hassles							
1.00	0.03	-0.01	0.03	0.77	2.00	60.00	0.47
2.00	0.20	0.10	0.18	2.48	5.00	55.00	0.04
3.00	0.29	0.18	0.08	6.28	1.00	54.00	0.02
Uplifts							
1.00	0.02	-0.01	0.02	0.54	2.00	61.00	0.59
2.00	0.18	0.08	0.16	2.23	5.00	56.00	0.06
3.00	0.25	0.14	0.07	5.28	1.00	55.00	0.03
Intimacy							
1.00	0.02	-0.01	0.02	0.68	2.00	62.00	0.51
2.00	0.10	-0.01	0.08	1.00	5.00	57.00	0.43
3.00	0.18	0.06	0.08	5.23	1.00	56.00	0.03
NRI-total							
1.00	0.10	0.06	0.10	3.15	2.00	60.00	0.05
2.00	0.16	0.05	0.06	0.80	5.00	55.00	0.55
3.00	0.21	0.09	0.05	3.42	1.00	54.00	0.07

Step 1: Sex and Age; Step 2: Sex, Age, and Personality Factors, Step 3: Sex, Age, Personality, and Ability EI

3.6 Discussion

The aim of this study was to investigate the relationship among trait and ability EI, personality, social network quality and size, life stress, and depression. A follow-up study was conducted in order to investigate the relationship of the MSCEIT to a new ability EI measure, the TEMINT.

The results of the study indicate that the big five factors of personality were correlated with social network quality and size, life stress, and depression. However, only Conscientiousness was significantly related to the total hassles score, with a negative correlation. Conscientiousness also displayed a significant negative relationship with the total BDI score, which was consistent with previous research (Hayes and Joseph, 2002; Petersen et al.,

2001; Rector et al., 2002; Velting, 1998). Emotional Stability was also negatively correlated with the total BDI score, as would be expected from previous findings (Petersen, Bottonari, Alpert, Fava, & Nierenberg, 2001). Agreeableness, Extraversion, and Emotional Stability all exhibited significant relationships with uplifts. Trait EI was again significantly correlated with all of the big five factors, both social network quality and size, uplifts, and negatively with depression, which was also expected. The total MSCEIT score did show a significant negative relationship with hassles, and also, after controlling for personality, with reliable alliance. The perceiving branch was negatively related to the total uplifts score, and the managing emotions branch was positively related to companionship and the SSQ3b score. The understanding emotions branch of the MSCEIT was also positively related to reliable alliance. The TEMINT, a recent paper based ability EI measure, was significantly related to the SSQ3b as well as not only the total MSCEIT score, but also both the facilitating and managing emotions branches of the MSCEIT.

In this study, the total NRI score was significantly related to both the SSQ3a and b, in contrast to the first study in which these relationships were not significant. The SSQ3a was also related to six of the NRI subscales, while the SSQ3b was related to five of them. In addition, the SSQ3a displayed significant relationships with both the hassles and uplifts score. This is not entirely surprising as the size of an individual's social network could result in the causation of both uplifts and hassles. The SSQ3b did not exhibit a significant relationship with either the hassles or uplifts score. This is a particularly unexpected result as the total NRI score was significantly related to uplifts, and one would expect social network quality to be

correlated with uplifts. Overall, the size of social networks is significantly related to life stress, both positive and negative.

The uplifts portion of the Uplifts and Hassles scale was significantly related to personality, social network size, and trait EI. Similar results were shown for the total hassles score which displayed significant relationships with personality, social networks, depression, and ability EI. The BDI initially showed significant correlations with personality, trait EI, social network quality and size, and hassles. Interestingly, trait EI was correlated with uplifts and negatively with the BDI, but the total hassles score was negatively related to ability EI rather than trait EI. This is especially interesting given that the only personality factor with which the hassles score was related was Conscientiousness, which was also negatively related to the BDI. It would seem that perhaps a person who is more conscientious would encounter fewer daily hassles and also experience fewer depressive symptoms. One issue with these results is that the number of people to complete the Uplifts and Hassles scale and the BDI was a bit low, so some of the correlations ($r = < 0.4$) did not reach the level of significance.

The results of the current study indicated that both the SSQ3a and b scores did not continued to show significant relationships with the total NRI score after controlling for the effects of personality. This result is dissimilar to the results of the previous study in which the NRI and both portions of the SSQ3 were significantly related after controlling for personality. The SSQ3b was also still negatively related to ability EI as measured by the TEMINT. However, trait EI did not have a significant relationship with any of the

other variables after controlling for personality, which was similar to the results of the previous study.

The results of the regression analyses were similar to the previous study. In both studies the SSQ3a was significantly predicted by sex and age, and personality. Similarly, the SSQ3b was significantly predicted only by personality in both studies. The regression analysis results for the NRI and its subscales were similar in both studies with a few exceptions. In the first study admiration was not significantly predicted by sex, age, personality, or trait EI (though this relationship was approaching significance). However, in the present study personality was a significant predictor with both sex and age and trait EI approaching significance. Affection displayed significant results with sex and age in the regression analysis for the current study, but was not significantly predicted by any of the variables in the first study. The results for instrumental aid were similar in that it displayed significant results with sex and age in the current study but did not display significance in the regression analysis of the previous study. In the first study the results of the regression analysis indicated that reliable alliance was significantly predicted by sex and age with personality approaching significance. In the current study, however, personality was shown to be significant while sex and age were not. Perhaps the most interesting result was that of the relationship between relative power and trait EI. In the first study relative power was not significantly predicted by any of the predictor variables. However, in the current study it was significantly predicted by trait EI.

Intriguingly, the only non-ability EI variable with which the MSCEIT total exhibited a significant relationship was the total hassles score. This is particularly interesting as the MSCEIT did not display a significant correlation with the total uplifts score either before or after controlling for personality. Previous research has linked the MSCEIT to social relationship and social behaviour (Brackett et al., 2004; Lopes et al., 2002). Though, the total MSCEIT score only exhibited a significant (negative) correlation with hassles, it did also display a significant relationship with reliable alliance after controlling for personality, but it was not significantly related to any of the other social network variables or the BDI.

The total BDI score was predicted by personality and showed a significant correlation with both Emotional Stability and Conscientiousness (negative). Though the total BDI score initially showed a moderate negative correlation with trait EI, that relationship did not remain significant after controlling for personality, nor was trait EI a significant predictor of the total BDI score. However, again the lack of significance after controlling for personality was likely due to the limited N given that the correlation between trait EI and the BDI was r = 0.34. The same seems to be true for the relationship between the hassles score and the BDI. However, oddly, the direction of both of these relationships changed after controlling for personality. Specifically, the relationship between trait EI and the BDI became a positive one, while the relationship between the BDI and hassles became negative. This seems to show that somehow the relationship between personality and depression affects the relationship between depression and life stress, but further research is needed to help clarify this interaction. The most interesting, and unexpected, result relating to the BDI was the large positive relationship

with reliable alliance that emerged after controlling for personality. It is unclear why depression would be positively associated with the reliable alliance subscale of the NRI, and it is also not clear why this relationship would become known after controlling for the effects of personality. This result also shows that clearly further research relating to how personality effects depression is needed. Also surprisingly, it seems that the BDI is not related to either social networks or ability EI. Overall, it was only personality that significantly related to, and predicted, depression.

Interestingly, the TEMINT showed a fairly large negative correlation with both the total MSCEIT score and both the facilitating thought and managing emotions branches. Despite the correlation between the TEMINT and the MSCEIT not remaining significant after controlling for personality, it did maintain a significant relationship with the managing emotions branch. It would seem, therefore, that the TEMINT has significant similarities to at least two of the MSCEIT branches. The TEMINT was also significantly related to the SSQ3b as well as with the instrumental aid subscale of the NRI after controlling for personality. It would seem that perhaps the TEMINT is able to measure aspects of ability EI that contribute to social network quality and the satisfaction that an individual feels with his/her social network.

Essentially, the first hypothesis, which predicted a significant relationship between trait and ability EI, must be rejected. The lack of significant correlation between trait and ability EI is in keeping with some previous research that found a significant relationship between the two (Farrelly & Austin, 2007), though in contrast with some which did not find a significant relationship (Van Rooy et al., 2005). These findings are similar to the weak

or absent relationship between self report and performance measures of intelligence. This result leads back to the question of the true nature of EI, not only because of the lack of relationship between trait and ability EI, but also due to the lack of relationship with the other variables. Trait EI was a significant predictor of relative power, while ability EI significantly predicted intimacy and life stress. These results further illustrate the differences between the two types of EI, and the surprising evidence that EI does not significantly predict most aspects of social networks. According to these results, emotional intelligence as a personality attribute predicts only relative power in an interpersonal relationship, but EI as an ability, measured by performance, predicts social network intimacy and both the hassles and uplifts of daily life stress. So while there is some weak indication that people are able to self report their ability EI, the evidence also shows that there is no overlap in the variables which are predicted by the two types of EI.

As discussed previously, there is partial support for the second hypothesis in that the hassles portion of the life stress measure was related to the total BDI score. This was expected given that previous studies have indicated that social networks and daily life stress were related to depression (Kanner et al., 1981; Ravindran et al., 2002; Russell & Cutrona, 1991; Sarason et al., 1987; Williams et al., 2001; Williams et al., 1995). However, the relationship was no longer significant when controlling for personality, nor was the BDI significantly related to social networks. These results suggest that personality is the most important factor relating to symptoms of depression. The results related to the third hypothesis are a bit more complicated. Extraversion was related to uplifts, but not hassles or depression. This is

somewhat surprising given that Petersen et al. (2001) found a significant negative correlation between E and depression, though the sample used by Petersen et al. was a clinical one. However, the current correlation between E and uplifts is somewhat similar to the results of Hayes and Joseph (2003) that found E to relate to happiness. Emotional Stability was negatively correlated with depression, and showed a significant relationship with uplifts, but not hassles, which is similar to the results found in previous research (Hayes & Joseph, 2003; Lozano & Johnson, 2001; Petersen et al., 2001; Rector et al., 2002; Velting, 1998). Finally, Conscientiousness showed the most interesting results, showing significant negative correlations with both hassles and the total BDI score, but no significant relationship with uplifts. These findings are in keeping with those of Hayes and Joseph (2003) and Petersen et al (2001) that found a significant negative relationship between C and depression. However, it is somewhat in contrast with Rector et al. (2002), who found that C was related to mania, but not depression. As with the previous research, the results between the personality and well-being variables are somewhat mixed. Overall, it seems clear that Emotional Stability is a significant predictor of depression. There seems to be some agreement that Conscientiousness is also related to depression, though with a weaker relationship than the one displayed between depression and Emotional Stability.

There also seem to be questions about the nature of EI and its relationship to social networks that require further careful research. For example, what skills are required in order for an individual to have a successful social network? Is it certain aspects of ability EI which allow an individual to be successful? Social networks as an outcome measure have been neglected in

EI research, particularly ability EI. Further research needs to be carried out that looks at social networks in terms of social perception, and how that relates to personality and both trait EI and ability EI. Also, both trait and ability EI has been connected with psychometric intelligence through information processing inspection time tasks (Austin, 2004; 2005; Deary, 2000; Farrelly & Austin, 2007). Inspection time tasks involve showing a stimulus for a brief period of time, then asking the participants to identify the stimulus after it has been masked. People with higher general intelligence are able to correctly identify the stimulus at shorter time intervals and are able to process information more quickly (Austin, 2005; Deary, 2000). Given that argument that emotional intelligence should be considered as intelligence, those who are high in EI should also be more successful at recognizing stimuli at brief intervals. In addition, it would also seem that those high in emotional intelligence should be able to successfully identify emotional stimulus. Further details about inspection time tasks will be discussed in the next chapter.

Overall, the results of these studies indicate that personality and trait EI are strongly correlated, but trait EI does explain some additional variance of social network subscales. However, personality was the only significant predictor of depression. In addition, ability EI was a significant predictor of life stress, and one of the social network subscales, but it was not significantly related to trait EI, again suggesting psychometric issues in the EI construct that need to be further addressed. Taking into consideration this information, further research will be conducted looking at social perception as an outcome variable and an emotional inspection time task

requiring participants to identify facial affect and how this relates to personality, and both trait and ability EI.

Chapter Four

4.1 Social Perception

As mentioned in the previous chapter, social networks as an outcome variable and the skills that are required to have a successful social network, have been neglected in EI research. Given that some of the components of emotional intelligence relate to interpersonal relationships, particularly emotion perception, it seems reasonable to predict that emotional intelligence should act as a facilitator for the development of social networks.

One of the key aspects of emotional intelligence is emotion perception, and one might think that the ability to recognize and respond to the emotions of others would be an important skill related to social networks because "emotions… inform us about the primary risks and opportunities of our environment" (Kito & Lee, 2004, p. 958). However, the results discussed in the previous chapter indicated that emotional intelligence did not show significant relationship with the scores on either of the measures of social network quality and size. Given that "[f]aces are a critically important source of social information" (Eastwood & Smilek, 2005, p. 572), a social perception study, with race as an independent variable, will be carried out in order to determine if emotional intelligence is a significant factor. In this study participants will be asked to recognize both same-race and other race faces in an inspection time task. This chapter will analyze the previous literature in the area of emotional inspection time tasks, as well as cross-racial research to assess similarities and difference across races (Austin 2004, 2005; Beaupré & Hess, 2003; Farrelly & Austin, 2007; Hugenberg, 2005; Kito

& Lee, 2004; Lindsay, Jack, & Christian, 1991; MacLin & Malpass, 2003; Penton-Voak et al., 2007; Tanaka, Kiefer, & Bukach, 2004; Walker & Tanaka, 2003), and use this information to construct a hypothesis.

Emotion perception can be measured using emotional inspection time (IT) tasks, which have been successfully used previously in EI research (Austin, 2004; 2005; Farrelly & Austin, 2007). The study which will be further discussed in the next chapter will require participants to recognize facial affect in an inspection time task. Inspection time tasks are important in relation to emotional intelligence because information processing inspection time tasks have been related to general intelligence (Austin 2005; Deary, 2000; Farrelly & Austin, 2007). The research indicates that intelligence is related to success on inspection time tasks, which in turn suggests that emotional intelligence should be related to superior performance on information processing. Austin (2004) carried out a study using emotion inspection time tasks that required participants to recognize faces that were either happy or neutral, or sad or neutral, at 14 different time intervals ranging from 17ms to 350ms. Interestingly, the results indicated that none of the big five factors of personality were related to success on the inspection time tasks, but the interpersonal emotion perception aspect of trait EI was significantly related to performance on the two emotional IT tasks. These results are particularly interesting as they suggest that self reported ability to recognize emotions is related to actual emotion perception ability and processing emotional information.

In a similar follow-up study, Austin (2005) found intelligence, assessed using Raven's matrices, to be significantly related to success on both

emotional and non-emotional inspection time tasks. The emotional inspection time tasks were the same as those used in the previously described study (Austin, 2004), while the non-emotional inspection time task required the participants to differentiate between two symbols, an x and a +. The correlation between intelligence and inspection time tasks was consistent with previous research (Deary, 2000), showing that intelligence relates to speed of both emotional and non-emotional information processing. As with the previous study, the interpersonal subscale of the Schutte et al. (1998) emotional intelligence measure was significantly related to success on the emotional information processing. The emotional information processing score was obtained by combining the scores from the happy/neutral IT task, the sad/neutral IT task, and the Ekman-60 task which presents 60 faces on which the participants are asked to identify happiness, sadness, anger, fear, disgust, or surprise. The overall emotion information processing score was significantly correlated with interpersonal EI, again suggesting that participants are able to self report their emotion perception ability. In addition, the link between intelligence and emotional information processing is supportive of the notion of EI as an intelligence.

Given the results of the studies just discussed, it seems reasonable to think that ability EI, which has previously been shown to be related to intelligence (Van Rooy & Viswesvaran, 2004), would also significantly relate to inspection time tasks. Therefore, a further pair of studies which looked at EI and inspection time tasks utilized the MSCEIT as well as the Schutte et al. (1998) EI scale in order to assess how both trait and ability EI related to information processing (Farrelly & Austin, 2007). Ninety-nine university students took part in a study to examine the relationship among trait and

ability EI, cognitive ability, social perception, and information processing (Farrelly & Austin, 2007). Cognitive ability was assessed with the Gf/Gc Quickie Test Battery (Stankov, 1997), which was designed to measure both crystallized and fluid intelligence. The Interpersonal Perception Test-15 (IPT-15; Costanzo & Archer, 1993) was used to determine the ability of the participants to interpret both verbal and non-verbal behaviour in 15 short videos of people spontaneously interacting (the people in the videos are not professional actors). Trait EI was assessed using the Schutte et al. (1998) emotional intelligence scale, and the MSCEIT was used to measure ability EI. As would be expected, there was a significant correlation of the MSCEIT with both the Schutte scale and the IPT-15 ($r = 0.29$, $p < .01$ for both). In addition, the Schutte scale and the IPT-15 also showed a significant relationship ($r = 0.27$, $p < .01$). Essentially, a moderate relationship was found between all the measures of emotion perception. Interestingly, the MSCEIT scores were not significantly related to either fluid intelligence or success on the non-emotional IT task. However, the understanding emotions branch of the MSCEIT did show a moderate correlation with crystallized intelligence ($r = 0.34$, $p < .01$). Oddly, the relationship between the sad/neutral IT task and the IPT-15 ($r = 0.22$, $p < .05$) was the only significant relationship found between emotion information processing and either EI or emotion perception. Overall, the results of this study were rather unexpected. A second, similar, study was then carried out (Farrelly & Austin, 2007) which measured trait EI using the EQ-i:S (Bar-On, 2002), general intelligence with the Standard Progressive Matrices Plus (Raven, Raven, & Court, 1998), and including the Ekman-60 faces task described earlier. The results of the study indicated that both the total MSCEIT score and the experiential branch showed small significant relationships with the

sad/neutral IT task, crystallized intelligence, the Ekman-60 faces task, and the EQ-i:S. The strategic branch showed similar small significant correlations with all of these variables except the emotional IT task. However, neither the total MSCEIT score nor its subscales showed significant relationships with the symbol IT task, fluid intelligence, or surprisingly, the IPT-15 measure of social perception. Overall, the results from both studies show that the total MSCEIT score was related to crystallized, rather than fluid, intelligence. The MSCEIT also showed small significant positive correlations with the emotional IT task, the Ekman-60 faces task, and both measures of trait EI. These studies further support the use of emotional inspection time tasks in EI research, though they surprisingly show a lack of significant relationship with social perception that needs further investigation.

A recent series of studies looking at the relationship between inspection time tasks, emotional intelligence, and social perception was carried out by Austin (submitted). In the first study, 104 undergraduate students (mean age = 21.4, SD = 3.09) completed the sad/neutral and symbol inspection time tasks described previously (Austin 2004, 2005), as well as the Gf/Gc Quickie Test Battery (Stankov, 1997) to assess cognitive ability. The participants were also given the Situational Test of Emotional Understanding (STEU; MacCann, 2006), the Situational Test of Emotion Management (STEM; MacCann, 2006), and the Reading the Mind in the Eyes (Eyes; Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001). The STEU is a 42-item multiple choice measure which gives situations in which the participants are asked to identify which emotion is felt by the person in the situation. For example, a situation might describe an unpleasant supervisor who decides to leave, at

which point the person in the situation would feel relief. The STEM gives 44 multiple choice items in which the participant is asked to identify the most effective action to be taken in a situation that requires emotion management. In the Eyes test, originally designed for use with autism, photographs of eyes are presented (equal number of male and female), and the participant is asked to choose from a list of four words what the person is thinking or feeling. The results of the study show that neither the STEM nor the STEU are significantly related to the inspection time tasks. However, the STEM showed a significant relationship with fluid intelligence ($r = 0.20$, $p < .05$), while the STEU was significantly related to crystallized intelligence ($r = 0.33$, $p < .01$), and both significantly correlated with the Eyes test (STEM, $r = 0.27$, STEU, $r = 0.38$, $p < .01$ for both). The second study also used the STEM, STEU, Eyes, and intelligence measures. In addition, the 135 undergraduate participants (mean age = 21.67, SD = 4.42) also completed the MSCEIT, an emotional Stroop task, and a Face Blends task which blends two pictures of the same person with different expression. The expressions used were sadness, anger, and fear, and a blend of two of the three emotions would result in the majority emotion showing 60%, 70%, 80%, or 90%, requiring the participant to identify the majority emotion. The photos were taken from the Ekman facial affect pictures (Ekman & Friesen, 1976), and were shown until the participant made a response.   The results indicate that MSCEIT was significantly related to both the STEM ($r = 0.36$, $p < .001$) and the STEU ($r = 0.33$, $p < .001$), as would be expected given that emotion management and understanding are aspects of EI. In addition, the STEM, STEU, and total MSCEIT score were all significantly correlated with the Eyes test ($r = 0.18$, $p < .05$, $r = 0.40$, $p < .001$, and $r = 0.25$, $p < .01$, respectively). The STEU showed significant relationships with both fluid ($r = 0.18$, $p < .05$) and crystallized ($r =$

0.29, p < .01) intelligence. However, neither the STEM nor the total MSCEIT score were significantly related to intelligence, though the Understanding emotions branch related weakly to both, and, strangely, the Perceiving branch showed a small negative correlation with fluid intelligence.   The STEU was also significantly related to the Face Blends task (r = 0.30, p < .001), as were both the Understanding (r = 0.18, p < .05) and Strategic (r = 0.22, p < .05) branches of the MSCEIT. Overall, these results did not show the aspects of EI measured by the STEM and STEU to be related to the IT tasks, which was rather odd given that both the STEM and the STEU related to intelligence. However, in the previous study (Farrelly & Austin, 2007) the emotional IT task related to the Experiential area of the MSCEIT, which involved facilitating and perceiving emotions, rather than understanding and managing. These contrasting results suggest that further research investigating the relationship between EI and IT tasks is needed. Emotional intelligence was partly related to social perception assessed by the Face Blends, as well as the STEM, STEU, and MSCEIT all significantly relating to the Eyes task.

A study which looks at social perception and empathy was carried out by Penton-Voak et al. (2007). The study deals with perception of gender, and addresses how empathy, which is similar to emotional intelligence, related to the accuracy of perception. The authors recruited 5 males and 5 females to take part in a short video (1 minute), which was used to make an animated androgynous line face that had no obvious male or female characteristics. After the videos were made, they were shown to 60 participants, who were asked to determine whether the androgynous face in the video was male or female, after which they filled in both an empathy

quotient questionnaire and a systemizing quotient questionnaire (Baron-Cohen & Wainwright, 2004; Baron-Cohen et al., 2003). The results of this study indicate that the participants scored significantly above chance levels on their correct identification of the sex of the androgynous face ($t(59) = 6.91$, $p < .01$). In addition, when empathy quotient, sex of the participant, and systemizing quotient were entered into a regression analysis, the results showed that the empathy quotient was the only significant predictor of the total accuracy in assessing the sex of the androgynous face ($\beta = 0.386$, $p < .05$). What makes this study both appealing and important is that it addresses other factors that influence perception. The really remarkable aspect of these results is that they that they point towards empathy, which relates closely to emotional intelligence, as an important aspect of social perception.

One of the pioneers in the field of cross-racial emotion perception research was Paul Ekman. Ekman (1968) believed that the muscles used to produce facial expressions to represent the basic emotions (happiness, sadness, fear, anger, surprise, and disgust), were universal across cultures. To study this hypothesis, Ekman and Friesen (1969) asked participants from Brazil, the United States, Argentina, Chile, Japan, Borneo, and New Guinea to identify the emotions shown in photographs of faces. The participants from all of the cultures identified the same emotions in the same photographs. However, the results were somewhat in question as the facial expression could have been learned behaviour from exposure to similar mass media (Ekman & Friesen, 1969). Wanting to provide further supporting evidence of the universality of facial expression without learned behaviour, Ekman and Friesen (1971) carried out a similar study on an isolated group of people in the South East Highlands of New Guinea. Ekman and Friesen (1971) report

that until approximately 1959, "this was an isolated, Neolithic, material culture" (p. 125). Given that the people living in the area had had opportunities over the course of 12 years to interact with Westerners in the form of scientists, government workers, and missionaries, Ekman and Friesen (1971) created a selection criteria in order to obtain participants with the least exposure to any kind of Western culture: the participants had seen no movies, neither spoke nor understood English, had not lived in any settlement started by Westerners or the government, and had never worked for a Caucasian. After implementing a self report in order to determine who fit the selection criteria, 189 adults and 130 children met the criteria to participate in the study. In contrast, to provide a control, Ekman and Friesen (1971) also recruited 23 male adult participants that had the most exposure to Western culture in the form of having carried out all the behaviours listed in the exclusion criteria (watched movies, spoke English, lived in a Western or government town), as well as having attended a school provided by the government or missionaries for at least one year. With the lack of a written language, a pilot study determined that the most effective way to assess how the participants identified emotions was to use a method developed by Dashiell (1927). The method involved telling participants a brief story, and then asking them to select a picture from an array which best illustrated the emotion felt in the story. The results of the study showed no significant sex differences, though Ekman and Friesen (1971) reported that females seemed more reluctant to participate, and that there was a trend indicating more correct responses from females. The results also indicate that for the majority of expressions, the correct photo illustrating the expression was chosen significantly more than chance levels. The exception to this was with the participants discriminating between fear and surprise.

In addition, there was no significant difference in results between the least and most Westernized participants. Ekman and Friesen (1971) concluded that these results were evidence of universal facial expressions across culture and race.

While Ekman's research indicates that facial expressions are similar across cultures and races, other research indicates that the speed and accuracy with which the faces are recognized varies between same- and cross-racial stimuli. The main theory behind these differences is the own-race bias, which is the theory that people are better able to correctly identify another person of the same race. A meta-analysis examining 30 years of research of own-race bias was carried out by Meissner and Brigham (2001). Their meta-analysis examined 39 different research papers, which had a total of 4, 996 participants. All of the studies which were included in the meta-analysis were within-subjects experiments in which the participant had to remember and identify faces of both their own race and other races. The results of the meta-analysis indicate that Caucasian people are significantly more likely to demonstrate an own-race bias ($Z = 6.91$, $p < .001$). Interestingly, Meissner and Brigham (2001) did not find a significant effect for racial attitudes, and amount of contact with the other race accounted for only 2% of the variance of own-race bias. Essentially, the results of this meta-analysis indicate that the own-race bias does exist in remembering faces, and tends to be stronger in Caucasian participants. However, there are other behaviours which could be affected by own-race bias, such as differences in identifying emotion on own and other races. Other research, which has been published after this meta-analysis was carried out, addresses some of the other factors that related to cross-race bias.

To investigate racial difference in emotion perception, Beaupré and Hess (2003) carried out a series of studies looking at how participants attributed positive social behaviour (smiling), to their own and another race. In the first study, 387 Caucasian participants (52.7% female) read a vignette which described either a male or a female in an emotionally neutral situation, such as going to the shop to buy some milk, and then chose one out of a set of six expressions, all of which featured an individual that was either Caucasian, African, or Asian (Beaupré & Hess. 2003). The results of the study indicate that the participants were significantly more likely to attribute smiles to members of their own race, with 79.1% ascribing a smile to the Caucasian male, with 63.9% for the African male, and only 32.3% for the Asian male. The same results held true for the female condition, with 80% of participants crediting the female Caucasian with a smile, 50.7% for the Asian female, and 39.1% for the African female. Essentially, the results of this study indicate that the participants were significantly more likely to attribute positive social behaviour to their own race. In order to provide further evidence of this phenomenon, Beaupré and Hess (2003) carried out a second study in which the 406 Caucasian participants reads vignettes that described a non-social, emotionally neutral situation (sitting alone in a room turning on a computer). The results of the second study were similar to those of the first, though the overall percentages were lower. For the male vignettes, 49.2% attributed a smile to the Caucasian male, compared to 44.9% and 20.6% for the African and Asian male, respectively. Again, similar results were found for the females, with the Caucasian females being ascribed smiles by 65.1% of the participants, with 34.4% for the African females and 26.1% for the Asian females. Though these results lead to similar conclusions as those in

their first study, Beaupré and Hess (2003) speculated that the results could be due to actual cultural differences, in that perhaps Caucasians simply do smile more. In order to test this, they carried out a third study in which the 128 participants were either African or Asian, and read the same vignettes as those presented in the second study. The results of the study showed that 59.4% of participants ascribed smiles to the males in their own racial group, with only 21.9% attributing smiles to males in a different racial group. Similar results were shown for females, though to a lesser extent, with 46.9% of in-group females being accredited as smiling, compared to 40.7% of out-group females. From the results of this series of studies, Beaupré and Hess (2003) conclude that the evidence shows that people are more likely to attribute positive social behaviours to members of their own race.

Further research in this area was carried out by Hugenberg (2005), who conducted a pair of studies which investigated how race effected the response time for happy faces. He argued that since the typical response time for happy faces is faster, and possibly due to easy recognition of a smiling mouth, then "race of a target displaying the emotion should be irrelevant to the speed of categorization" (Hugenberg, 2005, p. 270). In an effort to test this, the first study asked 20 Caucasian undergraduate students to take part in a reaction time task in which they were shown computer generated male faces that were either happy or sad, and black or white, with two faces of each of the emotions for each race. The reaction time task involved a total of 160 trials, with each of the faces being displayed 10 times in random order for 200ms (Hugenberg, 2005). For the analysis of results, the Hugenberg (2005), reports that incorrect responses were removed (>9%), as were response times which were greater than three standard deviations

from the mean, and that no significant sex differences were found. The results of the study found a significant main effect for race ($F(1, 19) = 4.55$, $p < .05$), as well as an interaction between race and facial expression ($F(1, 19) = 30.00$, $p < .001$). An examination of the mean reaction times indicated that the significant effect for race indicated that for the white faces the happy expressions were recognized the most quickly. However, for the black faces the angry faces were recognized significantly faster than the happy for the black faces. Given the results of the first study, Hugenberg decided to carry out a similar follow-up study in which 40 white undergraduate students took part in a task that duplicated the reaction time task in the first experiment, only with the addition of sad faces. The results from the second study were similar to those in the first in that race showed a significant main effect ($F(1, 39) = 8.14$, $p < .01$), with the black faces being recognized more quickly. However, somewhat in contrast to the initial study, though the angry black faces were recognized significantly faster than the happy ones, there was no significant difference between happy and sad, despite the sad faces also displaying a negative emotion. Though further investigation of the results revealed that while the happy white faces were recognized faster than either the sad or angry faces, the mean reaction times indicated that the sad black faces were recognized more quickly than the happy ones. Essentially, the results of this study show that the Caucasian participants recognized positive expressions in their own race faster than negative ones, though the opposite was true for recognizing expressions in a different race. In some ways, these results are similar to those discussed in the previous study in that the participants were quicker to attribute positive behaviour to their own race. However, while computer generated faces may be easier to control, it does seem possible that the animated faces used in these studies

could lead to different results than actual pictures of faces. In addition, this study did not account for responses from the other race, as only white participants were included.

In a further discussion of the cross-race face effect, MacLin and Malpass (2001) gave an account of an ambiguous-race face illusion. They describe the development of a stimulus set which involves an ambiguous-race face which is then given stereotypical race markers (hair). The exact same ambiguous-race face is given a hairstyle that is stereotypic of a Hispanic male, as well as a stereotypical black male hairstyle. Twenty university students were recruited to take part in the study. They were shown the face images and asked to classify the race of the face as either: Indian, Asian, Black, Hispanic, White, or Other (MacLin & Malpass, 2001). The results of the study indicate that the faces with the stereotypical Hispanic hairstyle were rated by 68% of participants as Hispanic. Interestingly, 68% of observers rated the faces as black with the stereotypical black hairstyle. These results are particularly interesting as the faces were structurally identical, indicating that the observers searched for stereotypical aspects of the faces, or race markers, to identify race.

In order to assess differences in how own-race and other-race faces are perceived, Walker and Tanaka (2003) carried out a study which combined Caucasian and Asian faces to create new faces. The participants in the study were 72 Caucasian undergraduate students and 38 Asian undergraduate students. The experiment used photographs in which an East Asian parent face and a Caucasian parent face were morphed together to various degrees, as in varying the percentage in which either parent face was included. The

parent face would be seen by the participant for one second, the face was then masked, then either the same face or a morphed face would be shown, and the participant was asked to determine if the face was the same as the one seen just prior to the mask (Walker & Tanaka, 2003). The results of the study show a significant main effect for the race of the face ($F_{(1, 108)} = 9,13$, $p < .01$). In addition, there was a significant interaction between the race of the participant and the race of the face ($F_{(1, 108)} = 34.13$, $p < .001$). Further analysis of the data revealed that, as would be expected, Caucasian participants were better at correctly identifying the Caucasian faces, while Asian participants were better at identifying Asian faces. Interestingly, the self-reported level of experience with the other race was not a significant predictor of accuracy on the facial recognition task. Therefore, while this study supports the own-race bias, it is further evidence that something more than exposure to the other race is what allows some people to recognize other-race faces.

The final study to be discussed which investigates what factors contributes to own- and other-race face recognition was carried out by Tanaka, Kiefer, and Bukach (2004), who conducted a cross-cultural follow-up study of 21 German Caucasian participants and 21 Asian Canadian participants. The photographs used were composite photos of original Asian and Caucasian photos, created to make a total of 12 Caucasian faces and 12 Asian faces, with half of each race being male and half being female. The photos were displayed for the participants, then masked, then two photos were shown which differed by only one of the main facial features (eyes, nose, or mouth), and the participants had to choose which was the original photo. Half of the trials showed the entire face, while the other half secluded one of the main

features of the face. Interestingly, the photos were displayed for 500ms for the Asian participants, but Tanaka et al. (2004) report that a pilot study showed that it was necessary to display the photos for a full second for the Caucasian participants in order to have their correct responses be above chance levels. The results for the Caucasian participants show a significant interaction between race of the face and type of photo (F(1, 20) = 18.44, p < .001). Further examination of the data reveals that the Caucasian participants correctly identified the whole Caucasian faces 79% of the time, but only correctly identified the isolated Caucasian feature 66% of the time, which was a significant difference. In contrast, the Caucasian participants recognized the whole Asian faces 74% of the time, while also correctly identifying the isolated features in 71% of the trials. This result is interesting because it suggests that the Caucasian participants identify faces of their own race by looking at the whole face, but identify the Asian faces through different features (Tanaka et al., 2004). However, for the Asian participants, while there was a significant main effect for type of photo (F(1, 20) = 15.398, p < .001), there was not a significant interaction between race of face and type of photo. So while the Asian participants correctly identified the whole photos for the Asian faces 74% of the time and Caucasian faces 76%, they were only able to correctly identify the isolated features 67% and 68% of the time, respectively. Overall, these results suggest that the Asian participants use a holistic approach to facial recognition in which they look at the entire face regardless of race, as opposed to the Caucasian participants who seemed to use this approach for their own race only.

These studies all confirm the cross-race bias found in the meta-analysis carried out by Meissner and Brigham (2001), as well as suggesting other

factors that could affect the racial bias, such as stereotyping and holistic facial recognition (MacLin & Malpass, 2001; Tanaka et al., 2004; Walker & Tanaka, 2003). In addition, both Beaupré and Hess (2003) and Hugenberg (2005) showed that participants were more likely to quickly attribute positive social behaviours and emotions to members of their own race, while Penton-Voak et al. (2007) demonstrated a relationship between social perception and empathy.

However, there are some potentially important factors that are not addressed in the social perception literature. While social perception has been investigated from a social psychology perspective, with regards to in-group and out-group behaviour for example, there is very little research investigating it from a differential psychology perspective. This is important because clearly emotions and individual differences play a part in social perception (Beaupré & Hess, 2003; Hugenberg, 2005, Penton-Voak et al., 2007). For that reason, it seems that emotional intelligence is the link between emotions and social perception. Emotional intelligence involves perceiving, understanding, and managing emotions, all of which relate to social perception. Consequently, an individual with emotional intelligence should be successful at perceiving emotions regardless of race. Therefore, an exploratory study will be carried out that examines how personality and both trait and ability EI are related to success in a cross-racial emotional inspection time task, and examines the link between emotional intelligence and social perception in a new context.

Chapter Five

5.1 Introduction

The purpose of this study was to investigate the relationship between personality, trait and ability EI, and facial affect perception. One of the core aspects of EI is the capacity of an individual to recognize emotions in others. This study asked participants to complete an inspection time task in which they were expected to observe and identify three facial expressions on seven different individuals of either Caucasian or Asian ancestry. This allowed the assessment of how personality and EI were related to the ability of an individual to recognize facial affect. Full versions of the questionnaires used, and examples of the photos are available in the appendix. In order to ensure the validity of the facial expressions of the photos, a pilot study was carried out prior to the full study.

5.2 Pilot Study

5.2.1 Participants

The participants were post-graduate students recruited by email. There were a total of twenty participants. Sex, age, and race were not recorded for the pilot study. After arriving, participants were seated at a computer cubicle and shown a power point presentation that allowed them to observe the photo on the screen for a period of time of their choice, then move on to the next photo.

5.2.2 Measures

The photos used for this study were part of the NimStim face stimulus set (http://www.macbrain.org/resources.htm), a public access research project available on the internet. Development of the MacBrain Face Stimulus Set was overseen by Nim Tottenham and supported by the John D. and Catherine T. MacArthur Foundation Research Network on Early Experience and Brain Development. All of the photos in the NimStim face stimulus set have been controlled for age, as in all of the models used for the photos are approximately the same age. A total of seventy-one colour photos were used, consisting of five female Asian models, and four female Caucasian models, while for the males there was one Asian model and five Caucasian models. All the photos were shown in a non-timed power point presentation. The photos of only one Asian male were used due to the photos of only one Asian male being available from the stimulus set. In the facial expressions on all of the photos all were shown with closed mouths, and none of the male models used had facial hair.   Though the intent was to use only happy, sad, and angry expressions in the final experiment, the facial expressions shown on the photos were angry, happy, sad, surprised, and disgusted in random order in order to provide more variety. In addition, a broader range of facial expression would help avoid social desirability in the responses of the participants because they would not know which expressions were going to be used for the final study.

The participants were each given a questionnaire on which they were asked to identify the expression on each photo. For each of the photos, they were

able to choose: happy, sad, neutral, angry, disappointed, disgusted, calm, excited, surprised, frightened, or other. The participant would view the photo; mark the expression given which s/he felt best described the facial expression shown in the photo, then move on to the next photo. They were told to not return and change any answers.

5.2.3 Pilot study results

The results of the pilot study indicated that one hundred percent of the participants agreed on the facial expressions of eight of the photos. Of these photos, there were two Asian females and one Caucasian female that had 100% agreement on at least one photo. For the males there were two Caucasian males that had full agreement on at least one photo. The agreement response for the rest of the photos for these models was observed. Given that the full study would involve a forced choice between happy, sad, and angry, only these facial expressions were considered at this point. All percentage results are rounded to the nearest whole number, and can also be seen in Table 5.1.

For the first Asian female, 100% of participants rated her happy photo, 94% her angry photo, and 82% correctly identified her sad photo. The second Asian female had 100% agreement for her happy photo, 88% correct identification of her angry expression, and 94% correct responses for her sad expression photo. The Caucasian female showed 100% correct responses for both her happy and angry expressions, and 94% for her sad photo. The other Caucasian female that was chosen displayed results of 94% correct response rate for all of her facial expressions. The first Caucasian male

exhibited a 100% correct identification from participants of both his happy and sad facial expressions, though only 71% correct for his angry expression. The second Caucasian male had 100% correct identification of both his happy and angry facial expressions, and 94% correct responses for his sad expression. Finally, the Asian male showed 94% correct identification of both his happy and angry facial expression photos, though only 59% correct responses for his sad expression. All of these percentages were deemed acceptable levels of agreement. They also corresponded with the initial validity study of this stimulus set (Tottenham et al., 2002).

Table 5.1 – Percentage of agreement for facial expressions used in final study

Sex	Nationality	% agreement: happy	% agreement: angry	% agreement: sad
female	Asian	100	94	82
female	Asian	100	88	94
female	Caucasian	100	100	94
female	Caucasian	94	94	94
male	Asian	94	94	59
male	Caucasian	100	71	100
male	Caucasian	100	100	94

5.3 Study Three

5.3.1 Participants

The participants were recruited from the Student and Graduate Employment at the Careers Services (SAGE) in an advertisement specifying the need for participants of either British Caucasian or Far-east Asian

descent. The category of Far-east Asian was further defined in the ad as people from China, Japan, Vietnam, or Taiwan. All participants were paid £5 for their participation in the study. The data of two of the participants had to be removed. One of the participants that was removed reported having one parent of British Caucasian descent and one parent of Chinese descent. The other participant who had to be removed because of clearly biased responding (i.e. - all of the responses on the questionnaires were 5s). Therefore, the final sample comprised of forty-one British Caucasians and forty-six Far-east Asians.

Participants were invited to a testing session that lasted approximately twenty minutes. Upon arrival, each participant was met and taken into a cubicle in the computer lab. When in the cubicle, participants were asked their age and race, which was then input into E-prime. They were then given instructions on how to complete the inspection time task. They were requested to fill in the personality and EI questionnaires upon completion of the inspection time task.

5.3.2 Measures

5.3.2.1 Facial affect perception inspection time tasks

The facial affect perception inspection time task involved a total of 105 trials in which participants had to identify faces as happy, sad, or angry. The tasks were comparable to the ones used and validated by Austin (2004; 2005). The photos used for this study were part of the NimStim face stimulus set (http://www.macbrain.org/resources.htm), the same photos used for the

pilot study. The photos utilized were two Far-east Asian females, two Caucasian females, two Caucasian males, and one Far-east Asian male. While the original intention had been to provide participants with two photos for each gender in both races, only one Asian male photo was available from the stimulus set. Furthermore, additional information regarding the specific origin of the Asian models was not available.

Each person was shown with a happy, sad, and angry facial expression. The duration for which each picture was displayed for 25ms, 75ms, 100ms, 150ms, and 200ms, in a random order for each photo, expression, and time. Participants were given a forced choice response of happy, sad, or angry for each of the faces, having to press 1 for happy, 2 for sad, and 3 for angry. These were the only keys the program would accept as a result in order to avoid an invalid response for any of the items. The numbers corresponding with each emotions response were shown after each photo to remind the participant of the choices, and the screen with these options was shown until the participant input a response. Each participant, therefore, completed a total of 105 trials and the total time of the task was approximately five to seven minutes depending on the response time taken by the participant.

5.3.2.2 Trait EI

Trait EI was measured using the Schutte et al. (1998) emotional intelligence scale. This is the same 33-item self report measure of trait emotional intelligence used in the previous two studies, and was described previously in greater detail.

5.3.2.3 Personality

The 50-item version of the International Personality Item Pool was used for this study (Goldberg, 1999). The IPIP is a web resource (http://ipip.ori.org) that was developed as a collaborative effort based at the Oregon Research Institute (Goldberg, 1999). It is the same personality measure that was used in the previous studies, see chapter three for more information. It is a self-report measure of personality requiring participants to respond to statements marking a Likert scale from 1 (very inaccurate) to 5 (very accurate). The 50-item version of the IPIP contains ten questions for each of the five factors of personality with approximately equal forward and reverse scored items for each factor. The five factors are Agreeableness, Conscientiousness, Emotional Stability, Extraversion, and Intellect/Imagination. This scale looks at Emotional Stability as the reverse of Neuroticism, and Intellect/Imagination, as the measure of Openness. A more comprehensive explanation of the IPIP was given in the methods section for the first study.

5.3.2.4 Ability EI

Ability EI was measured using the Test of Emotional Intelligence (TEMINT, Schmidt-Atzert & Buhner, 2002). The TEMINT was previously utilized in the study which was supplementary to study two, and a thorough description is available in that methods section. The TEMINT was used for this study because, unlike the MSCEIT, it does not use pictures to measure ability EI. Despite the TEMINT being a fairly new measure of ability EI (Schmidt-Atzert & Buhner, 2002), it was deemed appropriate for this

particular study because of the format which asks participants to rate the feelings of an individual in a described scenario. Given that this study required participants to identify facial affect in an inspection time task, it seemed that an ability EI measure which did not call for participants to identify emotions in photographs would be an appropriate measure. Also, the results of the supplementary study described in the previous chapter found that the TEMINT correlated strongly with the total MSCEIT score, as well as both the facilitating and managing emotions branches. The managing emotions branch includes the emotional relations tasks, which is associated with interpersonal relationships, and Austin (2004) found that the trait EI subscale which most related to emotion information processing was the interpersonal scale of the Schutte et al. (1998) measure. Therefore, the TEMINT was deemed the most appropriate measure of ability EI for this study, particularly in that the previously discussed study validated the TEMINT as a measure of ability EI

5.4 Results

5.4.1 Descriptive statistics and gender differences

Internal reliabilities for all of the scales were assessed using Cronbach's alpha. All of the scales showed acceptable alpha levels of above .70. Descriptive statistics for personality, age, trait and ability EI, the different emotional inspection time tasks for both races are shown in Table 5.2 (though the ability EI data was missing for one participant). The mean age for the sample (n= 87) was 22.91 (SD= 3.63), with 61 females and 26 males, of whom 41 were Caucasian and 46 were Far-east Asian. The inspection time

tasks are given as a total percentage score for each emotion: angry (percenta), happy (percenth), and sad (percents). Both of the races are indicated in combination with both sexes: Asian female (a_f), Asian male (a_m), Caucasian female (c_f) and Caucasian male (c_m). The total score is given in percentage correct due to the different number of stimulus in each category and was compiled from all the durations. Interestingly, the range for the total Caucasian female happy correct responses was only .10, with a mean percent correct response 98.3%. In fact, all of the mean responses for the happy expression were over 95% correct, regardless of the race or sex of the stimulus face. In contrast, the mean correct percentage for Asian angry faces of both sexes was quite low: 53.9% for females and 65.8% for males.

Table 5.2 – Descriptive statistics for personality, trait and ability EI, age, and
          reaction time tasks total percentage correct

	N	Range	Mean	Std. Deviation
age	87	19.00	22.91	3.63
Agreeableness	87	22.00	39.40	4.52
Conscientiousness	87	28.00	34.06	5.77
emotstab	87	33.00	30.67	7.53
Extraversion	87	29.00	31.52	5.92
Imagination	87	26.00	35.71	5.57
abilityEI	86	44.00	44.99	10.92
traitEI	87	57.00	123.07	12.59
a_f_percenta	87	90%	54%	0.21
a_f_percenth	87	50%	96%	0.08
a_f_percents	87	40%	93%	0.09
a_m_percenta	87	100%	66%	0.26
a_m_percenth	87	80%	96%	0.11
a_m_percents	87	80%	78%	0.20
c_f_percenta	87	70%	79%	0.18
c_f_percenth	87	10%	98%	0.04
c_f_percents	87	80%	75%	0.20
c_m_percenta	87	80%	72%	0.19
c_m_percenth	87	30%	97%	0.07
c_m_percents	87	70%	90%	0.13

An independent sample t-test was carried out in order to determine if gender differences were shown in the sample. Table 5.3 shows sex specific means and standard deviations. Significant sex differences were shown for only one of the personality factors, though the results were approaching significance for a second personality factor. Agreeableness showed a significantly higher mean score for females (t (85) = 2.196, p = .031). In contrast, the results for Emotional Stability indicated that males had a higher mean score than females that was approaching significance (t (85) = -1.95, p = .055). None of the other variables were shown to have significant sex differences.

Table 5.3 –sex and specific means and t-test results for personality, trait and ability EI

	Female	Male	t	df	Sig.	Caucas.	Asian	t	df	Sig.
A	40.08 (4.3)	37.81 (4.62)	2.20	0.85	0.03	40.37 (4.93)	38.54 (3.98)	1.91	85	0.06
C	34.31 (5.87)	33.46 (5.6)	0.63	0.85	0.53	33.56 (6.65)	34.5 (4.89)	-0.76	85	0.45
ES	29.66 (7.24)	33.04 (7.8)	-1.95	0.85	0.06	32.02 (8.28)	29.46 (6.65)	1.60	85	0.11
E	31.9 (6.2)	30.62 (5.21)	0.93	0.85	0.36	33.39 (6.63)	29.85 (4.67)	2.91	85	0.01
I	35.59 (5.64)	36 (5.51)	-0.31	0.85	0.76	38.85 (5.06)	32.91 (4.42)	5.84	85	0.00
AbilityEI	44.23 (10.45)	46.73 (11.97)	-0.97	0.84	0.33	40.73 (9.55)	48.87 (10.73)	-3.70	84	0.00
TraitEI	123.52 (12.34)	122 (13.25)	0.52	0.85	0.61	122.37 (12.82)	123.7 (12.5)	-0.49	85	0.63

Another independent sample t-test was also carried out in order to determine if there were racial differences within the personality and trait and ability EI. The results for the race specific means can be seen in Table 5.3. The independent samples t-test indicates that the Caucasian participants scored significantly higher on the personality variable of Extraversion and Imagination. The results also indicate that the Asian

participants scored significantly higher on the TEMINT. However, given the reversed method of scoring on the TEMINT, this result suggests that the Caucasian participants had a significantly higher ability EI overall. None of the other variables showed significant racial differences. Race difference in the emotional inspection time task will be addressed in the Analysis of Covariance (ANCOVA).

5.4.2 Correlation and regression analysis

Correlation analysis was carried out in order to determine if there was a significant correlation among the personality variables and trait and ability EI. There was some inter-correlation among the personality variables, as would be expected. However, neither Conscientiousness nor Imagination showed significant relationships with any of the other personality variables. Trait EI showed a fairly large significant positive correlation with Agreeableness. It also displayed more moderate significant correlations with Imagination and Emotional Stability. Interestingly, trait EI did not display a significant relationship with Extraversion, though in the previous studies (please see chapter 3), the correlation between the two was fairly strong (r = 0.43). Trait and ability EI still did not demonstrate a significant relationship with each other. Ability EI did exhibit a moderate significant negative relationship with Imagination. As previously mentioned, given the manner in which the TEMINT is scored, this indicates that Imagination is significantly related to high ability EI. Imagination was the only personality variable that was related to both trait and ability EI. The full results of the correlation analysis can be seen in Table 5.4.

Table 5.4 – Correlation analysis of the big five factors of personality, trait EI and ability EI

	A	C	ES	E	I	abilityEI
A	1					
C	0.16	1				
E S	0.25*	0.10	1			
E	0.37**	-0.05	0.34**	1		
I	0.19	0.00	0.10	0.14	1	
Ability EI	-0.12	-0.14	0.10	-0.11	-0.32**	1
Trait EI	0.46**	0.17	0.24*	0.19	0.33**	0.16

**Correlations significant at p < .01; *Correlations significant at p < .05

Multiple regression analysis was performed in order to determine which of the variables was a significant predictor of the total percentage correct for each of the emotion IT tasks. The multiple regression analysis was performed in three blocks. In the first block, sex and age were entered as the predictor variables. In the second block, race was added as an independent variable. The third block saw the addition of trait and ability EI as independent variables.

The only IT tasks to show any of the independent variables as significant predictors were the Caucasian female angry and sad faces. The Caucasian female angry showed significant results for the first block, sex and age (p = .031), as well as the second block in which race was added as a predictor (p<.001). The sad Caucasian female total displayed significant results for the second block (p = .007). The full results can be seen in Table 5.5.

Overall, the results indicate that sex and race are the strongest predictors of correct responses on the emotional IT task. Further investigation of the standardized betas reveals that for the first block of the Caucasian female angry regression, sex showed a significant result (β = -.253, p = .019), but age did not. In the second block of the regression, sex maintained its significant beta, and race was a significant predictor as well (β = -.429, p < .001). For the

second model, the Caucasian female sad, an investigation of the betas showed that race was the only significant predictor ($\beta = -.306$, $p < .001$). However, none of the results demonstrate trait EI or ability EI as significant predictors.

Table 5.5 – Multiple regression analysis model summary for Caucasian female angry and sad.

	R²	R²adj	R² change	F change	df1	df2	Sig. F change
C_f_angry							
1	0.08	0.06	0.08	3.63	2	83	0.03
2	0.25	0.22	0.17	18.05	1	82	0.00
3	0.29	0.24	0.04	2.23	2	80	0.12
C_f_sad							
1	0.02	-0.01	0.02	0.69	2	83	0.50
2	0.10	0.07	0.08	7.70	1	82	0.01
3	0.12	0.06	0.02	0.71	2	80	0.50

Step 1: Sex and Age; Step 2: Sex, Age, and Race; Step 3: Sex, Age, Race, Trait EI, Ability EI

5.4.3 Analysis of Covariance (ANCOVA)

A repeated measures ANCOVA was carried out in order to determine if there was a significant difference between the total correct for each of the emotions and the race of the stimuli face, as well as to determine if there was a significant interaction between the race of the participant and the race of the stimuli. The within-subjects factors of the ANCOVA used were the three emotions (happy, sad, and angry), the race of the face stimulus (Asian or Caucasian), and whether the race of the participant was the same as the stimulus or different from the race of the stimulus. The between subjects factors was the sex with both trait and ability EI as covariates.

Given that Mauchley's test of sphericity was significant (p < .001), the
Greenhouse-Geisser correction was used. The results of the ANCOVA
revealed a significant main effect for the race of the face stimulus (F (1, 82) =
7.28, p < .01), indicating that participants responded differently to the races
of the face stimulus. The results also show a significant interaction between
the race of face stimulus and the race of the participant (F (1, 82) = 4.58, p
< .05), which shows that participants are better able to correctly identify
faces of their own race. The main effect displayed for emotions indicates
that the emotional facial expressions differed significantly from each other (F
(1.39, 114.15) = 4.37, p < .05), displaying that some emotions were easier to
correctly identify. However, there was not a significant interaction between
the facial expression and the race of the participant, or between the facial
expression and the race of the face stimuli. Interestingly, there was not a
significant interaction between facial expression, race of the participants,
and race of the facial stimulus. Neither trait nor ability EI showed
significant effects as covariates. The full ANCOVA results can be seen in
Table 5.6.

Table 5.6 – Analysis of Covariance

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
face_exp	0.15	1.39	0.10	4.37	0.03
face_exp * traitEI	0.03	1.39	0.02	0.83	0.40
face_exp * abilityEI	0.00	1.39	0.00	0.13	0.80
face_exp * race	0.04	1.39	0.03	1.10	0.32
Error(face_exp)	2.74	114.15	0.02		
facerace	0.05	1.00	0.05	7.28	0.01
facerace * traitEI	0.01	1.00	0.01	1.41	0.24
facerace * abilityEI	0.00	1.00	0.00	0.19	0.66
facerace * race	0.03	1.00	0.03	4.58	0.04
Error(facerace)	0.51	82.00	0.01		
face_exp * facerace	0.02	1.69	0.01	1.15	0.31
face_exp * facerace * traitEI	0.01	1.69	0.01	0.74	0.46
face_exp * facerace * abilityEI	0.03	1.69	0.02	1.71	0.19
face_exp * facerace * race	0.03	1.69	0.02	2.15	0.13
Error(face_exp*facerace)	1.28	138.57	0.01		

Note: Faceexp = facial expression of the stimulus; face race = race of the stimulus; race = race of the participants

Post hoc independent samples t-tests were carried out in order to further investigate the significant differences. The results of the t-test indicate that Caucasians had significantly higher mean correct scores in identifying the Caucasian female angry and sad faces. However, as can be seen in Table 5.7, there were no significant differences between the races for any of the other stimuli.

Table 5.7 – Post hoc independent sample t-test examining differences in race and emotion of the stimuli

	t	df	Sig.
Asian_female_percent_angry	0.31	85.00	0.76
Asian_female_percent_happy	0.86	85.00	0.39
Asian_female_percent_sad	1.52	85.00	0.13
Asian_male_percent_angry	0.53	85.00	0.60
Asian_male_percent_happy	1.62	80.79	0.11
Asian_male_percent_sad	0.27	85.00	0.79
Caucasian_female_percent_angry	4.51	80.58	0.00
Caucasian_female_percent_happy	-1.09	85.00	0.28
Caucasian_female_percent_sad	2.62	85.00	0.01
Caucasian_male_percent_angry	1.08	85.00	0.28
Caucasian_male_percent_happy	1.22	79.59	0.23
caucasian_male_percent_sad	0.81	85.00	0.42

Further post hoc analysis indicated that females were significantly better at identifying the Caucasian female angry face ($t(85) = 2.35$, $p < .05$). None of the other stimuli showed significant sex differences. This result is in keeping with what was found in the regression analysis.

Overall, the results reveal race, both of the participant and of the stimulus, to be the biggest factor in correctly identifying the emotion of the target face. Surprisingly, neither trait nor ability EI were significant predictors of success on the inspection time task.

5.5 Discussion

The purpose of this study was to investigate the relationship among personality, trait EI, and ability EI, and how they relate to an individual's ability to correctly identify facial affect both in his/her own race and cross-racially. One of the aspects of emotional intelligence is the capacity of an individual to recognize emotions both in the self and others. Recognizing

non-verbal emotions, such as facial affect, is one of the facets of this portion of EI. Previous research has indicated that people are both better and quicker to recognize facial affect in another person of their own race (Beaupré & Hess, 2003; Hugenberg, 2005; Kito & Lee, 2004; Lindsay, Jack, & Christian, 1991; MacLin & Malpass, 2003; Meissner & Brigham, 2001, Tanaka et al., 2004; Walker & Tanaka, 2003). However, given the recognizing emotions feature of EI, it would seem that an individual high in EI would be able to correctly identify facial affect of another person regardless of race, similar to the way a person with high verbal intelligence would learn new words more quickly.

The results of this study indicate that there was a significant difference in the correct responses for the different races of the face stimuli, as well as an interaction between the race of the participant, the race of the stimulus and the emotion of the stimulus. This result was in accordance with previous cross-race effect research, which shows that people are better able to identify faces of their own race (Meissner & Brigham, 2001). The results also indicate that there was a significant difference in the correct responses for each of the emotions, as well as an interaction between the emotion and the race of the face stimulus. Interestingly, the post hoc analysis indicates that there were significant racial differences in the percentage of correct responses for Caucasian female angry and sad faces. However, correct percentages for all of the happy face stimuli were all above 96%, regardless of race. This is somewhat similar to the results found by Hugenberg (2005) which showed that participants recognized happy faces faster than angry or sad. Perhaps the difference is due to the positive emotion being more easily distinguished from the other two, negative, emotions. There is certainly a greater range in

the mean correct percentage for the negative emotions in the results of this study. When looking at the stimuli it can be seen that the position of the mouth in the sad and angry photos is fairly similar, while the mouth in the happy photos looks very different from the two negative emotions. Though Tanaka et al. (2004) found that participants were better at recognizing faces holistically.

When considering sex differences in personality, the results of this study are partially in keeping with previous research. The independent samples t-test indicated that there was a significant sex difference in Agreeableness score, with females being more agreeable. However, previous research (Matthews et al., 2003) has indicated that males score significantly higher on Emotional Stability, yet this is not the case with this sample, though the difference was approaching significance. Females have also been shown to score significantly higher on EI measures (Matthews et al., 2001), yet there was no significant difference in this sample. With regards to race, Caucasians scored significantly higher on the personality traits of Extraversion and Imagination, as well as on the ability EI measure. Interestingly, there was a significant correlation between ability EI (as measured by the TEMINT) and Imagination. As discussed in the first chapter, previous research has generally not found significant correlations between personality and ability EI (Day & Carroll, 2004). Also in keeping with previous research, trait EI was significantly correlated with Agreeableness, Imagination, and Emotional Stability, though trait EI was not significantly related to Extraversion, which is in contrast to previous findings. There was no significant correlation between trait and ability EI.

The results of the regression analysis indicate that sex and race are significant predictors of two of the facial stimuli, female Caucasian angry and sad. Neither trait nor ability EI were significant predictors of any of the total correct percentage for any of the facial stimuli. These results seem to suggest that sex and race are the factors which effect how well an individual is able to identify the cross racial facial affect. These results are surprising as it was hypothesized that EI would be a significant predictor due to the findings in previous research which indicated that EI is related to success on emotional IT tasks. However, the race results are in keeping with previous research which indicates that individuals are better able to recognize the facial affect of people of their own race.

Further research in this area could be conducted using different facial stimuli. The results indicated that the happy faces had very high percentage of correct responses, even at the 25ms duration. It would be interesting to carry out a study similar to that conducted by Tanaka et al. (2004), in order to see if there are differences in recognizing whole faces or main features when the faces are displaying different emotions. This would help clarify some of the differences found between positive and negative emotions.

Chapter Six

6.1 Conclusion

The purpose of the studies in this thesis was to investigate how emotional intelligence related to personality, social networks, and social perception, and as well as to further examine the relationship between trait and ability EI. Given these aims, first the relationship among personality, depression, life stress, and social networks will be examined, then the relationship among both types of EI and these outcome variables will be discussed. Next, the relationship between the two types of EI, particularly in relation to how the results given in chapters three and five relate to previous research, and finally, there will be suggestions for future research. Just to note, in this chapter, when the values for the predictor variables are given, the β will represent the standardized β (which represent the amount of variance explained by each of the independent variables in a regression analysis).

6.1.1 Personality

The results of these studies showed some interesting relationships between the personality factors and the outcome variables. Personality was a significant predictor of three of the NRI subscales (admiration, antagonism, and reliable alliance), as well as both the SSQ3a and b. Interestingly, Emotional Stability was the most common personality factor to significantly predict the outcome variables, showing a significant standardized β in the regression analyses for reliable alliance (β = .208, p = .024), antagonism (β = -.215, p = .003), SSQ3a (β = .178, p = .010), and SSQ3b (β = .164, p = .031). The NRI measured the quality of the relationship between the participants and a

target member of their social networks, and these results indicate that Emotional Stability is a significantly negatively related to both antagonism and conflict, positively correlated with reliable alliance, and also of the overall social network quality and size assessed by the SSQ3. Extraversion provided an interesting contrast to the Emotional Stability results, in that while it significantly predicted the SSQ3a it was only approaching significance with the SSQ3b (β = .164, p = .063), and was also a significant predictor of admiration, affection, intimacy, instrumental aid, and the total NRI score. This does seem to indicate a possible suggestion that though those high in E have a larger social network, it does not seem to be related to the quality of their overall social network. In addition, it is difficult to determine the role that age and sex may play in the relationship between Extraversion and social network quality and size. Imagination, which is the IPIP (Goldberg, 1999) equivalent to what the NEO-FFI (Costa & McCrae, 1992) calls Openness, was also revealed to be an important personality factor in relation to social networks. It significantly predicted both the reliable alliance (β = .173, p =.015) and admiration (β = .185, p = .034) subscales of the NRI, as well showing a surprising negative relationship as a predictor of the SSQ3b (β = -.181, p = .016). It is both interesting and unexpected that Imagination would show a negative relationship with overall social network quality. Perhaps it is that the Openness to experience and preference for variety can lead to dissatisfaction with a stable social network. The only social network variable that was significantly predicted by Conscientiousness was antagonism (β = -.141, p = .048). This finding could be due to aspects of Conscientiousness such as self-discipline and deliberation, as in perhaps an individual high in C would reflect on an interaction before acting, which could reduce the antagonism in a

relationship. Finally, and unexpectedly, Agreeableness was a significant predictor only of intimacy and the SSQ3a. It does seem as though Agreeableness would relate more to social network quality and size. Perhaps the lack of relationship suggests that the level of an individual's Agreeableness relates to all people, not just those that are in their social network, similar to the proposal by Matthews et al. (2003) that Agreeableness relates to a relationship schema. For example, if an individual is accommodating and thinks that other people are trustworthy and honest, that opinion will apply to people in general, rather than just people within his/her network. In contrast, if an individual is not accommodating and has a tendency to be cynical, this will apply to both people in general and members of his/her social network.

The results relating personality to depression were similar to those found by Lozano & Johnson (2001) in that while both Conscientiousness and Emotional Stability were correlated to the total BDI score, only Emotional Stability was a significant predictor in the regression model (standardized β = -.524, p < .001). However, the mean BDI score for the participants (M = 7.08, SD = 7.27) in this study did not reach the level of clinical depression (on the BDI a score of 10-18 indicates mild depression, 19-29 shows moderate depression, and above 30 indicates severe depression), which could explain why the results were different from those found in previous studies that examined the personality profiles of participants who were receiving treatment for depression (Petersen, Bottonari, Alpert, Fava, & Nierenberg, 2001). The relationship between Emotional Stability and depression is well established and was further supported with these results. However, it is the relationship between psychological well-being and the other personality

factors, particularly Conscientiousness, that should be further explored with a clinical sample, with a non-clinical control group, in order to clarify if personality affects mental health through a predisposition or through how the symptoms are expressed (Rector et al., 2002). With regards to life stress, none of the personality factors were significant predictors, though Extraversion showed significance at the trend level as a predictor for uplifts (β = .279, p = .056). The most interesting aspect of the results are that while the uplifts score initially showed a significant correlation with the total NRI score and the admiration, nurturance, and instrumental aid subscales, as well as trait EI, none of these relationships remained significant after controlling for personality.

6.1.2 Trait Emotional Intelligence

The relationship among trait EI and personality, social network quality and size, life stress, depression, and social perception will now be discussed. The association between trait and ability EI will be examined later in this chapter, along with discussion of psychometric issues and the relationship between the two measures of ability EI that were used.

In chapter two it was shown that previous research found trait EI to be related to social networks, mental health, depression, and stress, amongst other things (Gohm et al., 2005; Mavroveli et al., 2007; Saklofske et al., 2007; Schutte et al., 2007). Given the results shown in the previous literature, it was expected that in the first set of studies trait EI would be found to be positively related to social network quality and size, negatively related to life stress and depression, and explain a significant percent of the variance of

these variables beyond personality. It was also predicted that trait EI would relate to success on the cross-racial emotion inspection time task, as trait EI had previously been shown to predict success on emotional IT tasks (Austin, 2004; 2005). However, despite these predictions being based on the findings of previous research, few of them were found in these studies.

Initially, the results of the first set of studies looked promising. Trait EI showed significant positive correlations in both studies with admiration, affection, intimacy, and the SSQ3a as well as significant negative relationships with both antagonism and conflict. In the second study only, trait EI was also significantly positively related to relative power, reliable alliance, the SSQ3b, the total uplifts score, and negatively correlated with the total BDI score. However, when partial correlations were conducted in order to control for the effects of the big five factors of personality, trait EI maintained a significant relationship only with admiration in the first study, and did not continue to be significantly correlated with any of the outcome variables in the second study. Interestingly, the multiple regression analysis showed trait EI as a significant predictor of relative power in the second study ($p < .01$), and approaching significance as a predictor for admiration in both of the studies ($p = .06$). Trait EI did show moderate significant relationships with Agreeableness, Extraversion, and Emotional Stability, as well as small significant correlations with both Conscientiousness and Imagination/Intellect. Finally, a regression analysis was carried out with trait EI as the dependent variable, with sex, age, and the big five factors of personality as predictors, and they explained over 50% of the variance of trait EI ($R^2_{adj} = .501$, $p < .001$). These results return to the question, which will be addressed shortly, of the necessity for incremental validity of trait EI

(Austin et al., in press, Petrides & Furnham, 2003), and the usefulness of trait EI as a predictor.

Before addressing the issues of trait EI as a predictor, the results of its relationship with the social perception task will be discussed. An emotional inspection time task was used in the third study because trait EI had previously been shown to significantly relate to emotional IT tasks (Austin 2004; 2005). More specifically, the participants were asked to identify the emotional expression on photos of faces both of their own and another race. The hypothesis was that EI would significantly relate to success on the emotional IT tasks as an individual who does well with emotion perception should recognize emotions regardless of the race of the target. While the cross-racial aspect of this had not previously been investigated in EI research, several inspection time task studies had been carried out which showed a relationship between EI and IT tasks, as was discussed in chapter four (Austin, 2004; 2005; Austin, submitted; Farrelly & Austin, 2007). In contrast with the previous research, the results of this study did not show trait EI as a significant predictor of success on the emotional IT tasks, nor was it significant as a covariate in the Analysis of Covariance (ANCOVA) that was carried out. While the results did show a significant difference in facial expression and the race of the target face, as well as a significant interaction between the two, EI as a covariate did not show any significance. Essentially, the results of this study showed that EI does not predict success in an emotional IT task when using cross-racial stimuli.

Though it has been argued that trait EI is a valuable predictor despite its lack of incremental validity from personality (Austin et al., in press, Petrides &

Furnham, 2003), these results would suggest otherwise. The main reason for this the contrast between these results and those of previous studies (Austin, 2004; 2005; Austin, submitted; Austin et al., 2005; Farrelly & Austin, 2007; Gohm et al., 2005; Mavroveli et al., 2007; Saklofske et al., 2007; Schutte et al., 2007) is that trait EI did not maintain a significant relationship with any variables (other than the admiration subscale of the NRI in the first study) after controlling for the big five factors of personality. Furthermore, trait EI was a significant predictor of only the relative power subscale of the NRI in the second study, but of no other aspects of social network quality and size, life stress, depression, or social perception, in contrast to the findings of the previous research. Given that trait EI is not a stable predictor of outcome variables such as social network quality and size, life stress, depression, or social perception, across these and other studies, the question of incremental validity is no longer relevant. There seems to be little value in measuring a predictor variable that does not seem particularly robust, especially when it has been shown to be a lower order personality trait (Petrides & Furnham, 2001; Petrides et al., 2007), and personality is a stable predictor. Therefore, it would seem that the value of trait EI as a predictor is limited. It is possible that the effect sizes are small and could be established by a meta-analysis. It does seem to remain questionable how useful a construct is if the effect sizes are so small they only become apparent with a meta-analysis. However, if one wanted to use a single measure as a predictor, trait EI does show more correlations than any of the individual personality traits. Consequently, though its usefulness is limited, trait EI is not completely without value.

6.1.3 Ability Emotional Intelligence

The relationship among ability EI, personality, social network quality and size, life stress, depression, and social perception is in many ways similar to the results found among trait EI and these variables. With regards to the relationship between ability EI and personality, the findings of these studies were somewhat similar to those that had been found in previous research (Day & Carroll, 2004; Van Rooy et al., 2005). Though some of the previous research found some small (r < 0.20) significant correlations with the personality factors, the personality factors in these studies were not significantly related to either the MSCEIT or the TEMINT. However, this result is not terribly surprising given that it is generally accepted that ability EI does not strongly relate, if it relates at all, to the big five factors of personality.

Some of the more interesting results arise out of the relationships among ability EI and the dependent variables, though there were surprisingly few significant correlations. However, it is important to keep in mind that the N was a bit small, which affects the statistical power of the study and a study with a larger N may have shown more significant results. The MSCEIT showed whole-part correlations with all of its branches, which would be expected. However, the only dependent variable which significantly related the MSCEIT was the total hassles score, which showed a small negative correlation. This was surprising because it was predicted that ability EI would relate to both social network quality and size, and possibly show a negative relationship with depression as well given that Brackett and Mayer (2003) found a significant relationship between the total MSCEIT score and psychological well-being. Lopes et al. (2003) found the total MSCEIT score

showed a significant negative relationship with the antagonism and conflict subscales of the NRI, as well being a significant predictor of social network quality. However, the results in this study do not replicate the results found by Lopes et al. (2003). That study also showed the managing emotions branch of the MSCEIT to significantly related to social network quality, however, the results of these studies showed the managing emotions branch related only with a small positive correlation to the companionship subscale of the NRI and a small negative relationship with the SSQ3b. What makes the lack of replication of the Lopes et al. (2003) results so interesting is that the NRI was used as a social network quality measure in that study was well, and the significant relationships with ability EI found were found with the MSCEIT. The understanding emotions branch also showed a small positive relationship with reliable alliance. Though the facilitating emotions and perceiving emotions branches both showed the expected MSCEIT part-whole correlations, neither branch showed significant relationships with any of the outcome variables. Interestingly, both the facilitating emotions branch and the total MSCEIT scored developed significant relationships with reliable alliance when controlling for personality, while the understanding emotions branch no longer showed the relationship as significant. In addition, the total MSCEIT score maintained a negative correlation with hassles when controlling for the effects of the big five factors of personality.

The most exciting MSCEIT related results are those shown between the MSCEIT and the TEMINT (Schmidt-Atzert & Bühner, 2002). The TEMINT is a new measure of ability EI, recently translated from its original German, and has not before been examined in relation to the MSCEIT. However, the results of the supplementary study show that the TEMINT significantly

related to the total MSCEIT score, as well as both the facilitating emotions and managing emotions branches, with fairly large effect sizes. This suggests that the TEMINT could be a useful new, public domain, measure of ability EI to be used in place of the MSCEIT. However, although the TEMINT did not show the expected relationship with social network quality as measured by the NRI, it was significantly related to social network quality as measured by the SSQ3b, both before and after controlling for personality. Both the TEMINT and the managing emotions branch of the MSCEIT showed a significant relationship with the SSQ3b, while the managing emotions branch was also significantly related to companionship. This again highlights the similarities between the TEMINT and the managing emotions subscale of the MSCEIT and suggests that the TEMINT could be a valuable substitute for the MSCEIT, particularly when examining the ability to determine emotions of a target person and how to use emotions in a situation.

The most remarkable ability EI results were related to the association, or lack thereof, with social perception. Inspection time tasks have been shown to relate to general intelligence (Austin 2005; Deary, 2000; Farrelly & Austin, 2007), and given that ability EI is meant to be "a term parallel to such others as verbal-comprehension intelligence, perceptual-organizational intelligence, or broad-visualization intelligence" (Mayer, Roberts, & Barsade, 2008, p. 510), it would seem that ability EI would relate to tasks which also relate to general intelligence. Indeed, relationships between ability EI and general cognitive ability have been found in a number of studies and potentially fit in with the existing psychometric intelligence (Davies, Stankov, & Roberts, 1998; MacCann et al., 2004; Roberts et al., 2004; Van Rooy & Viswesvaran

2004; 2005). In addition, Austin (2005) and Farrelly and Austin (2007) found relationships among intelligence, ability EI, and emotional inspection time tasks. Given that ability EI should relate to information processing through IT tasks, due to its classification as an intelligence by those who first put forth the concept (Salovey & Mayer, 1990; Mayer, Roberts, & Barsade, 2008), as well as the importance of emotions in interpersonal relationships, it was predicted that ability EI would significantly relate to success on a cross-racial social perception inspection time task. However, the results of the study show that ability EI did not relate in any way to the cross-racial emotional inspection time task. It was not a significant predictor of any of the conditions (stimuli face race: same or other; emotions: happy, sad, or angry), nor was it a significant covariate in the Analysis of Covariance (ANCOVA). In fact, the only significant relationship ability EI showed with any of the other variables in the third study was with the Imagination/Intellect personality factor (the relationship was negative, but given the scoring of the TEMINT this was the expected direction). These results contrast directly with those found in the previous research (Farrelly & Austin, 2007), as they neither support ability EI as an intelligence with regards to information processing nor do they show it to relate to emotion or social perception.

One potential explanation for the lack of relationship between ability EI and social perception could be the measure which was used. The TEMINT was chosen for the study both because it does not require participants to recognize emotions in faces, and also because it was shown to have a large correlation with the total MSCEIT score, the facilitating emotions branch, and the managing emotions branch. The TEMINT did not, however, show a

significant relationship with the perceiving emotions branch of the MSCEIT. That said, Farrelly and Austin (2007) found that both the total MSCEIT score and the facilitating emotions branch significantly related to both a sad/neutral emotional inspection time task, and the Ekman-60 Faces Test, part of the FEEST (Young, Perrett, Calder, Sprengelmeyer & Ekman, 2002), which requires participants to identify emotions on faces. Therefore, despite not being a broad-bandwidth ability EI measure, it is not unreasonable to predict that the TEMINT would significantly relate to social perception.

6.1.4 General Emotional Intelligence Conclusions

In some ways, the relationships among ability EI and the outcome variables is similar to the relationships shown between trait EI and the outcome variables. The similarities seem to reside in EI lacking stability as a predictor of social networks and well-being. The relationship between trait and ability EI will now be discussed, as well as psychometric issues and general conclusions about the construct of emotional intelligence.

The differences between trait and ability EI are most obvious in terms of measurement. Trait EI is dispositional, and therefore, measured by self-report. Recent findings also indicate that trait EI is a lower order personality trait (Petrides et al., 2007), and has little or no correlation with intelligence. In contrast, ability EI is measured by performance and relates to cognitive ability, but it generally shows little to no significant relationship with personality (Van Rooy et al., 2005). These two approaches to EI generally show small correlations, such as the small significant correlation($r = 0.14$) found between the two in a meta-analysis carried out by Van Rooy et al.

(2005). In fact, as discussed in chapter three, study two showed correlation between the total trait EI score measured by the Schutte et al. (1998) emotional intelligence scale and ability EI as measured by the MSCEIT is negative (though non-significant). Trait EI also shows no significant correlation with any of the subscales of the MSCEIT, or with TEMINT. The same holds true for study three, where the relationship between trait and ability EI was non-significant and in the opposite direction that one would expect. The strength of relationship between trait and ability EI has been compared to the association between self report and ability measures of cognitive intelligence (Pauhlus, Lysy, & Yik, 1998). Though given that both trait and ability EI have a basis in the concept introduced by Salovey and Mayer (1990), it seems a bit odd that there is not some relationship between the two. However, Mayer et al. (2008) argue that "[v]ariables included in the mixed models… are not part of EI…" (p. 514) and that trait EI is a broader interpretation of the EI construct than the original authors intended (Mayer et al., 2000). Though it could also be possible to take the cynical view suggested by Zeidner et al. (2001, p. 267):

> "The search for intelligence factors has recurrently produced concepts similar to EI (most especially social intelligence), but empirical research has subsequently failed to operationalize these constructs as dimensions distinct from orthodox intelligence…. Proponents of EI claim the construct is of sufficient novelty and importance to be appointed with special statues until it matures. However, the lack of evidence on the place of EI within multistratum ability model means that we cannot say at this time if EI is a personal quality as real as conventional intelligence, or merely a mirage."

In line with this argument, one must wonder how much time is required for the EI construct to "mature", given that, at this point, researchers have been exploring the construct for nearly 20 years.

Essentially, the two main issues of the EI construct are fairly intertwined. The first is the lack of a consistent definition. It tends to seem that there are as many definitions of EI as there are tests. This leads to the second major issue, which is the measurement. These differing definitions of the EI construct make it difficult, if not impossible, to truly define what EI is. Trait and ability EI are at odds with each other, and even the definition within each of the types of EI varies. This is a problem because, as Landy (2005) points out:

> "Meta-analyses and longitudinal designs are impossible when measures continually change. Similarly, coherent theory is unlikely to emerge when conceptual foundations are in flux" (p. 419)

When meta-analyses are conducted, they compare studies which use different measures of EI that are not necessarily measuring the same thing, nor do they relate to the dependent variables in the same way. Schutte et al. (2007) conducted a meta-analysis of 35 EI studies, which used seven different measures of both trait and ability EI, to examine the relationship between EI and health. However, how can the results of the studies be compared when they are not measuring the same thing? Given that the lack of relationship between trait and ability EI is generally accepted, it seems curious to relate health to an overall EI factor that is a combination of both.

In that meta-analysis, four of the studies examined looked at only ability EI, three of them looked at both trait and ability, and the remaining 28 looked just at trait EI, though using five different measures. Yet how do these measures relate to each other? Two of the more popular trait EI scales are the Schutte et al. (1998) EI scale and the EQ-i (Bar-On, 1997). The Schutte scale has an overall trait EI score, with interpersonal and intrapersonal subscales. In contrast, the EQ-i (short form) has an overall trait EI score, an interpersonal subscale, an intrapersonal subscale, a stress management subscale, an adaptability subscale, and a general mood subscale. The full version of the EQ-i has 15 subscales (though Matthews et al. (2002) suggest there is only empirical support for 10 of the subscales). Brackett and Mayer (2003) found only a moderate correlation ($r = 0.43$) between the Schutte scale and the EQ-i. Furthermore, when Austin (2005) looked at trait EI and emotional information processing, the results indicated that the Schutte interpersonal subscale significantly related to performance on the emotional inspection time task, but the EQ-i interpersonal subscale did not. This is in contrast to what is found with different measures of personality, Gow et al. (2005) found concurrent validity between three measures of personality: the IPIP (Goldberg, 1999), the NEO (Costa & McCrae, 1992), and the EPQ (Eysenck et al., 1985). If measures of the big five factors of personality show concurrent validity, then why do measures of trait EI, a lower-order personality trait, apparently not display concurrent validity? Most likely because the different measures of trait EI operationalize trait EI differently.

The measurement issues related to ability EI largely stem from the dependence on the MSCEIT. The MSCEIT is currently the only broad-bandwidth measure of ability EI available. However, there are some

concerns regarding the MSCEIT, particularly related to the factor validity. Palmer, Gignac, Manocha, and Stough (2005) argue that factor analysis does not support the four branch model of the MSCEIT, and that only the results of the perceiving, understanding, and managing emotions branches should be used. In addition, Roberts et al. (2006) conducted a factor analysis and found that measures of emotion do not load on the MSCEIT factors as expected, and called into question the factor validity of the MSCEIT, particularly regarding the emotion perception branch, in contrast to the other factor analysis study just mentioned. Furthermore, Farrelly and Austin (2007) found a three factor solution for the MSCEIT explaining 61% of the variance. An examination of a two factor solution showed the managing and facilitating branches on one factor, the understanding emotions branch on the second factor, and the perceiving emotions branch loading on both factors. Though, this was not one of the main points of the study as the authors mention that the sample size was rather small to draw strong conclusions about the factor structure. These results contrast with the MSCEIT factor structure put forth by the authors of the test (Mayer et al., 2002), which shows the perceiving and facilitating emotions branches on one factor, and the understanding and managing emotions branch on the second factor. Another concern regarding the MSCEIT is that the majority of the data is held in a proprietary database. By holding the bulk of the MSCEIT data in a proprietary database, it then becomes impossible for other researchers to examine the data and replicate the studies and results. It would be particularly valuable for the MSCEIT given the recent results which do not support the factor structure (Farrelly & Austin, 2007; Palmer et al., 2005; Roberts, et al., 2006). Lang (2005) argues that "[t]o the extent that they claim the credibility of the scientific method, they are required to make

their datasets public and available for independent analysis" (p. 413). In addition, the lack of access for researchers to the scoring key is an issue, particularly in relation to possible bias towards subgroups found in modal consensus scoring (Barchard & Russell, 2006).

There are also other ability EI measures are available, but they only measure certain facets of ability EI. The TEMINT showed the strongest relationship with the managing emotions branch of the MSCEIT, and the Situational Test of Emotional Understanding (STEU) and Situational Test of Emotion Management (STEM; MacCann, 2006) are designed to assess emotion management and understanding. Also, both the Diagnostic Analysis of Nonverbal Accuracy Scale (DANVA; Nowicki & Duke, 1994) and the Japanese and Caucasian Brief Affect Recognition Test (JACBART: Matsumoto et al., 2000) measure emotion perception. However, at what point do these measures cease to be classified as tests of ability EI, and become classified as a measure of emotion management, or emotional understanding, or emotion perception. If single aspects of ability EI are being measured, then can it rightly be called ability EI? Though intelligence uses a hierarchical factor structure, one can measure both subcomponents of general intelligence (such as verbal intelligence), as well as a combination of subcomponents which result in a general intelligence factor (Gottfredson, 1997). However, while there do seem to be successful measures of the subcomponents of ability EI, it does not seem that these can successfully be combined to create an overall ability EI measure. In addition, there is some question about the number of subcomponent factors of ability EI, as indicated by the factor analysis evidence which suggests either that the facilitating emotions branch should not be used as a measure (Palmer et al.,

2005), or that the emotion perception branch of the MSCEIT does not demonstrate factor validity (Roberts et al., 2006).

In essence, these results seem to call into question the value of the EI construct. Trait EI does not have a single operational definition, and it does not maintain its stability as a predictor of outcome variables such as social network quality and size as expected. Given this lack of reliability, coupled with the lack of incremental validity over personality, what is its value? With regards to ability EI, there are some serious concerns regarding the single broad-bandwidth measure of ability EI. While it could be argued that this suggests other broad-bandwidth ability EI measures should be created, there do exist other measures of the subcomponents of ability EI which are more accurately described as measures of emotion management/regulation, emotional understanding, and emotion perception. Perhaps it is time to aim for parsimony in research, and discontinue the investigation of a construct that is fraught with issues.

6.1.5 General Conclusions and Directions for Future Research

The relationship of personality to depression is one that needs to be further examined. These results showed that initially depression related to life stress, but that this relationship was no longer significant when controlling for personality. Further research could look at personality as a moderator of the association between life stress and depression, particularly in a clinical population.

Though emotional intelligence no longer looks as if it is a desirable independent variable, the individual facets of it are valuable as potential predictors. The ability to recognize faces and perceive emotions is relevant in a number of applied settings. Given that both the current results and previous research (MacLin & Malpass, 2001; Tanaka et al., 2004; Walker & Tanaka, 2003) indicate an own-race bias in facial recognition, an interesting line of research could induce emotive states in order to examine how emotions effect the ability to recognize facial expressions. After a mood induction one might expect a mood congruent bias in recognizing the facial affect (Tarsia, Power, & Sanavio, 2003). Perhaps the mood bias could overcome the in-group bias found by Beaupré and Hess (2002). For example, if the mood being induced is happiness, perhaps participants would be more likely to recognize happy faces of another race than sad or angry faces of their own race. This would be interesting because potentially mood congruent bias would be stronger than own-race bias. Also, it could be that emotion management could play a role in how successful an individual is on a facial affect recognition task after the emotion induction.

Furthermore, there was some indication in the results of these studies that emotion management related to social network size. In what ways does emotion management/regulation relate to social networks? Further research could investigate both self and peer reports to determine what role emotion management/regulation plays in social networks. Specifically, self and peer reports of both emotion management and social network quality and size could be completed in order to examine how emotion management affects social network relationships as viewed both by the participant and by a member of the participant's social network. It seems as though individuals

who have successful emotion management skills would also have higher social network quality (though not necessarily size), because successful emotion regulation would likely lead to fewer conflicts within the social network. It would also be interesting to examine the similarities between the self- and peer report with regards to social network quality, as it seems that the peer report would indicate a very high level of social network quality due to the lack of perceivable conflict. In addition, while the emotional understanding branch of the MSCEIT only related to the reliable alliance of the NRI, it does not seem unreasonable that understanding emotions also relates to social networks. In fact, it was the Situational Test of Emotional Understanding that Austin (submitted) found to relate to identifying blends of facial expressions as well as identifying feelings in the Reading the Mind in the Eyes test (Eyes; Baron-Cohen et al., 2001). Given that the Eyes test was originally designed for use with an autistic population, it would be interesting to examine the results of the STEU on an autistic population as well as a normal control group. Indeed, Penton-Voak et al. (2007) found that empathy, though not systemizing scores, related to performance on a face perception task. Given that autism is related to high systemizing and low empathy, it seems reasonable to predict that empathy would also positively relate to the STEU, and that this relationship could in turn relate to social network quality and size.

Emotion perception seems to emerge as the most interesting of the EI subscales. It related to both inter- and intrapersonal relationships. Indeed, it is a lack of emotion perception that characterizes many mental disorders, such as autism and schizophrenia (Brüne, 2005). A question of interest is how culture and race relate to the development of emotion perception

within mental disorders. There is some indication that there are racial differences in emotion perception in people with schizophrenia, indicating that Caucasians with schizophrenia perform significantly better than both Black and Latino individuals with schizophrenia on measures of social perception (Brekke, Nakagami, Kee, & Green, 2005). Though interestingly, there is not a significant difference in the performance of Black and Latino individuals with schizophrenia. Further cross-racial emotion perception research could benefit from looking at different populations, both with and without mental disorders, in order to more fully understand cross-racial emotion perception.

Though the value of emotional intelligence is in doubt, its facets are important and have a great deal of potential for use is applied settings. In fact, Austin (submitted) has already found that EI relates to measure of autism, which certainly suggests an area for further research that investigates how individuals with autism may differ in their use of emotional skills, such as emotion perception, emotion management, and emotional understanding. In addition, there is still a question about the possibility of learning skills associated with the subcomponents of EI. For example, it could be that individuals with depression could learn emotion management and reduce their experience of depressive symptoms. In addition, there is a question of how emotion management relates to emotion perception. If an individual is better able to regulate his/her own emotions, does that mean s/he is better able to recognize the emotions of others? This could again relate to possible mental health treatments considering that Tarsia et al. (2003) found that people are more likely to recognize mood congruent stimuli, if an individual is depressed s/he would seemingly be

more likely to only recognize a depressed mood in others, which could perpetuate his/her own depressed mood. Potentially an individual could learn, not only to regulate his/her own emotions, but to better perceive non-mood congruent stimuli. Research should continue which looks at emotion perception, emotion management, emotion facilitation, and emotional understanding as independent variables. However, it appears that their greatest value lies in measuring each individually, rather than trying to call them EI.

References

Amelang, M. & Steinmayr, R. (2006). Is there a validity for tests of emotional intelligence in explaining the variance of performance criteria? *Intelligence, 34*, 459-468.

Amster, L., & Krauss, H. (1974). The relationship between life crises and mental deterioration in old age. *Aging and Human Development, 5*, 51–55.

Argyle, M., Martin, M., & Crossland, J. (1989). Happiness as a function of personality and social encounters. In J. P. Forgas & J. M. Innes (Eds.), *Recent advances in social psychology: An international perspective.* North Holland: Elsevier.

Austin, E.J. (2004). An investigation of the relationship between trait emotional intelligence and emotional task performance. *Personality and Individual Differences, 36*, 1855-1864.

Austin, E.J. (2005). Emotional intelligence and emotional information-processing. *Personality and Individual Differences, 39*, 403-414.

Austin, E.J. (submitted). Looking for the "Intelligence" in Emotional Intelligence: Associations of EI test Performance with Cognitive Test and Emotion Task Performance.

Austin, E.J., Parker, J. D.A., Petrides, K. V., & Saklofske, D.H. (In press). Emotional intelligence. In G. J. Boyle, G. Matthews, & D. H. Saklofske (Eds.) *SAGE Handbook of Personality Theory and Assessment.*

Austin, E., Saklofske, D., & Egan, V. (2005). Personality, well-being, and health correlates of trait emotional intelligence. *Personality and Individual Differences, 38* 547-558.

Austin, E., Saklofske, D., Huang, S., & McKenney, D. (2004). Measurement of trait emotional intelligence: testing and cross-validating a modified version of Schutte et al.'s (1998) measure. *Personality and Individual Differences, 36*, 555-562.

Baddeley, A. (1968). A 3 min reasoning test based on grammatical transformation. *Psychonomic Science, 10*, 341-342.

Bagby, R., Bindseil, K., Schuller, D., Rector, N., Young, L., Cooke, R., Seeman, M., McCay, E., & Joffe, R. (1997). Relationship between the five-factor model of personality and unipolar, bipolar, and schizophrenic patients. *Psychiatry Research, 70,* 83-94.

Bar-On, R. (1997). *Bar-On Emotional Quotient Inventory: Technical Manual.* Toronto: Multi-Health Systems.

Bar-On, R., Brown, J., Kirkcaldy, B., & Thomé, E. (2000). Emotional expression and implications for occupational stress; an application for the Emotional Quotient Inventory (EQ-i). *Personality and Individual Differences, 28,* 1107-1118.

Barchard, K. & Russell, J. (2006). Bias in consensus scoring, with examples from ability emotional intelligence tests. *Psicothema, 18,* 49-54.

Baron-Cohen, S., Richler, J., Bisarya, D., Gurunathan, N., & Wheelwright, S. (2003). The systemizing quotient: An investigation of adults with Asperger syndrome or high functioning autism, and normal sex differences. *Philosophical Transactions of the Royal Society of London Series B-Biological Sciences, 358*(1430), 361-374.

Baron-Cohen, S. & Wheelwright, S. (2004). The empathy quotient: An investigation of adults with Asperger syndrome or high functioning autism, and normal sex differences. *Journal of Autism and Developmental Disorders, 34,* 163-175.

Beaupré, M. & Hess, U. (2003). In my mind, *we* all smile: A case of in-group favouritism. *Journal of Experimental Social Psychology, 39,* 371-377.

Bech, P., Bolwig, T., Kramp, P., Rafaelsen, O. (1979). The Bech-Rafaelsen Mania Scale and the Hamilton Depression Scale: Evaluation of homogeneity and inter-observer reliability. *Acta Psychiatrica Scandinavica, 59,* 420-430.

Beck, A.T. (1983). Cognitive therapy of depression. In: Clayton, P.J. and Barrett, J.E., Editors, 1983. *Treatment of depression: Old controversies and new approaches*, Raven Press, New York, pp. 265–290.

Beck, A., Steer, R., & Garbin, M. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review, 8* 77-100.

Beck, A., Ward, C., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 4*, 561-571.

Brackett, M. A. & Mayer, J.D. (2003). Convergent, discriminant, and incremental validity of competing measures of emotional intelligence. *Personality and Social Psychology Bulletin, 29*, 1147-1158.

Brackett, M., Mayer, J., & Warner, R.(2004). Emotional intelligence and its relation to everyday behaviour. *Personality and Individual Differences, 36*, 1387-1402.

Brekke, J., Nakagami, E., Kee, K., & Green, M. (2005). Cross-ethnic differences in perception of emotion in schizophrenia. *Schizophrenia Research, 77*, 289-298.

Brugha, T., Bebbington, P., Tennant, C., & Hurry, J. (1985). The list of threatening experiences: A subset of 12 life event categories with considerable long-term contextual threat. *Psychological Medicine, 15*, 189–194.

Brüne, M. (2005). Emotion recognition, 'theory of mind,' and social behavior in schizophrenia. *Psychiatry Research, 133*. 135-147.

Carver, C., Scheier, M., Weintraub, J. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56*, 267-283.

Cattell, R. (1971). *Abilities: Their structure, growth, and measurement.* Boston: Houghton Miffin.

Chapman, B. & Hayslip, B. (2005). Incremental validity of a measure of emotional intelligence. *Journal of Personality Assessment, 85*, 154-169.

Ciarrocchi, J., Chan, A., & Bajgar, J. (2001). Measuring emotional intelligence in adolescents. *Personality and Individual Differences, 31*, 1105-1119.

Ciarrochi, J., Chan, A., & Caputi, P. (2000). A critical evaluation of the emotional intelligence construct. *Personality and Individual Differences, 28*, 539-561.

Ciarrochi, J., Deane, F., & Anderson, S. (2002). Emotional intelligence moderates the relationship between stress and mental health. *Personality and Individual Differences, 32*, 197-209.

Clark, D. & Oates, T. (1995). Daily hassles, major and minor life events, and their interaction with sociotropy and autonomy. *Behaviour Research and Therapy, 33*, 819-823.

Costa, P. & McCrae, R. (1992). *NEO PI-R Professional Manual.* Odessa, FL: Psychological Assessment Resources.

Costanzo, M. & Archer, D. (1989). Interpreting the expressive behaviour of others: The Interpersonal Perception Task. *Personality and Individual Differences, 13*, 225-245.

Costanzo, M. & Archer, D. (1993). *The Interpersonal Perception Task-15 (IPT-15).* Berkeley, CA: University of California Extension Media Center.

Cutrona, C. & Russell, D. (1987). The provisions of social relationships and adaption to stress. In W. H. Jones & D. Perlman (Eds.), Advances in personal relationships (Vol. 1, p 37-67). Greenwich, Conn: JAI Press.

Davies, M., Stankov, L., & Roberts, R. (1998). Emotional intelligence: in search of an elusive construct. *Journal of Personality and Social Psychology, 75*, 989-1015.

Dawda, D. & Hart, S. (2000). Assessing emotional intelligence: Reliability and validity of the Bar-On Emotional Quotient Inventory (EQ-i) in university students. *Personality and Individual Differences, 28*, 797-812.

Day, A. & Carroll, S. (2004). Using an ability-based measure of emotional intelligence to predict individual performance, group performance, and group citizenship behaviours. *Personality and Individual Differences, 36*, 1443-1458.

De Raad, B. (2005). The trait-coverage of emotional intelligence. *Personality and Individual Differences, 38*, 673-687.

Deary, I., Blenkin, H., Agius, R., Endler, N., Zeally, H., & Wood, R. (1996). Models of job-related stress and personal achievement among consultant doctors. *British Journal of Psychology, 87*, 3-29.

Eastwood, J. & Smilek, D. (2005). Functional consequences of perceiving facial expressions of emotion without awareness. *Consciousness and Cognition, 14*, 565-584.

Ekman, P. (1968). Research findings on recognition and display of facial behaviour in literate and nonliterate cultures. *Proceedings of the 76th Annual Convention of the American Psychological Association, 3*, 727.

Ekman, P. & Friesen, W. (1971). Constants across cultures in the face and emotion. *Journal of Personality and Social Psychology, 17*, 124-129.

Engelberg, E., & Sjöberg, L. (2004). Emotional intelligence, affect intensity, and social adjustment. *Personality and Individual Differences, 37*, 533-542.

Eysenck, H.J., Eysenck, S.B.G. & Barrett, P. (1985). A revised version of the psychoticism scale. *Personality and Individual Differences, 6*, 21-29.

Farrelly, D. & Austin, E. (2007). Ability EI as an intelligence? A preliminary study of associations of the MSCEIT with performance on emotion-processing and social tasks, and with cognitive ability. *Cognition and Emotion, 21*, 1043-1063.

Fossati, A., Maffei, C., Bagnato, M., Donati, D., Donini, M., Fiorilli, M., Novella, L., & Ansoldi, M. (1998). Brief communication: Criterion validity of the personality diagnostic questionnare-4+ (PDQ-4+) in a mixed psychiatric sample. *Journal of Personality Disorders, 12*, 172-178.

Furman, W. & Buhrmester, D. (1985). Children's perceptions of the personal relationships in their social networks. *Developmental Psychology, 21*, 1016-1024.

Furnham, A. & Petrides, K. (2003). Trait emotional intelligence and happiness. *Social Behaviour and Personality, 31*, 815-824.

Gannon, N. & Ranzijn, R. (2005). Does emotional intelligence predict unique variance in life satisfaction beyond IQ and personality? *Personality and Individual Differences, 38*, 1353-1364.

Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences.* New York: Basic Books.

Geher, G., Warner, R., & Brown, A. (2001). Predictive validity of the emotional accuracy research scale. *Intelligence, 29*, 373-388.

Gohm, C., Corser, G., & Dalsky, D. (2005). Emotional intelligence under stress: Useful, unnecessary, or irrelevant? *Personality and Individual Differences, 39*, 1017-1028.

Goldberg, L. R. (1999). A broad-bandwidth, public-domain, personality inventory measuring the lower-level facets of several Five-Factor models. In I. Mervielde, I. J. Deary, F. DeFruyt, & F. Ostendorf (Eds.), *Personality Psychology in Europe* (pp.7-28). Tilburg University Press.

Goldberg, L., Johnson, J., Eber, H., Hogan, R., Ashton, M., Cloninger, C., & Gough, H. (2006). The international personality item pool and the future of public-domain personality measures. *Journal of Research in Personality, 40*, 84-96. http://www.ipip.org

Goleman, D. (1995). *Emotional intelligence.* New York: McGraw-Hill.

Gottfredson, L. (1997). Why g matters: the complexity of everyday life. *Intelligence, 24*, 79-132.

Gow, A., Whiteman, M., Pattie, A., & Deary, I. (2005). Goldberg's 'IPIP' big-five factor markers: Internal consistency and concurrent validation in Scotland. *Personality and Individual Differences, 39*, 317-329.

Hayes, N. & Joseph, S. (2003). Big 5 correlates of three measures of subjective well-being. *Personality and Individual Differences, 34*, 723-727.

Heim, A., Watts, K., & Simmonds, V. (1970). AH4, AH5, and AH6 tests. NFER, Windsor.

Horn, J. (1988), Thinking about human abilities. In J. R. Nesselroade & R. B.Cattell (Eds.), *Handbook of multivariate experimental psychology* (2nd ed., 645-685). New York: Plenum.

Hugenberg, K. (2005). Social categorization and the perception of facial affect: Target race modifies the response latency advantage for happy faces. *Emotion, 5*, 267-276.

Hyler, S. (1994). PDQ-4 and PDQ-4+: Instructions for use. Unpublished manuscript, Columbia University.

Hyler, S. & Reider, R. (1987). Personality diagnostic questionnaire – Revised (PDQ-R). New York State Psychiatric Institute, New York.

International Personality Item Pool: A Scientific Collaboratory for the Development of Advanced Measures of Personality Traits and Other Individual Differences (http://ipip.ori.org/). Internet Web Site.

Kafetsios, K. (2004). Attachment and emotional intelligence abilities across the life course. *Personality and Individual Differences, 37*, 129-145.

Kanner, A., Coyne, J., Schaefer, C., & Lazarus, R. (1981). Comparison of two modes of stress measurement: Daily hassles and uplifts versus major life events. *Journal of Behavioural Medicine, 4*, 1-39.

Kito, T. & Lee, B. (2004). Interpersonal perception in Japanese and British observers. *Perception, 33*, 957-974.

Knapp-Rudolph, M. (2003). *ITEM—Intelligenztest zur Erfassung von Emotions-Modulation*. Heidelberg: Unpublished Master Thesis.

Kovacs, M. (1985). The Children's Depression Inventory. *Psychopharmacology Bulletin, 21*, 995-998.

Landy, F. (2005). Some historical and scientific issues related to research on emotional intelligence. *Journal of Organizational Behavior, 26*, 411-424.

Lane, R., Quinlan, D., Schwartz, G., Walker, P., & Zeitlin, S. (1990). The Levels of Emotional Awareness Scale: A cognitive developmental measure of emotion. *Journal of Personality Assessment, 55*, 124-134.

Lane, R. & Schwartz, G. (1987). Levels of emotional awareness: A cognitive-developmental theory and its application to psychopathology. *American Journal of Psychiatry, 144*, 133-143.

Lane, A., Whyte, G., Terry, P. & Nevill, A. (2005). Mood, self-set goals and examination performance: The moderating effect of depressed mood. *Personality and Individual Differences, 39*, 143-153.

Leible, T. & Snell, W. (2004). Borderline personality disorder and multiple aspects of emotional intelligence. *Personality and Individual Differences, 37*, 393-404.

Lindsay, S., Jack, P., & Christian, M. (1991). Other-race face perception. *Journal of Applied Psychology, 76*, 587-589.

Lopes, P., Salovey, P., & Straus, R. (2003). Emotional intelligence, personality, and the perceived quality of social relationships. *Personality and Individual Differences, 35*, 641-658.

Lozano, B. & Johnson, S. (2001). Can personality traits predict increases in manic and depressive symptoms? *Journal of Affective Disorders, 63*, 103-111.

Mabe, P. & West, S. (1982). Validity of self-evaluation of ability: A review and meta-analysis. *Journal of Applied Psychology, 67*, 280-296.

MacCann, C., Roberts, R., Matthews, G., & Zeidner, M. (2004). Consensus scoring and empirical option weighting of performance-based emotional intelligence (EI) tests. *Personality and Individual Differences, 36*, 645-662.

MacLin, O. & Malpass, R. (2001). Racial categorization of faces: The ambiguous race effect. *Psychology, Public Policy, and Law, 7*, 98-118.

MacLin, O. & Malpass, R. (2003). Last but not least. *Perception, 32,* 249-252.

Matsumoto, D., LeRoux, J., Wilson-Cohn, C., Raroque, J., Kooken, K. (2000). A new test to measure emotion recognition ability: Matsumoto and Ekman's Japanese and Caucasian Brief Recognition Test (JACBART). *Journal of Nonverbal Behaviour, 24*, 179 – 209.

Matthews, G., Deary, I., & Whiteman, M. (2003). *Personality traits (2nd ed.).* Cambridge, UK: Cambridge University Press.

Matthews, G., Zeidner, M., & Roberts, R. (2001). *Emotional intelligence. Science and myth*. Cambridge, MA: MIT Press.

Mavroveli, S., Petrides, K., Rieffe, C., & Bakker, F. (2007). Trait emotional intelligence, psychological well-being and peer-rated social competence in adolescence. *British Journal of Developmental Psychology, 25*, 263-275.

Mayer, J., Caruso, D., Salovey, P. (1999). Emotional intelligence meets traditional standards for an intelligence. *Intelligence, 27*, 267-298.

Mayer, J. & Geher, G. (1996). Emotional intelligence and the identification of emotion. *Intelligence, 22*, 89-113.

Mayer, J., Roberts, R., & Barsade, S. (2008). Human abilities: Emotional intelligence. *Annual Review of Psychology, 59*, 507-536.

Mayer, J., & Salovey, P. (1993). The intelligence of emotional intelligence. *Intelligence, 17*, 433-442.

Mayer, J. & Salovey, P. (1997). What is emotional intelligence? In P. Salovey & D. Sluyter (Eds.), *Emotional development and emotional intelligence: Educational implications* (3-31. New York: Basic Books.

Mayer, J., Salovey, P., & Caruso, D. (2000). Models of emotional intelligence. In *Handbook of Intelligence,* ed. RJ Sternberg, pp. 396 – 420. Cambridge, UK: Cambridge University Press.

Mayer, J., Salovey, P., & Caruso, D. (2002). *Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) user's manual*. Toronto: Multi-Health Systems.

Meissner, C. & Brigham, J. (2001). Thirty years of investigating the own-race bias in memory for faces. *Psychology, Public Policy, and Law, 7*, 3-35.

Miller, I. W., Bishop, S., Norman, W. H., & Maddever, H. (1985). The modified Hamilton Depression Eating Scale: Reliability and validity. *Psychiatry Research, 14*, 131–142.

Nowicki, S. & Duke, M. (1994). Individual difference in the nonverbal communication of affect: the Diagnostic Analysis of Nonverbal Accuracy Scale. *Journal of Nonverbal Behaviour, 19*, 9 – 35.

Palmer, B., Gignac, G., Manocha, R., & Stough, C. (2005). A psychometric evaluation of the Mayer-Salovey-Caruso Emotional Intelligence Test version 2.0. *Intelligence, 33*, 285-305.

Palmer, B. & Stough, C. (2001). Workplace SUEIT. Swinburne University emotional intelligence test – technical manual. Organisational Psychology Research Unit, Swinburne University, Australia.

Parker, J., Taylor, G., & Bagby, M. (2001). The relationship between emotional intelligence and alexithymia. *Personality and Individual Differences, 30*, 107-115.

Paulhus, D., Lysy, D., & Yik, M. (1998). Self-report measures of intelligence: Are they useful as proxy IQ tests? *Journal of Personality, 66*, 525-554.

Penton-Voak, I., Allen, T., Morrison, E., Gralewski, L., & Campbell, N. (2007). Performance on a face perception task is associated with empathy quotient scores, but not systemizing scores or participant sex. *Personality and Individual Differences, 43*, 2229-2236.

Pérez, J., Petrides, K., & Furnham, A. (2005). Measuring trait emotional intelligence. In R. Schulze and R. D. Roberts (Eds.), *International Hanbook of Emotional Intelligence.* Cambridge, MA: Hogrefe & Huber.

Petersen, T., Bottonari, K., Alpert, J., Fava, M., & Nierenberg, A. (2001). Using the five-factor inventory in characterizing patients with major depressive disorder. *Comprehensive Psychiatry, 42*, 488-493.

Petrides, K., & Furnham, A. (2000). On the dimensional structure of emotional intelligence. *Personality and Individual Differences, 29*, 313-320.

Petrides, K., & Furnham, A. (2001). Trait emotional intelligence: Psychometric investigation with reference to established trait taxonomies. *European Journal of Personality, 15*, 425-448.

Petrides, K. & Furnham, A. (2003). Trait emotional intelligence: Behavioural validation in two studies of emotion recognition and reactivity to mood induction. *European Journal of Personality, 17*, 39-57.

Petrides, K., Pita, R., & Kokkinaki, F. (2007). The location of trait emotional intelligence in personality factor space. *British Journal of Psychology, 98,* 273-289.

Petrides, K. V., Sangareau, Y., Furnham, A., & Frederickson, N. (2006). Trait emotional intelligence and children's peer relations at school. *Social Development, 15,* 537-547.

Raven, J., Raven, J. C., & Court, J. (1998). *Standard progressive matrices* (1998 ed.). Oxford, UK: Oxford Psychologists Press.

Ravindran, A., Matheson, K., Griffiths, J., Merali, Z., & Anisman, H. (2002). Stress, coping, uplifts, and quality of life in subtypes of depression: A conceptual frame and emerging data. *Journal of Affective Disorders, 71,* 121-130.

Rector, N., Hood, K., Richter, M., & Bagby, R. (2002). Obsessive-compulsive disorder and the five-factor model of personality: Distinction and overlap with major depressive disorder. *Behaviour Research and Therapy, 40,* 1205-1219.

Reiffie, C., Meerum Terwogt, M., & Bosch, J. (2004). Emotion understanding in children with frequent somatic complaints. *European Journal of Developmental Psychology, 1,* 31-47.

Reynolds, W.M. (1988). *SIQ: Suicide Ideation Questionnaire*. Odessa: PAR.

Roberts, R., Goff, G., Anjoul, F., Kyllonen, P., Pallier, G., & Stankov, L. (2000). The Armed Services Vocational Aptitude Battery: Little more than acculturated learning (Gc)!? *Learning and Individual Difference, 12,* 81-103.

Roberts, R., Schulze, R., O-Brien, K., MacCann, C., Reid, J., & Maul, A. (2006). Exploring the validity of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) with established emotions measures. *Emotion, 6,* 663-669.

Roberts, R.,Zeidner, M., & Matthews, G. (2001). Does emotional intelligence meet traditional standards for an intelligence? Some new data and conclusions. *Emotion, 1,* 196-231.

Roger, D., Jarvis, P., & Najarian, B. (1993). Detachment and coping the construction and validation of a new scale for measuring coping strategies. *Personality and Individual Difference, 15*, 619-626.

Ross, S., Canada, K., & Rausch, M. (2002). Self-handicapping and the five factor model of personality: Mediation between Neuroticism and Conscientiousness. *Personality and Individual Differences, 32*, 1173-1184.

Russell, D. & Cutrona, C. (1991) Social support, stress, and depressive symptoms among the elderly: Test of a process model. *Psychology and Aging, 2*, 190-201.

Russell, D., Peplau, L., & Cutrona, C. (1980). The revised UCLA loneliness scale: Concurrent and discriminant validity evidence. *Journal of Personality and Social Psychology, 39*, 472-480.

Saklofske, D., Austin, E., Galloway, J. & Davidson, K. (2007). Individual difference correlates of health-related behaviours: Preliminary evidence for links between emotional intelligence and coping. *Personality and Individual Differences, 42*, 491-502.

Saklofske, D., Austin, E., Rohr, B., & Andrews, J. (2007). Personality, emotional intelligence, and exercise. *Journal of Health Psychology, 12*, 937-948.

Saklofske, D., Austin, E., & Minski, P. (2003). Factor structure and validity of a trait emotional intelligence measure. *Personality and Individual Differences, 34*, 707-721.

Salovey, P. & Grewal, D. (2005). The science of emotional intelligence. *Current Direction in Psychological Science, 14*, 281-285.

Salovey, P. & Mayer, J. (1990). Emotional intelligence. *Imagination, Cognition, and Personality, 9*, 185-211.

Salovey, P., Mayer, J., Goldman, S., Turvey, C., & Palfai, T. (1995). Emotional attention, clarity and repair: Exploring emotional intelligence using the Trait Meta-Mood Scale. In J. W. Pennebaker (Ed.), *Emotion, disclosure, and health* (125-154). Washington, D.C.: American Psychological Association.

Saltzman, J., Strauss, E., Hunter, M., & Spellacy, F. (1998). Validity of the Wonderlic Personnel Test as a brief measure of intelligence in individuals referred for evaluation of head injury. *Archives of Clinical Neuropsychology, 13,* 611-616.

Sarason, B., Sarason, I., Hacker, T., & Basham, R. (1985). Concomitants of social support: Social skills, physical attractiveness, and gender. *Journal of Personality and Social Psychology, 49,* 1-12.

Sarason, I., Sarason, B., Shearin, E., & Pierce, G. (1987). A brief measure of social support: Practical and theoretical implications. *Journal of Social and Personal Relationships, 4,* 497-510.

Schmidt, F. & Hunter, J. (2004). General mental ability in the world of work: Occupational attainment and job performance. *Journal of Personality and Social Psychology, 86,* 162-173.

Schmidt-Atzert, L. & Bühner, M. (2002). Entwicklung eines Leistungtests zur Emotionalen Intelligenz. 43rd Kongress der Deutschen Gesellschaft für Psychologie. Berlin 22nd-26th September.

Schneider, T., Lyons, J., & Williams, M. (2005). Emotional intelligence and autonomic self-perception: Emotional abilities are related to visceral acuity. *Personality and Individual Differences, 39,* 853-861.

Schulte, M., Ree, M., & Carretta, T. (2004). Emotional intelligence: Not much more than *g* and personality. *Personality and Individual Differences, 37,* 1059-1068.

Schutte, N., Malouff, J., Hall, L., Haggerty, D., Cooper, J., Golden, C., & Dornheim, L. (1998). Development and validation of a measure of emotional intelligence. *Personality and Individual Differences, 25,* 167-177.

Schutte, N., Malouff, J., Bobik, C., Coston, T., Greeson, C., Jedicka, C., Rhodes, E., Wendorf, G. (2001). Emotional intelligence and interpersonal relations. *Journal of Social Psychology, 141,* 523-534.

Schutte, N., Malouff, J., Thorsteinsson, E., Bhullar, N., & Rooke, S. (2007). A meta-analytic investigation of the relationship between emotional intelligence and health. *Personality and Individual Differences, 42,* 921-933.

Spence, G., Oades, L., & Caputi, P. (2004). Trait emotional intelligence and goal self-integration: important predictors of emotional well-being? *Personality and Individual Differences, 37,* 449-461.

Snell Jr., W. (1999). The multidimensional emotional awareness questionnaire. Unpublished data.

Stankov, L. (1997). *Quickie test battery.* Sydney, Australia: School of Psychology.

Tanaka, J., Kiefer, M., & Bukach, C. (2004). A holistic account of the own-race effect in face recognition: Evidence from a cross-cultural study. *Cognition, 93,* B1-B9.

Tarsia, M., Power, M., & Sanavio, E. (2003). Implicit and explicit memory biases in mixed anxiety-depression. *Journal of Affective Disorders, 77,* 213-225.

Teasdale, J. D., Fogarty, S. J., & Williams, J. M. (1980). Speech rate as a measure of short-term variation in depression. *British Journal of Social and Clinical Psychology* 1980,*19* 271–278.

Tett, R.P., Fox, K. E., & Wang, A. (2005). Development and validation of a self-report measure of emotional intelligence as a multidimensional trait domain. *Personality and Social Psychology Bulletin, 31,* 859-888.

Thorndike, E. (1920). Intelligence and its uses. *Harper's Magazine, 140,* 227-235.

Timbremont, B. & Braet, C. (2002). Children's depression inventory: Nederlandstalige versie, Swets, and Zeitlinger, Lisse [Children's Depression Inventory: Dutch version].

Tottenham, N., Tanaka, J., Leon, A.C., McCarry, T., Nurse, M., Hare, T.A., Marcus, D.J., Westerlund, A., Casey, B.J., Nelson, C.A. (in press). The NimStim set of facial expressions: judgments from untrained research participants. Psychiatry Research. http://www.macbrain.org

Tsaousis, I. (1999). The traits personality questionnaire (TPQue): A Greek measure for the five factor model. *Personality and Individual Differences, 27,* 271-283.

Van Rooy, D. & Viswesvaran, C. (2004). Emotional intelligence: A meta-analytic investigation of predictive validity and nomological net. *Journal of Vocational Behvaior, 65*, 71-95.

Van Rooy, D., Viswesvaran, C., & Pluta, P. (2005). An evaluation of construct validity: What is this thing called emotional intelligence. *Human Performance, 18*, 445-462.

Velting, D. (1999). Personality and negative expectancies: Trait structure of the Beck Hopelessness Scale. *Personality and Individual Differences, 26*, 913-921.

Walker, P. & Tanaka, J. (2003). An encoding advantage for own-race versus other-race faces. *Perception, 32*, 1117-1125.

Walston, K., Walston, B., and DeVellis, R. (1978). Development of the Multidimensional Health Locus of Control Scales. *Health Education Monographs, 6*, 161-170.

Warwick, J. & Nettelbeck, T. (2004). Emotional intelligence is…? *Personality and Individual Differences, 37*, 1091-1100.

Wechsler, D. (1981). *Manual for the Wechsler Adult Intelligence Scale- Revised.* San Antonio: The Psychological Corporation.

Weiseman, A. & Beck, A. (1978). Development and validation of the dysfunctional attitudes scale: A preliminary investigation. Paper presented at the meeting of the American Education Research Association; Toronto, Canada.

Williams, S., Connolly, J., & Segal, Z. (2001). Intimacy in relationships and cognitive vulnerability to depression in adolescent girls. *Cognitive Therapy and Research, 25*, 477-496.

Williams, R., Hagerty, B., Murphy-Weinberg, V., & Wan, J. (1995). Symptoms of depression among female nursing students. *Archives of Psychiatric Nursing, 5*, 269-278.

Young, A., Perrett, D., Calder, A., Sprengelmeyer, R., & Ekman, P. (2002). *Facial Expressions of Emotion – Stimuli and Tests (FEEST).* Bury St. Edmunds, UK: Thames Valley Test Company.

Zeidner, M., Shani-Zinovich, I., Matthews, G., & Roberts, R. (2005). Assessing emotional intelligence in gifted and non-gifted high school students: Outcomes depend on the measure. *Intelligence, 33*, 369-391.

Zuckerman, M., & Lubin, B. (1965). *Manual for the Multiple Affect Adjective Check List*. San Diego, CA: Educational and Industrial Testing Service.

Zung, W. (1965). A self-rating depression scale. *Archive of General Psychiatry, 12*, 63-70.

Appendix One

Study one questionnaire packet. The first 50 questions (Section 1) make up the International Personality Item Pool (IPIP).   The next 33 questions (Section 2) are the Schutte et al. (1998) emotional intelligence scale. The 31 items in Section 3 are the Network of Relationships Inventory (NRI), and Section 4 is comprised of the Social Support Questionnaire 3-item version (SSQ3).

INFORMED CONSENT FORM

INFORMED CONSENT STATEMENT
PERSONALITY, FEELINGS, AND FRIENDSHIP

INTRODUCTION
Participants are invited to participate in a research study. This study is looking at the relationship among personality, feelings/mood, and friendship.

INFORMATION ABOUT PARTICIPANTS' INVOLVEMENT IN THE STUDY
This study involves filling out a questionnaire, and completing a computer task.

RISKS
In this study you will be responding to questionnaires about your mood and life stress. There is a possibility that this will cause distress. Should you become distressed, feel free to discontinue the study at any time without penalty. Should distress continue, please confidentially contact the Samaritans 24 hours per day by phone at 08457 90 90 90 or online at http://www.samaritans.org.uk/

BENEFITS
The potential benefits of this study are entirely educational.

CONFIDENTIALITY
The information in the study records will be kept confidential. Data will be stored securely and will be made available only to persons conducting the study unless participants specifically give permission in writing to do otherwise. No reference will be made in oral or written reports which could link participants to the study.

CONTACT INFORMATION
If you have questions at any time about the study or the procedures, (or you experience adverse effects as a result of participating in this study,) you may contact the researcher, Kendra DeBusk, at 0131-651-3272 ext. 513272 or by email at s0453735@sms.ed.ac.uk.

PARTICIPATION
Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at anytime without penalty and without loss of benefits to which you are otherwise entitled. If you withdraw from the study before data collection is completed you data will be returned to you or destroyed.

CONSENT
I have read the above information. I agree to participate in this study.
Participant's signature _____ Date _____

Personality, Feelings, and Friendship Questionnaire

<u>**Section 1**</u>

Below are a number of phrases, which describe people's behaviour. Using the rating scale provided describe how accurately each statement describes *you*. Describe yourself now, not how you wish to be in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same gender and age. The responses provided here will be kept completely anonymous to help you give an honest description of yourself. Please read each statement carefully, then circle the number that corresponds with your reply. **You should put a response in each row.**
HOW ACCURATELY DO THESE PHRASES DESCRIBE YOU?

	Very Inaccurate		Neither Inaccurate or Accurate		Very Accurate
1. I am the life of the party	1	2	3	4	5
2. I feel little concern for others	1	2	3	4	5
3. I am always prepared	1	2	3	4	5
4. I get stressed out easily	1	2	3	4	5
5. I have a rich vocabulary	1	2	3	4	5
6. I don't talk a lot	1	2	3	4	5
7. I am interested in people	1	2	3	4	5
8. I leave my belongings around	1	2	3	4	5
9. I am relaxed most of the time	1	2	3	4	5
10. I have difficulty understanding abstract ideas	1	2	3	4	5
11. I feel comfortable around people	1	2	3	4	5
12. I insult people	1	2	3	4	5
13. I pay attention to detail	1	2	3	4	5
14. I worry about things	1	2	3	4	5
15. I have a vivid imagination	1	2	3	4	5
16. I keep in the background	1	2	3	4	5
17. I sympathise with others' feelings	1	2	3	4	5
18. I make a mess of things	1	2	3	4	5
19. I seldom feel blue	1	2	3	4	5
20. I am not interested in abstract ideas	1	2	3	4	5
21. I start conversations	1	2	3	4	5
22. I am not interested in other people's problems	1	2	3	4	5
23. I get chores done right away	1	2	3	4	5
24. I am easily disturbed	1	2	3	4	5
25. I have excellent ideas	1	2	3	4	5
26. I have little to say	1	2	3	4	5
27. I have a soft heart	1	2	3	4	5
28. I often forget to put things back in their proper place	1	2	3	4	5
29. I get upset easily	1	2	3	4	5
30. I do not have a good imagination	1	2	3	4	5
31. I talk to a lot of different people at parties	1	2	3	4	5
32. I am not really interested in others	1	2	3	4	5
33. I like order	1	2	3	4	5
34. I change my mood a lot	1	2	3	4	5
35. I am quick to understand things	1	2	3	4	5
36. I don't like to draw attention to myself	1	2	3	4	5
37. I take time out for others	1	2	3	4	5
38. I shirk my duties	1	2	3	4	5
39. I have frequent mood swings	1	2	3	4	5

40. I use difficult words	1	2	3	4	5
41. I don't mind being the centre of attention	1	2	3	4	5
42. I feel others' emotions	1	2	3	4	5
43. I follow a schedule	1	2	3	4	5
44. I get irritated easily	1	2	3	4	5
45. I spend time reflecting on things	1	2	3	4	5
46. I am quiet around strangers	1	2	3	4	5
47. I make people feel at ease	1	2	3	4	5
48. I am exacting in my work	1	2	3	4	5
49. I often feel blue	1	2	3	4	5
50. I am full of ideas	1	2	3	4	5

Section 2

Directions: Each of the following items asks you about your emotions or reactions associated with emotions. After deciding whether a statement is generally true for you, use the 5-point scale to respond to the statement. There are no right or wrong answers. Please give the response that best describes you.

1 = strongly disagree, 2 = somewhat disagree, 3 = neither agree nor disagree, 4 = somewhat agree, 5 = strongly agree

1. I know when to speak about my personal problems to others.	1	2	3	4	5
2. When I am faced with obstacles, I remember times I faced similar obstacles and overcame them.	1	2	3	4	5
3. I expect that I will do well on most things I try.	1	2	3	4	5
4. Other people find it easy to confide in me.	1	2	3	4	5
5. I find it hard to understand the non-verbal messages of other people.	1	2	3	4	5
6. Some of the major events of my life have led me to re-evaluate what is important and not important.	1	2	3	4	5
7. When my mood changes, I see new possibilities.	1	2	3	4	5
8. Emotions are one of the things that make my life worth living.	1	2	3	4	5
9. I am aware of my emotions as I experience them.	1	2	3	4	5
10. I expect good things to happen.	1	2	3	4	5
11. I like to share my emotions with others.	1	2	3	4	5
12. When I experience a positive emotion, I know how to make it last.	1	2	3	4	5
13. I arrange events others enjoy.	1	2	3	4	5
14. I seek out activities that make me happy.	1	2	3	4	5
15. I am aware of the non-verbal messages I send to others.	1	2	3	4	5

Section 2 continued
1 = strongly disagree, 2 = somewhat disagree, 3 = neither agree nor disagree, 4 = somewhat agree, 5 = strongly agree

16. I present myself in a way that makes a good impression on others.	1	2	3	4	5

17. When I am in a positive mood, solving problems is easy for me.	1	2	3	4	5
18. By looking at their facial expressions, I recognize the emotions people are experiencing.	1	2	3	4	5
19. I know why my emotions change.	1	2	3	4	5
20. When I am in a positive mood, I am able to come up with new ideas.	1	2	3	4	5
21. I have control over my emotions.	1	2	3	4	5
22. I easily recognize my emotions as I experience them.	1	2	3	4	5
23. I motivate myself by imagining a good outcome to tasks I take on.	1	2	3	4	5
24. I compliment others when they have done something well.	1	2	3	4	5
25. I am aware of the non-verbal messages other people send.	1	2	3	4	5
26. When another person tells me about an important event in his or her life, I almost feel as though I experienced this event myself.	1	2	3	4	5
27. When I feel a change in emotions, I tend to come up with new ideas.	1	2	3	4	5
28. When I am faced with a challenge, I give up because I believe I will fail.	1	2	3	4	5
29. I know what other people are feeling just by looking at them.	1	2	3	4	5
30. I help other people feel better when they are down.	1	2	3	4	5
31. I use good moods to help myself keep trying in the face of obstacles.	1	2	3	4	5
32. I can tell how people are feeling by listening to the tone of their voice.	1	2	3	4	5
33. It is difficult for me to understand why people feel the way they do.	1	2	3	4	5

Section 3

Please choose the most important **friend** you have. You may select someone who is your most important friend now, or who was your most important friend previously. **Do not choose a sibling.** If you select a person with whom you are no longer friends, please answer the questions as you would have when you were in the relationship.

Friend's First Name _____

How long is/was the friendship? _____ years _____ months *(please fill in number)*

Are you close friends now?

A. Yes   **B.** Friends, but not as close as before   **C.** No

Section 3 continued
1 = A little or none, 2 = A fair amount, 3 = Quite a lot, 4 = A lot, 5 = More than with anyone else.

2.	How much free time do you spend with this person?	1	2	3	4	5
3.	How much do you talk about everything with this person?	1	2	3	4	5

4.	How much do you play around and have fun with this person?	1	2	3	4	5
5.	How much do you and this person get annoyed with each other's behaviour?	1	2	3	4	5
6.	How much do you share your secrets and private feelings with this person?	1	2	3	4	5
7.	How often do you go places and do enjoyable things with this person?	1	2	3	4	5
8.	How much do you and this person argue with each other?	1	2	3	4	5
9.	How much do you talk to this person about things that you don't want others to know?	1	2	3	4	5

1 = A little or not at all, 2 = A fair amount, 3 = Quite a lot, 4 = A lot, 5 = More than anyone else.

10.	How much do you and this person get upset with or mad at each other?	1	2	3	4	5
11.	How much does this person teach you how to do things that you don't know?	1	2	3	4	5
12.	How much do you and this person get on each other's nerves?	1	2	3	4	5
13.	How much do you help this person with things s/he can't do by her/himself?	1	2	3	4	5
14.	How much does this person like or love you?	1	2	3	4	5
15.	How much does this person treat you like you're admired and respected?	1	2	3	4	5
16.	How much do you and this person disagree and quarrel?	1	2	3	4	5
17.	How much does this person help you figure out or fix things?	1	2	3	4	5
18.	How much do you protect and look out for this person?	1	2	3	4	5
19.	How much does this person really care about you?	1	2	3	4	5
20.	How much does this person treat you like you're good at many things?	1	2	3	4	5
21.	How much do you and this person hassle or nag one another?	1	2	3	4	5
22.	How much do you take care of this person?	1	2	3	4	5
23.	How much does this person have a strong feeling of affection (liking or loving) toward you?	1	2	3	4	5
24.	How much does this person like or approve of the things you do?	1	2	3	4	5
25.	How often does this person help you when you need to get something done?	1	2	3	4	5

1= S/he always, 2= S/he often, 3 = About the same, 4 = I often do, 5 = I always

26.	Who tells the other person what to do more often, you or this person?	1	2	3	4	5
27.	Between you and this person, who tends to be the BOSS in the relationship?	1	2	3	4	5
28.	In your relationship, who tends to take charge and decide what should be done?	1	2	3	4	5

Section 3 continued

1= Not at all sure, 2= Not quite sure, 3= Sure, 4 = Very sure, 5 = Extremely sure

29.	How sure are you that this relationship will last no matter what?	1	2	3	4	5

30.	How sure are you that the relationship will last in spite of fights?	1	2	3	4	5
31.	How sure are you that your relationship will continue in the years to come?	1	2	3	4	5

Section 4

The following questions ask about people in your environment who provide you with help or support. Each question has two parts. For the **first** part, list all the people, excluding yourself, whom you can count on for help and support in the manner described. You may give either the **person's initials** (e.g. D.S.) or their **relationship** (e.g. sister, boyfriend) to you. *Do not list more than one person next to each of the letters beneath the question.*

For the second part, circle how satisfied you are with the overall support you have. If you have no support for a question, check the word 'No One', but still rate your level of satisfaction. Do not list more than nine persons per question. Please answer all the questions as best you can. All your responses will be kept confidential.

(1) Who accepts you totally, including your worst and your best points?

Part 1

No-one

Person (a)	Person (b)	Person (c)	Person (d)	
Person (e)	Person (f)	Person (g)	Person (h)	Person (i)

Part 2 circle one

Very dissatisfied   dissatisfied   satisfied   very satisfied

(2) Whom can you really count on to tell you, in a thoughtful manner, when you need to improve in some way?

Part 1

No-one

Person (a)	Person (b)	Person (c)	Person (d)	
Person (e)	Person (f)	Person (g)	Person (h)	Person (i)

Part 2 circle one

Very dissatisfied   dissatisfied   satisfied   very satisfied

(3) Whom do you feel truly loves you deeply?

Part 1

No-one

Person (a)	Person (b)	Person (c)	Person (d)	
Person (e)	Person (f)	Person (g)	Person (h)	Person (i)

Part 2 circle one

Very dissatisfied   dissatisfied   satisfied   very satisfied

Section 5

Please complete the demographic information below.

Age:

Gender: Male   Female

Occupation/Former Occupation:

If any of the previous questions have made you feel any distress, please contact the Samaritans for confidential support. They can be reached at 0131-221-9999 in Edinburgh and the Lothians between 9am and 10pm.   They can also be reached 24 hours at 08457-90-90-90 or by email at JO@SAMARITANS.ORG. If you would like any further information, they are also available online at http://www.samaritans.org.uk. Please call if you experienced any distress.

Thank you for taking part in this survey. If you would like more information on the study, please contact Kendra DeBusk either by email s0453735@sms.ed.ac.uk or by phone at 0131-651-3272 ext. 513272. I am interested in contacting some participants for a follow-up study. If you are prepared to be contacted again, please fill in the section below. If you prefer to remain anonymous your responses to this questionnaire will still be of great value. All the information you have supplied will be treated with total confidentiality and any identifying information that you give us will be kept separately from your responses and destroyed at the end of the study.

Name

Address

Phone number(s)

Email

CONSENT FORM
Participant's Copy

FOR QUESTIONS ABOUT THE STUDY, CONTACT: Kendra DeBusk either by email s0453735@sms.ed.ac.uk or by phone at 0131-651-3272 ext. 513272.

DESCRIPTION: You are invited to participate in **a research study** on personality, feelings, and friendship. You will be asked to fill out a questionnaire and complete a computer based test.

RISKS AND BENEFITS: The risks associated with this study are very small. It is possible that some of the questions you will be asked to answer about your feelings may cause you some distress. If this does occur, please contact the Samaritans in order to receive confidential support at 0131-221-9999 in Edinburgh and the Lothians between 9am and 10pm. They can also be reached 24 hours at 08457-90-90-90 or by email at JO@SAMARITANS.ORG. If you would like any further information, they are also available online at http://www.samaritans.org.uk . We cannot and do not guarantee or promise that you will receive any benefits from this study.

TIME INVOLVEMENT: Your participation in this experiment will take approximately half an hour for questionnaires, and 45-60 minutes for the computer based test.

SUBJECT'S RIGHTS: If you have read this form and have decided to participate in this project, please understand your participation is voluntary and you have the right to withdraw your consent or discontinue participation at any time without penalty or loss of benefits to which you are otherwise entitled. You have the right to refuse to answer particular questions. Your individual privacy will be maintained in all published and written data resulting from the study.

Appendix Two

The questionnaire packet for study two contained the questionnaires used in study one, as well as the Beck Depression Inventory (BDI) and the Uplifts and Hassles Scale. The participants also completed the MSCEIT online, though due to copyright specific MSCEIT items are not available here.

Uplifts and Hassles

Directions: Uplifts are events that make you feel good. They can be sources of peace, satisfaction, or joy. Some occur often, others are relatively rare.
        Listed on the following pages are a number of ways in which a person can feel good. Please read the list and circle the appropriate number (did not happen to extremely often) indicating the uplifts that have occurred to you in the past month. You should circle 0 if events do not apply to you, e.g. work related events and you are not employed.

Uplifts	How Often			
	Did not Happen	Somewhat Often	Moderately Often	Extremely Often
1. Getting enough sleep	0	1	2	3
2. Practising your hobby	0	1	2	3
3. Being lucky	0	1	2	3
4. Saving money	0	1	2	3
5. Nature	0	1	2	3
6. Liking co-workers	0	1	2	3
7. Not working (on holiday, laid-off, etc.)	0	1	2	3
8. Gossiping	0	1	2	3
9. Successful financial dealings	0	1	2	3
10. Being rested	0	1	2	3
11. Feeling healthy	0	1	2	3
12. Finding something presumed lost	0	1	2	3
13. Recovering from illness	0	1	2	3
14. Staying, or getting into, good physical shape	0	1	2	3

15. Being with children	0	1	2	3
16. Getting away with something	0	1	2	3
17. Visiting, phoning, or writing to someone	0	1	2	3
18. Relating well with your partner	0	1	2	3
19. Completing a task	0	1	2	3
20. Giving a compliment	0	1	2	3
21. Meeting family responsibilities	0	1	2	3
22. Relating well to friends	0	1	2	3
23. Being efficient	0	1	2	3
24. Meeting your responsibilities	0	1	2	3
25. Stopping, or cutting down on, alcohol	0	1	2	3
26. Stopping, or cutting down on, smoking	0	1	2	3
27. Solving an on-going practical problem	0	1	2	3
28. Daydreaming	0	1	2	3
29. Weight	0	1	2	3
30. Financially supporting someone who doesn't live with you	0	1	2	3
31. Sex	0	1	2	3
32. Friendly neighbours	0	1	2	3
33. Having enough time to do what you want	0	1	2	3
34. Divorce or separation	0	1	2	3
35. Eating out	0	1	2	3
36. Having enough (personal) energy	0	1	2	3
37. Resolving inner conflicts	0	1	2	3
38. Being with older people	0	1	2	3
39. Finding no prejudice or discrimination when you expect it	0	1	2	3
40. Cooking	0	1	2	3
41. Capitalizing on an unexpected opportunity	0	1	2	3
42. Using drugs or alcohol	0	1	2	3
43. Life being meaningful	0	1	2	3
44. Being well-prepared	0	1	2	3
45. Eating	0	1	2	3
46. Relaxing	0	1	2	3
47. Having the 'right' amount of things to do	0	1	2	3
48. Being visited, phoned, or receiving a letter	0	1	2	3
49. The weather	0	1	2	3
50. Thinking about the future	0	1	2	3
51. Spending time with family	0	1	2	3
52. Home (inside) pleasing you	0	1	2	3
53. Being with younger people	0	1	2	3
54. Buying things for your house	0	1	2	3

55.	Reading	0	1	2	3
56.	Shopping	0	1	2	3
57.	Smoking	0	1	2	3
58.	Buying clothes	0	1	2	3
59.	Giving a present	0	1	2	3
60.	Getting a present	0	1	2	3
61.	You or your spouse becoming pregnant	0	1	2	3
62.	Having enough money for health care	0	1	2	3
63.	Travelling or commuting	0	1	2	3
64.	Doing gardening or outside housework	0	1	2	3
65.	Having enough money for transport	0	1	2	3
66.	Health of a family member improving	0	1	2	3
67.	Resolving conflicts over what to do	0	1	2	3
68.	Thinking about health	0	1	2	3
69.	Being a 'good' listener	0	1	2	3
70.	Socializing (parties, being with friends, etc.)	0	1	2	3
71.	Making a friend	0	1	2	3
72.	Sharing something	0	1	2	3
73.	Having someone listen to you	0	1	2	3
74.	Your garden or the outside of you house is pleasing to you	0	1	2	3
75.	Looking forward to retirement	0	1	2	3
76.	Having enough money for entertainment	0	1	2	3
77.	Entertainment (movies, concerts, TV, etc.)	0	1	2	3
78.	Good local or world news	0	1	2	3
79.	Getting good advice	0	1	2	3
80.	Recreation (sports, games, hiking, etc.)	0	1	2	3
81.	Paying off debts	0	1	2	3
82.	Using skills well at work	0	1	2	3
83.	Past decisions 'working out'	0	1	2	3
84.	Growing as a person	0	1	2	3
85.	Being complimented	0	1	2	3
86.	Having good ideas at work	0	1	2	3
87.	Improving or gaining new skills	0	1	2	3
88.	Job satisfying despite sex discrimination	0	1	2	3
89.	Free time	0	1	2	3
90.	Expressing yourself well	0	1	2	3
91.	Laughing	0	1	2	3
92.	Holidaying without spouse or children	0	1	2	3
93.	Liking work duties	0	1	2	3
94.	Having good credit	0	1	2	3
95.	Music	0	1	2	3
96.	Getting unexpected money	0	1	2	3
97.	Changing jobs	0	1	2	3
98.	Dreaming	0	1	2	3
99.	Having fun	0	1	2	3
100.	Going somewhere different	0	1	2	3

101. Deciding to have children	0	1	2	3
102. Enjoying non-family members living with you	0	1	2	3
103. Pets	0	1	2	3
104. Car running well	0	1	2	3
105. Neighbourhood improving	0	1	2	3
106. Children's accomplishments	0	1	2	3
107. Things going well with employee(s)	0	1	2	3
108. Pleasant smells	0	1	2	3
109. Receiving love	0	1	2	3
110. Successfully avoiding or dealing with bureaucracy or institutions	0	1	2	3
111. Making decisions	0	1	2	3
112. Thinking about the past	0	1	2	3
113. Giving good advice	0	1	2	3
114. Praying	0	1	2	3
115. Meditating	0	1	2	3
116. Fresh air	0	1	2	3
117. Confronting someone or something	0	1	2	3
118. Being accepted	0	1	2	3
119. Giving love	0	1	2	3
120. Boss pleased with your work	0	1	2	3
121. Being alone	0	1	2	3
122. Feeling safe	0	1	2	3
123. Working well with co-workers	0	1	2	3
124. Knowing your job is secure	0	1	2	3
125. Feeling safe in you neighbourhood	0	1	2	3
126. Doing volunteer work	0	1	2	3
127. Contributing to charity	0	1	2	3
128. Learning something	0	1	2	3
129. Being 'at one' with the world	0	1	2	3
130. Fixing/repairing something (besides at your job)	0	1	2	3
131. Making something (besides at your job)	0	1	2	3
132. Exercising	0	1	2	3
133. Meeting a challenge	0	1	2	3
134. Hugging and/or kissing	0	1	2	3
135. Flirting	0	1	2	3

136. Have we missed any of your uplifts? If so, write them below:

0	1	2	3

Hassles

Directions: Hassles are irritants that can range from minor annoyances to fairly major pressures, problems or difficulties. They can occur few of many times.

Listed on the following pages are a number of ways in which a person can feel hassled. Please read the list and circle the appropriate number (did not happen to extremely severe) indicating the hassles that have occurred to you in the past month. You should circle 0 if events do not apply to you, e.g. work related events and you are not employed.

Hassles   Severity

	Did not Happen	Somewhat Often	Moderately Often	Extremely Often
1. Displacing or losing things	0	1	2	3
2. Troublesome neighbours	0	1	2	3
3. Social obligation	0	1	2	3
4. Inconsiderate smokers	0	1	2	3
5. Troubling thoughts about your future	0	1	2	3
6. Thoughts about death	0	1	2	3
7. Health of a family member	0	1	2	3
8. Not enough money for clothing	0	1	2	3
9. Not enough money for housing	0	1	2	3
10. Concerns about owing money	0	1	2	3
11. Concerns about getting credit	0	1	2	3
12. Concerns about money for emergencies	0	1	2	3
13. Someone owes you money	0	1	2	3
14. Financial responsibility for someone who doesn't live with you	0	1	2	3
15. Cutting down on electricity, gas, etc.	0	1	2	3
16. Smoking too much	0	1	2	3
17. Use of alcohol	0	1	2	3
18. Personal use of drugs	0	1	2	3
19. Too many responsibilities	0	1	2	3
20. Decisions about having children	0	1	2	3
21. Non-family members living in your house	0	1	2	3
22. Care for pet(s)	0	1	2	3
23. Planning meals	0	1	2	3
24. Concerns about the meaning of life	0	1	2	3
25. Trouble relaxing	0	1	2	3
26. Trouble making decisions	0	1	2	3
27. Problems getting along with co-workers	0	1	2	3
28. Customers or clients giving you a hard time	0	1	2	3
29. Home maintenance (inside)	0	1	2	3
30. Concerns about job security	0	1	2	3
31. Concerns about retirement	0	1	2	3
32. Laid-off or out of work	0	1	2	3
33. Don't like current work duties	0	1	2	3
34. Don't like co-workers	0	1	2	3

35. Not enough money for basic necessities	0	1	2	3
36. Not enough money for food	0	1	2	3
37. Too may interruptions	0	1	2	3
38. Unexpected company	0	1	2	3
39. Too much time on hands	0	1	2	3
40. Having to wait	0	1	2	3
41. Concerns about accidents	0	1	2	3
42. Being lonely	0	1	2	3
43. Not enough money for healthcare	0	1	2	3
44. Fear of confrontation	0	1	2	3
45. Financial security	0	1	2	3
46. Silly practical mistakes	0	1	2	3
47. Inability to express yourself	0	1	2	3
48. Physical illness	0	1	2	3
49. Side effects of medication	0	1	2	3
50. Concerns about medical treatment	0	1	2	3
51. Physical appearance	0	1	2	3
52. Fear of rejection	0	1	2	3
53. Difficulties with getting pregnant	0	1	2	3
54. Sexual problems that result from physical problems	0	1	2	3
55. Sexual problems other than those that result from physical problems	0	1	2	3
56. Concerns about health in general	0	1	2	3
57. Not seeing enough people	0	1	2	3
58. Friends or relatives too far away	0	1	2	3
59. Preparing meals	0	1	2	3
60. Wasting time	0	1	2	3
61. Car maintenance	0	1	2	3
62. Filling-in forms	0	1	2	3
63. Neighbourhood deterioration	0	1	2	3
64. Financing children's education	0	1	2	3
65. Problems with employees	0	1	2	3
66. Problems in job due to being a woman or man	0	1	2	3
67. Declining physical illness	0	1	2	3
68. Being exploited	0	1	2	3
69. Concerns about bodily functions	0	1	2	3
70. Rising prices of basic necessities	0	1	2	3
71. Not getting enough rest	0	1	2	3
72. Not getting enough sleep	0	1	2	3
73. Problems with aging parents	0	1	2	3
74. Problems with your children	0	1	2	3
75. Problems with persons other than yourself	0	1	2	3
76. Problems with your partner	0	1	2	3
77. Difficulties with seeing or hearing	0	1	2	3

78. Overloaded with family responsibility	0	1	2	3
79. Too many things to do	0	1	2	3
80. Unchallenging work	0	1	2	3
81. Concerns about meeting high standards	0	1	2	3
82. Financial dealings with friends or acquaintances	0	1	2	3
83. Job dissatisfaction	0	1	2	3
84. Worries about decisions to change jobs	0	1	2	3
85. Trouble with reading, writing, or spelling abilities	0	1	2	3
86. Too many meetings	0	1	2	3
87. Problems with divorce or separation	0	1	2	3
88. Trouble with arithmetic skills	0	1	2	3
89. Gossip	0	1	2	3
90. Legal problems	0	1	2	3
91. Concerns about weight	0	1	2	3
92. Not enough time to do things you need to do	0	1	2	3
93. Television	0	1	2	3
94. Not enough personal energy	0	1	2	3
95. Concerns about inner conflict	0	1	2	3
96. Feel conflict over what to do	0	1	2	3
97. Regrets over past decisions	0	1	2	3
98. Menstrual (period) problems	0	1	2	3
99. The weather	0	1	2	3
100. Nightmares	0	1	2	3
101. Concerns about getting ahead	0	1	2	3
102. Hassles from boss or supervisor	0	1	2	3
103. Difficulties with friends	0	1	2	3
104. Not enough time for family	0	1	2	3
105. Transport problems	0	1	2	3
106. Not enough money problems	0	1	2	3
107. Not enough money for entertainment and recreation	0	1	2	3
108. Shopping	0	1	2	3
109. Prejudice and discrimination from others	0	1	2	3
110. Property, investments, or taxes	0	1	2	3
111. Not enough time for entertainment and recreation	0	1	2	3
112. Garden or outside home maintenance	0	1	2	3
113. Concerns about news events	0	1	2	3
114. Noise	0	1	2	3
115. Crime	0	1	2	3
116. Traffic	0	1	2	3
117. Pollution	0	1	2	3

118. **Have we missed any of your hassles? If so write them in below:**

0   1   2   3

One more thing: has there been a change in your life that affected how you answered this scale? If so tell us what it was:

Beck Depression Inventory

Choose one statement from among the group of four statements in each question that best describes how you have been feeling during the **past few days**. Circle the number beside your choice.

1	**0** I do not feel sad. **1** I feel sad. **2** I am sad all the time and I can't snap out of it. **3** I am so sad or unhappy that I can't stand it.	8	**0** I don't feel I am any worse than anybody else. **1** I am critical of myself for my weaknesses or mistakes. **2** I blame myself all the time for my faults. **3** I blame myself for everything bad that happens.
2	**0** I am not particularly discouraged about the future. **1** I feel discouraged about the future. **2** I feel I have nothing to look forward to. **3** I feel that the future is hopeless and that things cannot improve.	9	**0** I don't have any thoughts of killing myself. **1** I have thoughts of killing myself, but I would not carry them out. **2** I would like to kill myself. **3** I would kill myself if I had the chance.
3	**0** I do not feel like a failure. **1** I feel I have failed more than the average person. **2** As I look back on my life, all I can see is a lot of failure. **3** I feel I am a complete failure as a person.	10	**0** I don't cry any more than usual. **1** I cry more now than I used to. **2** I cry all the time now. **3** I used to be able to cry, but now I can't cry even though I want to.
4	**0** I get as much satisfaction out of things as I used to. **1** I don't enjoy things the way I used to. **2** I don't get any real satisfaction out of anything anymore. **3** I am dissatisfied or bored with everything.	11	**0** I am no more irritated by things than I ever am. **1** I am slightly more irritated now than usual. **2** I am quite annoyed or irritated a good deal of the time. **3** I feel irritated all the time now.
5	**0** I don't feel particularly guilty. **1** I feel guilty a good part of the time. **2** I feel quite guilty most of the time. **3** I feel guilty all of the time.	12	**0** I have not lost interest in other people. **1** I am less interested in other people than I used to be. **2** I have lost most of my interest in other people. **3** I have lost all of my interest in other people.
6	**0** I don't feel I am being punished. **1** I feel I may be punished. **2** I expect to be punished. **3** I feel I am being punished.	13	**0** I make decisions about as well as I ever could. **1** I put off making decisions more than I used to. **2** I have greater difficulty in making decisions than before. **3** I can't make decisions at all anymore.
7	**0** I don't feel disappointed in myself. **1** I am disappointed in myself. **2** I am disgusted with myself. **3** I hate myself.	14	**0** I don't feel that I look any worse than I used to. **1** I am worried that I am looking old or unattractive. **2** I feel that there are permanent changes in my appearance that make me look unattractive. **3** I believe that I look ugly.

15	**0** I can work about as well as before. **1** It takes an extra effort to get started at doing something. **2** I have to push myself very hard to do anything. **3** I can't do any work at all.	19	**0** I haven't lost much weight, if any, lately. **1** I have lost more than five pounds. **2** I have lost more than ten pounds. **3** I have lost more than fifteen pounds. (Score 0 if you have been purposely trying to lose weight.)
16	**0** I can sleep as well as usual. **1** I don't sleep as well as I used to. **2** I wake up 1-2 hours earlier than usual and find it hard to get back to sleep. **3** I wake up several hours earlier than I used to and cannot get back to sleep.	20	**0** I am no more worried about my health than usual. **1** I am worried about physical problems such as aches and pains, or upset stomach, or constipation. **2** I am very worried about physical problems, and it's hard to think of much else. **3** I am so worried about my physical problems that I cannot think about anything else.
17	**0** I don't get more tired than usual. **1** I get tired more easily than I used to. **2** I get tired from doing almost anything. **3** I am too tired to do anything.	21	**0** I have not noticed any recent change in my interest in sex. **1** I am less interested in sex than I used to be. **2** I am much less interested in sex now. **3** I have lost interested in sex completely.
18	**0** My appetite is no worse than usual. **1** My appetite is not as good as it used to be. **2** My appetite is much worse now. **3** I have no appetite at all anymore.		

Participants completed the Test of Emotional Intelligence (TEMINT) in the supplementary study.

This task is about recognizing emotions in other people.

For this purpose you will be shown short descriptions of situations. You are supposed to find out how the persons must have felt in those situations. The descriptions derive from different persons, who have really experienced those situations and have depicted the emotions they felt.
Try to imagine each situation and put yourself into the position of the person described. How did each person feel? Check the boxes on the answer sheet that best describe how each person felt.

either	not at all or very weak
or	weak to medium
or	strong to very strong

Example:
In the following example, a subject judged the feelings of a female student, who just failed an exam. The participant has checked the boxes (✗) that – in her estimation – most clearly describe the strengths of the student's emotions. The ticks (✓) tell you about the student's true statements.
In the following situations the true statements of the persons in question won't be shown to you. It is your assignment to identify the person's feelings as accurate as possible. Try and find out just how strongly the person felt in each situation. If you are not entirely certain about the strength of an emotion, just check the box, that – in your opinion – best describes the emotion.

Female student, 24 years
"I have failed an important exam and therefore have to retake it"
Put yourself in the position of the 24-year-old student.
How strongly did she feel? Please check a box for each emotion.

	not at all or very weak	weak to medium	strong to very strong
Dislike	☐ ▼	☒ ✔	☐ ▼
Anger	☐	☐	☒ ✓
Fear	☒ ✓	☐	☐
Unease	☐	☒	☐ ✓
Sadness	☒	☐	☐ ✓
Guilt	☐	☐ ✓	☒
Happiness	☒ ✓	☐	☐
Pride	☐ ✓	☒	☐
Affection	☒ ✓	☐	☐
Surprise	☐	☒	☐ ✓

IT-Specialist, 30 years
"My cat was sick and I had to take her to the vet. I thought I had poisoned her with insecticide."

1

Put yourself in the position of the 30-year-old IT-Specialist.
How strongly did she feel? Please check a box for each emotion.

	not at all or very weak ▼	weak to medium ▼	strong to very strong ▼
Dislike	☐	☐	☐
Anger	☐	☐	☐
Fear	☐	☐	☐
Unease	☐	☐	☐
Sadness	☐	☐	☐
Guilt	☐	☐	☐
Happinesss	☐	☐	☐
Pride	☐	☐	☐
Affection	☐	☐	☐
Surprise	☐	☐	☐

Female dentist's assistant, 23 years
"I am in the final stage of my first pregnancy and have been on maternity leave for one week."

2

Put yourself in the position of the 23-year-old female dentist's assistant.
How strongly did she feel? Please check a box for each emotion.

	not at all or very weak ▼	weak to medium ▼	strong to very strong ▼
Dislike	☐	☐	☐
Anger	☐	☐	☐
Fear	☐	☐	☐
Unease	☐	☐	☐
Sadness	☐	☐	☐
Guilt	☐	☐	☐
Happinesss	☐	☐	☐
Pride	☐	☐	☐
Affection	☐	☐	☐
Surprise	☐	☐	☐

Male student, 30 years
"I failed to solve a software problem when a customer was present"
Put yourself in the position of the 30-year-old male student.

3

How strongly did he feel? Please check a box for <u>each</u> emotion.

	not at all or very weak ▼	**weak to medium** ▼	**strong to very strong** ▼
Dislike	☐	☐	☐
Anger	☐	☐	☐
Fear	☐	☐	☐
Unease	☐	☐	☐
Sadness	☐	☐	☐
Guilt	☐	☐	☐
Happiness	☐	☐	☐
Pride	☐	☐	☐
Affection	☐	☐	☐
Surprise	☐	☐	☐

Female civil servant, 22 years
"I fought with a colleague"
Put yourself in the position of the 22-year-old female civil servant.

4

How strongly did she feel? Please check a box for <u>each</u> emotion.

	not at all or very weak ▼	**weak to medium** ▼	**strong to very strong** ▼
Dislike	☐	☐	☐
Anger	☐	☐	☐
Fear	☐	☐	☐
Unease	☐	☐	☐
Sadness	☐	☐	☐
Guilt	☐	☐	☐
Happiness	☐	☐	☐
Pride	☐	☐	☐
Affection	☐	☐	☐
Surprise	☐	☐	☐

Male clerical assistant, 29 years
"I ran into a good friend by chance"
Put yourself in the position of the 29-year-old maleclerical assistant.
How strongly did he feel? Please check a box for each emotion.

	not at all or very weak ▼	weak to medium ▼	strong to very strong ▼
Dislike	☐	☐	☐
Anger	☐	☐	☐
Fear	☐	☐	☐
Unease	☐	☐	☐
Sadness	☐	☐	☐
Guilt	☐	☐	☐
Happinesss	☐	☐	☐
Pride	☐	☐	☐
Affection	☐	☐	☐
Surprise	☐	☐	☐

Male warehouse clerk, 34 years
"I had to serve a very unkind and impatient customer"
Put yourself in the position of the 34-year-old male warehouse clerk.
How strongly did he feel? Please check a box for each emotion.

	not at all or very weak ▼	weak to medium ▼	strong to very strong ▼
Dislike	☐	☐	☐
Anger	☐	☐	☐
Fear	☐	☐	☐
Unease	☐	☐	☐
Sadness	☐	☐	☐
Guilt	☐	☐	☐
Happinesss	☐	☐	☐
Pride	☐	☐	☐
Affection	☐	☐	☐
Surprise	☐	☐	☐

Male engineer, 69 years

"Read a headline in the paper: Asylum seekers' demonstration – they throw
their allocated fresh food on the street – instead of food they want cash"

7

Put yourself in the position of the 69-year-old male engineer.

How strongly did he feel? Please check a box for each emotion.

	not at all or very weak ▼	**weak to medium** ▼	**strong to very strong** ▼
Dislike	☐	☐	☐
Anger	☐	☐	☐
Fear	☐	☐	☐
Unease	☐	☐	☐
Sadness	☐	☐	☐
Guilt	☐	☐	☐
Happinesss	☐	☐	☐
Pride	☐	☐	☐
Affection	☐	☐	☐
Surprise	☐	☐	☐

Female teacher, 58 years

"I got the news, that my sister-in-law has cancer"

8

Put yourself in the position of the 58-year-old female teacher.

How strongly did she feel? Please check a box for each emotion.

	not at all or very weak ▼	**weak to medium** ▼	**strong to very strong** ▼
Dislike	☐	☐	☐
Anger	☐	☐	☐
Fear	☐	☐	☐
Unease	☐	☐	☐
Sadness	☐	☐	☐
Guilt	☐	☐	☐
Happinesss	☐	☐	☐
Pride	☐	☐	☐
Affection	☐	☐	☐
Surprise	☐	☐	☐

Male civil servant, 44 years
"For quite a while I had problems and arguments with my wife"
Put yourself in the position of the 44-year-old male civil servant.
How strongly did he feel? Please check a box for each emotion.

9

	not at all or very weak ▼	**weak to medium** ▼	**strong to very strong** ▼
Dislike	☐	☐	☐
Anger	☐	☐	☐
Fear	☐	☐	☐
Unease	☐	☐	☐
Sadness	☐	☐	☐
Guilt	☐	☐	☐
Happinesss	☐	☐	☐
Pride	☐	☐	☐
Affection	☐	☐	☐
Surprise	☐	☐	☐

Male pupil, 17 years
"I just won a soccer match with my team"
Put yourself in the position of the 17-year-old male pupil.
How strongly did he feel? Please check a box for each emotion.

10

	not at all or very weak	**weak to medium**	**strong to very strong**
Dislike	☑	☑	☑
Anger	☐	☐	☐
Fear	☐	☐	☐
Unease	☐	☐	☐
Sadness	☐	☐	☐
Guilt	☐	☐	☐
Happinesss	☐	☐	☐
Pride	☐	☐	☐
Affection	☐	☐	☐
Surprise	☐	☐	☐

Female clerk, 31 years
"An expected phone call from my partner, which I am waiting for, is overdue
by several days"

11

Put yourself in the position of the 31-year-old female clerk.
How strongly did she feel? Please check a box for each emotion.

	not at all or very weak ▼	weak to medium ▼	strong to very strong ▼
Dislike	☐	☐	☐
Anger	☐	☐	☐
Fear	☐	☐	☐
Unease	☐	☐	☐
Sadness	☐	☐	☐
Guilt	☐	☐	☐
Happinesss	☐	☐	☐
Pride	☐	☐	☐
Affection	☐	☐	☐
Surprise	☐	☐	☐

Male police officer, 24 years
"I recently got married in a registry office"

12

Put yourself in the position of the 24-year-old male police officer.
How strongly did he feel? Please check a box for each emotion.

	not at all or very weak ▼	weak to medium ▼	strong to very strong ▼
Dislike	☐	☐	☐
Anger	☐	☐	☐
Fear	☐	☐	☐
Unease	☐	☐	☐
Sadness	☐	☐	☐
Guilt	☐	☐	☐
Happinesss	☐	☐	☐
Pride	☐	☐	☐
Affection	☐	☐	☐
Surprise	☐	☐	☐

Male student, 27 years
"I won £50 in a lottery"
Put yourself in the position of the 27-year-old male student.
How strongly did he feel? Please check a box for <u>each</u> emotion.

13

	not at all or very weak ▼	weak to medium ▼	strong to very strong ▼
Dislike	☐	☐	☐
Anger	☐	☐	☐
Fear	☐	☐	☐
Unease	☐	☐	☐
Sadness	☐	☐	☐
Guilt	☐	☐	☐
Happinesss	☐	☐	☐
Pride	☐	☐	☐
Affection	☐	☐	☐
Surprise	☐	☐	☐

Appendix Three

A pilot study was carried out in order to determine which photos would be used for the third study. The following form was used in the pilot study to determine the level of agreement for each of the photos.

Please look at the face on the screen and mark the expression you think is on the face currently on the screen. When ready to go on to the next face press the down arrow key.

1. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

2. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

3. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

4. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

5. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

6. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

7. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

8. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

9. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

10. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

11. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

12. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

13. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

14. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

15. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

16. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

17. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

18. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

19. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

20. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

21. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

22. Happy Sad Neutral Angry Disappointed Disgusted Calm Excited

Surprised Frightened Other:_____

23. Happy Sad Neutral Angry Disappointed Disgusted Calm Excited

Surprised Frightened Other:_____

24. Happy Sad Neutral Angry Disappointed Disgusted Calm Excited

Surprised Frightened Other:_____

25. Happy Sad Neutral Angry Disappointed Disgusted Calm Excited

Surprised Frightened Other:_____

26. Happy Sad Neutral Angry Disappointed Disgusted Calm Excited

Surprised Frightened Other:_____

27. Happy Sad Neutral Angry Disappointed Disgusted Calm Excited

Surprised Frightened Other:_____

28. Happy Sad Neutral Angry Disappointed Disgusted Calm Excited

Surprised Frightened Other:_____

29. Happy Sad Neutral Angry Disappointed Disgusted Calm Excited

Surprised Frightened Other:_____

30. Happy Sad Neutral Angry Disappointed Disgusted Calm Excited

Surprised Frightened Other:_____

31. Happy Sad Neutral Angry Disappointed Disgusted Calm Excited

Surprised Frightened Other:_____

32. Happy Sad Neutral Angry Disappointed Disgusted Calm Excited

Surprised Frightened Other:_____

33. Happy   Sad   Neutral   Angry Disappointed Disgusted Calm Excited
Surprised   Frightened   Other:_____

34. Happy   Sad   Neutral   Angry Disappointed Disgusted Calm Excited
Surprised   Frightened   Other:_____

35. Happy   Sad   Neutral   Angry Disappointed Disgusted Calm Excited
Surprised   Frightened   Other:_____

36. Happy   Sad   Neutral   Angry Disappointed Disgusted Calm Excited
Surprised   Frightened   Other:_____

37. Happy   Sad   Neutral   Angry Disappointed Disgusted Calm Excited
Surprised   Frightened   Other:_____

38. Happy   Sad   Neutral   Angry Disappointed Disgusted Calm Excited
Surprised   Frightened   Other:_____

39. Happy   Sad   Neutral   Angry Disappointed Disgusted Calm Excited
Surprised   Frightened   Other:_____

40. Happy   Sad   Neutral   Angry Disappointed Disgusted Calm Excited
Surprised   Frightened   Other:_____

41. Happy   Sad   Neutral   Angry Disappointed Disgusted Calm Excited
Surprised   Frightened   Other:_____

42. Happy   Sad   Neutral   Angry Disappointed Disgusted Calm Excited
Surprised   Frightened   Other:_____

43. Happy   Sad   Neutral   Angry Disappointed Disgusted Calm Excited
Surprised   Frightened   Other:_____

44. Happy   Sad   Neutral   Angry Disappointed Disgusted Calm Excited

Surprised   Frightened   Other:_____

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45. Happy   Sad   Neutral   Angry Disappointed Disgusted Calm Excited

Surprised   Frightened   Other:_____

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46. Happy   Sad   Neutral   Angry Disappointed Disgusted Calm Excited

Surprised   Frightened   Other:_____

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47. Happy   Sad   Neutral   Angry Disappointed Disgusted Calm Excited

Surprised   Frightened   Other:_____

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48. Happy   Sad   Neutral   Angry Disappointed Disgusted Calm Excited

Surprised   Frightened   Other:_____

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49. Happy   Sad   Neutral   Angry Disappointed Disgusted Calm Excited

Surprised   Frightened   Other:_____

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50. Happy   Sad   Neutral   Angry Disappointed Disgusted Calm Excited

Surprised   Frightened   Other:_____

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51. Happy   Sad   Neutral   Angry Disappointed Disgusted Calm Excited

Surprised   Frightened   Other:_____

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52. Happy   Sad   Neutral   Angry Disappointed Disgusted Calm Excited

Surprised   Frightened   Other:_____

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53. Happy   Sad   Neutral   Angry Disappointed Disgusted Calm Excited

Surprised   Frightened   Other:_____

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54. Happy   Sad   Neutral   Angry Disappointed Disgusted Calm Excited

Surprised   Frightened   Other:_____

55. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited
Surprised   Frightened   Other:_____

56. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited
Surprised   Frightened   Other:_____

57. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited
Surprised   Frightened   Other:_____

58. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited
Surprised   Frightened   Other:_____

59. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited
Surprised   Frightened   Other:_____

60. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited
Surprised   Frightened   Other:_____

61. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited
Surprised   Frightened   Other:_____

62. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited
Surprised   Frightened   Other:_____

63. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited
Surprised   Frightened   Other:_____

64. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited
Surprised   Frightened   Other:_____

65. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited
Surprised   Frightened   Other:_____

66. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

67. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

68. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

69. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

70. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

71. Happy   Sad   Neutral   Angry   Disappointed   Disgusted   Calm   Excited

Surprised   Frightened   Other:_____

The following are examples of the faces used in both the pilot study and study three. Due to restrictions in the research agreement required to use the NimStim face stimulus set, some of the faces used below were not used in study three, but only certain faces are permitted to be used as published examples. In addition, when the photos were used in the study they were in full colour. Participants in Study Three also completed a questionnaire packet containing: the IPIP, the Schutte et al. (1998) emotional intelligence scale, the TEMINT, and the demographic information which is listed after the photos.

Asian Female Happy | Asian Female Sad | Asian Female Angry

Caucasian Male Happy | Caucasian Male Sad | Caucasian Male Angry

Demographic information:

Thank you for taking part in this study. If you would like more information, please contact Kendra DeBusk either by email K.P.A.H.Debusk@sms.ed.ac.uk or by phone at 0131-650-6617. Please fill in the some demographic information below. The information will be kept completely confidential and destroyed at the end of the study.

Name

To what ethnic group to you belong? (pllease circle)

Caucasian: White British   White Irish   Other white background_____

East Asian: Chinese   Japanese   Vietnamese   Taiwanese   Other_____