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A critical evaluation of the emotional intelligence construct

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Abstract

This study critically evaluated the Emotional Intelligence (EI) construct (the ability to perceive, understand, and manage emotions), as measured by the Multi-factor Emotional Intelligence Scale (MEIS in press). We administered the MEIS to Australian undergraduates along with a battery of IQ, personality, and other theoretically relevant criterion measures, including life satisfaction and relationship quality. We also induced moods in the students and examined whether people high in EI were better than others at managing their moods and preventing their moods from biasing their social judgments. Analyses revealed that EI was not related to IQ but was related, as expected, to specific personality measures (e.g., empathy) and to other criterion measures (e.g., life satisfaction) even after controlling for IQ and personality traits. EI was also related to people's ability to manage their moods, but not to their ability to prevent moods from biasing their judgments. IQ was surprisingly related to both these mood processes. The results suggest that the EI construct is distinctive and useful, but that traditional IQ may also be important in understanding emotional processes. © 2000 Published by Elsevier Science Ltd. All rights reserved.

Keywords: Emotion; Emotional intelligence; Mood; IQ; Life satisfaction; Judgment

1. Introduction

Many researchers and lay people have become dissatisfied with a traditional, 'narrow' conceptualisation of intelligence, which emphasises verbal and performance IQ and other more 'academic' abilities (Bar-On, 1997; Cooper & Sawaf, 1997; Goleman, 1995; Mayer & Salovey, 1997; Salovey & Mayer, 1990). Recently, researchers have promoted the idea that our notion

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of intelligence should be expanded to include 'emotional intelligence' (EI), which has generally been defined as the ability to perceive, understand, and manage one's emotions (Salovey, Hsee & Mayer, 1993; Salovey & Mayer, 1990). EI has been purported to be distinct from traditional IQ and crucial in predicting many real-life outcomes. With little empirical support, people have claimed that '... emotional intelligence may be the best predictor of success in life, redefining what it means to be smart' (TIME, 1995, Cover), and that EI will confer '... an advantage in any domain in life, whether in romance and intimate relationships or picking up the unspoken rules that govern success in organisational politics' (Goleman, 1995, p. 36).

The notion of EI was first introduced by Salovey and Mayer in 1990 and since then has become enormously popular. The topic of EI has appeared in a best-seller (Goleman, 1995) and a number of other popular books (Cooper & Sawaf, 1997; Gottman, 1997; Salerno, 1996; Segal, 1997), magazine and newspaper articles (Bennets, 1996; Henig, 1996; Peterson, 1997), and most recently on a highly watched talk show (Hudson, 1998). Lost in all the excitement is the fact that many of the measures may be neither reliable nor valid (Davies, Stankov & Roberts, 1998).

In an attempt to improve on the weaknesses of previous measures, Mayer, Caruso and Salovey (submitted for publication) designed the Multi Factor Emotional Intelligence Scale (MEIS). The MEIS is objective (there are correct answers), has decent reliabilities, samples a wide variety of emotional behaviours, and appears to overlap much less with traditional measures of personality than previous EI measures (e.g, Goleman, 1995). However, the MEIS has not yet received sufficient critical evaluation since it has only recently been developed.

The goal of the present study is thus to critically evaluate the EI construct as measured by the MEIS. In particular, we will assess the MEIS's psychometric properties and test whether it correlates with measures that are theoretically related to it. We will also assess whether EI moderates mood-relevant effects: if EI is a valid construct, we would expect people high in EI to be less biased in their judgments by an irrelevant mood and to be more likely to engage in effective mood management behaviour.

2. Self-report measures of emotional intelligence

A number of researchers have attempted to develop self-report measures of EI or EI-related constructs (Bar-On, 1997; Goleman, 1995; Roger & Najarian, 1989; Salovey & Mayer, 1990; Schutte et al., 1998). While the definitions of EI are often varied for different researchers, they nevertheless tend to be complementary rather than contradictory. In general, the various measures cover, to a more or less extent, four distinct areas: emotion perception, regulation, understanding, and utilisation.

One of the earliest explicit formulations of EI was put forth by Salovey and Mayer (1990). They defined EI as the ability to appraise, express, and regulate emotions (in self and others), and the ability to utilise emotions (e.g., to harness emotions to solve problems). Citing a number of difficulties with the then extant EI related scales, Salovey and Mayer (1990) developed the Trait Meta Mood Scales to measure attention to emotion (e.g., 'I don't think it's worth paying attention to your emotions or moods'), emotional clarity ('Sometimes I can't tell what my feelings are'), and emotion repair (e.g., 'I try to think good thoughts no matter how

badly I feel'). The scales were shown to possess adequate reliability, and the emotional clarity scale successfully predicted ruminative thinking, even after controlling for other measures such as neuroticism and depression (Salovey, Mayer, Goldman, Turvey & Palfai, 1995).

Another popular measure related to EI is the Toronto Alexithymia Scale (Bagby, Taylor & Parker, 1994; Nemiah, Freyberger & Sifneos, 1976; Taylor, Bagby & Parker, 1997). This scale measures individual differences in (1) difficulty in identifying feelings and distinguishing between feelings and the bodily sensations of emotional arousal, and (2) difficulty describing feelings to other people. In addition to having difficulty with their own emotions, Alexithymics have difficulty imagining other people's emotions and consequently are unempathic and ineffective in the modulation of others' emotional states (Goleman, 1995; Krystal, 1979; Lane & Schwartz, 1987). These findings illustrate the close connection between the ability to identify one's own feelings and those of others (Davies et al., 1998).

There are a number of other EI measures that attempt to assess not only emotional 'abilities' but also a number of non-ability characteristics that relate to personality, chronic mood, and character (see for detailed discussion, Mayer, Salovey & Caruso, 1999b). The Bar-On Emotional Quotient Inventory (Bar-On, 1997) is a 133-item inventory that measures such traits as emotional self-awareness, assertiveness, self-regard, self-actualisation, independence, problem solving, reality testing, flexibility, stress tolerance, happiness, and optimism. The Emotional Control Questionnaire (Roger & Najarian, 1989) measures people's ability to control emotion in trying circumstances, and consists of scales for measuring 'Aggression Control', 'Rehearsal', 'Benign Control', and 'Emotional Inhibition'. Finally, Goleman's (1995) Emotional Quotient (EQ) test endeavours to measure emotional abilities, general social competencies, and 'Character'. The test contains such subscales as 'knowing one's emotions', 'motivating oneself' and 'handling relationships'.

In a recent set of studies, Davies et al. (1998) uncovered a number of problems with the different self-report EI measures. First, Goleman's (1995) EQ test and two self-report measures of the Alexithymia Scale have poor reliabilities (cf. Bagby et al., 1994). Second, the more reliable self-report measures have salient loadings on the well-established personality factors of Neuroticism, Extraversion, Psychoticism, Agreeableness, and Openness. Third, although there is factor-analytic evidence supporting the discriminant validity of two emotional intelligence factors (emotional awareness and clarity), these factors no longer emerge when unreliable measures are dropped from factor analysis.

3. An objective measure of EI

In a recent attempt to remedy the weaknesses of previous EI measures, Mayer et al. (1999a) have developed an objective measure of EI, called the Multifactor Emotional Intelligence Scale (MEIS). The test is objective in the sense that there are 'better' and 'worse' answers, as determined by consensus. For example, if most people think a particular face is expressing a great deal of anger, then it is assumed that the face does indeed express a great deal of anger. People who do not judge the face to express anger are 'less correct' than others.

The MEIS is designed to measure four hierarchical branches of EI (Mayer et al., 1999a).

The perception and appraisal of emotion is the most basic branch of EI and is measured by having people identify emotion in faces, stories, designs, and music. The second branch involves the ability to assimilate basic emotion experiences into mental life, including weighing emotions against one another and against other sensations and thoughts, and allowing emotions to direct attention. For example, high EI people are able to accurately compare an emotional state to a similar sensation in sound, colour, or taste (e.g., sad is like the colour blue). The third branch of EI involves understanding and reasoning about emotions. High EI people know, for example, that anger generally rises when justice is denied, that fear often changes to relief, and that dejection may separate us from others. The fourth and highest branch of EI involves the management and regulation of emotions in oneself and others, such as knowing how to calm down after feeling angry or being able to alleviate the anxiety of another person. Factor analysis of the MEIS has demonstrated that the above four branches can be reduced to three factors, namely perception and appraisal of emotion (branch 1), understanding emotion (combining branches 2 and 3), and managing emotions (branch 4) (Mayer et al., 1999a).

The MEIS has a number of strengths over previous tests. First, it is based on actual performance as opposed to self-reported performance. As such, it may be less subject to self-presentation biases, and does not require people to have insight into their own EI. Second, the test samples a wide range of behaviours, from perceiving emotions in faces to identifying the best course of action to manage someone else's emotions. Third, the subscales have generally been shown to be reliable (most α's > 0.70). And fourth, the MEIS has been shown to correlate with a number of criterion measures, including intelligence, empathy, life satisfaction, and parental warmth (Mayer et al., 1999a). It would appear then that the MEIS is a potentially useful instrument, worthy of more extensive evaluation.

4. Evaluating EI and the MEIS

If the MEIS measures EI as it purports to, then it should satisfy a number of conditions. First, the subscales should be reliable, and all the subscales should load on a single factor, which we might label 'emotional *g*' (Mayer et al., 1999a). Second, women ought to score more highly on EI than men, since research shows that women are slightly superior to men in perceiving emotions (Mayer & Geher, 1996; Mayer et al., 1999a; Rosenthal, Hall, DiMatteo, Rogers & Archer, 1979). Third, the test ought to correlate with a number of criterion variables. People high in EI ought to be more intelligent, if we accept the assumption that all intelligences are to some extent related (Mayer at al., 1999a; Neisser et al., 1996). High EI people also ought to be high in empathy (e.g., because they perceive others' emotions more clearly), life satisfaction, warmth of upbringing (Mayer et al., 1999a), openness to feelings, and quality of relationships. Finally, high EI people ought to be higher in self-esteem and lower in neuroticism (e.g., because people high in neuroticism and/or low self-esteem do not manage their emotions as well as others, see, e.g., Smith & Petty, 1995), and should be higher in extraversion (e.g., because extraverts have a lot of social experience which should make them good at recognising and managing emotions in others).

Another important condition of a good test is that it should relate to important criteria even after controlling for other well-established tests (Anastasi & Urbina, 1997). In the present case, the MEIS ought to relate to Life Satisfaction, Relationship Quality, and Parental Warmth, even after controlling for IQ, Extraversion, Neuroticism, Self-Esteem, Empathy, and Openness to Feelings.

The final critical condition the MEIS should satisfy is that it ought to relate in expected ways to mood relevant processes. First, EI ought to relate to the extent that an irrelevant mood biases judgments. Previous research suggests that an irrelevant mood, depending on conditions, may bias judgments in either congruent direction (i.e., negative mood leads to negative biases; Forgas, 1995; Forgas & Ciarrochi, 1999; Salovey & Birnbaum, 1989) or incongruent directions (negative mood leads to positive biases; Ciarrochi & Forgas, 1999a, b; Forgas & Ciarrochi, 1999). Either a congruent or incongruent bias is 'irrational' in the sense that most people would prefer not to have something irrelevant (the mood) influence their judgments. We expect that the judgments of low EI people will be more likely than others to be biased by an irrelevant mood.

The second mood hypothesis is that EI ought to relate to people's ability to manage their own moods. Previous research suggests that people often manage their moods by recalling positive memories either in a positive mood ('mood maintenance'; Forgas & Ciarrochi, 1999; Isen, 1984) or in a negative mood ('mood repair'; Erber & Erber, 1994; Parrott & Sabini, 1990). We expect high EI people to be better than others at managing their moods. In the present study, we expect (1) high EI people to be more likely than others to recall positive high school memories after both a positive mood induction (mood maintenance) and a negative mood induction (mood repair), and (2) as a consequence of these mood management strategies, high EI people to be more likely than others to report feeling more pleasant after the positive mood induction and less unpleasant after the negative mood.

In addition to assessing the importance of EI in moderating mood-relevant behaviour, we will also assess whether IQ moderates such behaviour. Proponents of EI have typically argued that an EI measure is needed because the IQ construct is not useful for understanding emotional behaviour (e.g., Goleman, 1995). Surprisingly, this assumption has not been tested. Our study and analyses will involve pitting IQ against EI to explicitly test which of these variables is more important in predicting mood-relevant behaviour.

5. Overview

The main aims of the present study were to critically evaluate the EI construct as operationalized by the MEIS. First, we evaluated the reliability and factor structure of the MEIS, and examined whether EI relates to variables it ought, theoretically, to relate to. Second, we investigated whether EI moderates the relationship between experimentally induced mood and mood-based judgmental biases and mood management. And finally, we examined whether EI relates to important criteria and to mood biases even after controlling for existing, well-established measures.

6. Methods

6.1. Participants

The study took place in several phases. All participants were Australian undergraduate psychology students participating to satisfy a course requirement. Due to fluctuations in class attendance, there were different numbers of participants in each phase. One hundred and thirty-four (31 males and 103 females) students participated in phase 1, which involved the administration of the MEIS. The mean age of this group was 24.50 (SD = 8.05). Within this sample, 120 participants (29 males, 91 females) took both the EI and IQ tests and completed the mood induction phase, 114 participants (27 males, 87 females) completed both the EI test and the personality assessment phase, and 129 participants (30 males, 99 females) completed both the EI and IQ test phases.

6.2. Procedure

The study involved four phases, each taking place on a different day in a different week. Materials were administered to nine different classes, each class having about 15 students. In phase 1, participants were administered, via computer, 11 subscales of the MEIS (only 11 of the 12 possible subscales were used in the present study due to time constraints). Average test time was approximately 1 h. In phase 2, participants completed what they thought to be three unrelated studies: a film comparison study (really the mood induction), a social judgment task, and a social recall task. Positive, negative, and neutral mood inductions were randomly assigned to the nine different classes. Participants watched a 10-min affect-eliciting film, and then made a series of evaluative judgments about a couple (see Judgmental Bias section below). After finishing the judgment task, subjects were re-induced into the same affective state by watching a 5-min video, and then were asked to recall three memories from their high school years. The 10- and 5-min films included scenes from (a) a popular comedy series (positive mood), (b) a program on architecture (10-min control) or on German history (5-min control), and (c) a 10-min film dealing with death from cancer and a 5-min film dealing with the holocaust (negative mood). The use of films to manipulate moods has been extensively tried and tested both in laboratory and field research, and has been found to produce salient and enduring moods (Ciarrochi & Forgas, 1999a, b; Forgas, 1993; Forgas & Moylan, 1987). Participants were asked at the end of phase 2 to describe how they felt after watching the first and second films. They described the extent they felt tense, unhappy, cheerful, negative and positive on 5-point scales, labelled by the terms, '1 = Not at all', '2 = A little', '3 = Moderately', '4 = Quite a bit', and '5 = Extremely'.

In phase 3, participants completed a battery of personality and other criterion measures theoretically relevant to emotional intelligence (see below). Finally, in phase 4, participants were given 20 min to complete the IQ test (Raven's Standard Progressive Matrices; ACER, 1989).

6.3. The multifactor emotional intelligence scale

The MEIS consists of 12 scales, divided into four branches of abilities including (a) perceiving, (b) assimilating, (c) understanding, and (d) managing emotion. All scales were scored using the consensus norms developed by Mayer et al. (1999a). Each participant's response was scored according to its agreement with the proportion of the normative sample who endorsed the same alternative. For example, if 0.40 of the normative sample chose a particular response, then a participant in our study who chose that response would receive 0.40 for the item. Thus, large scores on a subtest indicates that a participant tended to choose the responses that most people in the normative sample had chosen. If we assume that what most people choose is likely to be the 'correct' choice, (Mayer et al., 1999a), then larger numbers on a subtest indicates greater emotional intelligence.

6.3.1. Branch 1: perceiving emotion

Branch 1 tasks concern the ability to perceive and identify the emotional content of a variety of stimuli. The *Faces Test* (eight stimuli; 48 items) contains eight faces chosen to represent a variety of emotions. Participants answered on a 5-point scale whether a given emotion (e.g., anger) was '1 = Definitely Not Present' or '5 = Definitely Present.' The *Designs Test* (eight stimuli; 48 items) was identical to the faces test, except that the stimuli were eight original computer-generated graphics, designed to portray a variety of feelings. The *Stories Test* (six stimuli; 42 items) was identical to the above tasks, except that the stimuli were six stories, designed to encompass a range of moods and emotions.

6.3.2. Branch 2: assimilating emotions

Branch 2 tasks concern the ability to assimilate emotions into perceptual and cognitive processes. The *Synesthesia Test* (six stimuli; 60 items) measures people's ability to describe emotional sensations and their parallels to other sensory modalities. People imagine an event that could make them feel a particular feeling, which they then describe on 10 semantic differential scales. For example, 'Imagine an event that could make you feel both somewhat surprised and somewhat displeased ... Now describe your feelings on' each of 10, 5-point semantic differential scales, including 'Warm 1 2 3 4 5 Cold'. The *Feeling Biases Test* (four stimuli; 28 items) measures the extent to which people understand how feelings influence their judgments of how they felt toward a fictional person at the moment. Participants, for example, read a brief passage that describes 'Jonathan' and asks the participant to imagine (s)he feels both guilty and afraid of Jonathan. They then rate Jonathan according to the extent that seven traits (sad, trusting, tense, cynical, aggressive, controlling, and hasty) '1 = Definitely Does Not Describe' and '5 = Definitely Does Describe' him.

6.3.3. Branch 3: understanding emotions

Branch 3 tasks concerned reasoning about and understanding emotions. The *Blends Test* (eight stimuli; eight items) measures the ability to analyse blended emotions. For example, 'Optimism most closely combines which two emotions?' Participants chose one of four options: (a) pleasure and anticipation, (b) acceptance and joy, (c) surprise and joy, (d) pleasure and joy. The *Progressions Test* (eight stimuli; eight items) measures people's understanding of how

emotional reactions proceed over time. For example, 'If you feel angrier and angrier toward someone so that you are losing control, it would result in': (a) gloating, (b) resentment, (c) hate, (d) rage. The *Transitions Test* (four stimuli; 24 items) measures people's understanding of how emotions follow upon one another. One item was, 'A person was afraid and later is calm. *In between*, what are the likely ways the person might feel?' The item was followed by six alternatives: Acceptance, fear, anger, anticipation, surprise, and disappointment, which are rated as 'Extremely Unlikely' (1) to 'Extremely Likely' (5) to have occurred. The *Relativity Test* (four stimuli; 40 items) measures people's ability to estimate the feelings of two characters in conflict. In one example, a dog gets hit by a car, and the participant first rates the dog owner's feelings and then rates the driver's feelings. For example, participants must decide how likely it is (1 = Extremely likely, 5 = Extremely Unlikely) that the dog owner felt 'ashamed about not being able to have better trained the dog'.

6.3.4. Branch 4: managing emotions

The *Managing Feelings of Others Test* (six stimuli; 24 items) examines how skilled participants are in managing the emotions of others. Participants are asked to evaluate plans of action in response to fictional people, described in brief vignettes, who needed assistance. One vignette discusses a person who lied on his resumé to get a job. Participants rate four possible responses to the vignette on a scale from 1 (Extremely Ineffective) to 5 (Extremely Effective). The *Managing Feelings of Self Test* (six stimuli; 24 items) is similar to the Managing Feelings of Others Test, except that the vignettes refer to emotional problems relating to the self.

6.4. Judgmental Bias Measure

Participants were shown hand-drawn pictures of three couples and asked to make evaluative judgments about the couple (Forgas, 1993). Dress for each character was kept relatively nondescript; males were shown wearing jeans and a t-shirt, and females were shown dressed in a skirt and a blouse. Participants were told to look at each of the three couples in turn, imagine that these were people they encountered in a public setting, and immediately after viewing each target, indicate their perception of them on the scales. Participants rated the relationship of the couple on five 5-point scales, anchored by terms such as superficial (1) to deep (5) and trusting (1) to insecure (5). They then rated the man and woman separately on six 5-point scales, anchored by terms such as likeable (1)—dislikeable (5), competent (1)—incompetent (5), and sincere (1)—devious (5). We computed the averages of the couple ratings and averages of the individual ratings (Forgas, 1993), which led to six measures, three for couple judgments and three for individual judgments. Larger numbers indicated greater negativity of judgments. We then factor analysed the six measures using principal components extraction and varimax rotation and found two factors with Eigenvalues greater than 1. The four measures for the first two couples loaded most highly on the first factor, while the two measures for the third couple loaded most highly on the second factor. (Couple's were shown in fixed order, so that the third couple always appeared furthest in time from the mood induction.) Based on this factor analysis, we formed two scales by taking the average negativity of judgments related to the first two couples (termed 'Negativity of Early Judgments') and the average negativity of judgments related to the third couple (termed 'Negativity of Late Judgments'). The division of judgments into early and late is justified not only by the present

factor analysis but also by previous research which suggests that mood may have its largest impact on early judgments (Forgas & Ciarrochi, 1999; Sedikides, 1994).

6.5. Criterion scales

6.5.1. Intelligence test ($\alpha = 0.77$[1])

The 60-item Raven's Standard Progressive Matrices test is designed to measure Spearman's *g* factor and has now been recognised as one of the purest measures of *g* available (ACER, 1989). It presents people with a series of patterns which has one part or piece missing. The task in each case is to select from a set of six or eight alternatives the piece which will complete the pattern correctly. Participants were given 20 min to complete the test.

6.5.2. Empathy ($\alpha = 0.81$)

A 32-item Empathy scale (Mehrabian & Epstein, 1972) asked participants to rate statements such as 'It makes me sad to see a lonely stranger in a group' on 5-point scales anchored by 'Strongly Agree' (1) and 'Strongly Disagree' (5). A single empathy score was derived by averaging across the 32 items. (A similar averaging method was used with all the scales that follow.)

6.5.3. Life satisfaction ($\alpha = 0.67$)

Each person was asked about their satisfaction with their relationships, academic status, career, and work situation on a 5-point scale, ranging from 'Not at all satisfied' (1) to 'Extremely Satisfied' (5) (Mayer et al., 1999a).

6.5.4. Parental warmth ($\alpha = 0.83$)

Participants rated on 7-point agree-disagree scales the extent to which they thought their parents 'were warm', 'listened', 'were non-abusive', 'yelled', 'were strict', 'enjoyed talking to me', and 'were cold and distant' (Mayer et al., 1999a).

6.5.5. Extraversion and neuroticism ($\alpha = 0.85$ and 0.84, respectively)

Measures of Extraversion (12 items) and Neuroticism (13 items) were shortened versions of the full Extroversion and Neuroticism tests of the NEO-PI-R (Costa & McCrae, 1985). Participants rated self-referencing statements on 5-point agree-disagree scales. Example statements were, 'I am not a worrier (Neuroticism)' and 'I like to have a lot of people around me' (Extraversion).

6.5.6. Openness to feelings and openness to aesthetics ($\alpha = 0.79$ and 0.80, respectively)

These 8-item scales were also taken from the NEO-PI-R (Costa & McCrae, 1985) and used the same response format as the extraversion and neuroticism scales. The openness scales

[1] The reliability coefficient for Raven's Standard Progressive Matrices was taken from ACER (1989). All other reliabilities were derived from the present data set.

measure the extent that people are open to and value feelings and aesthetics. Example items from the two scales were, 'How I feel about things is important to me' and 'Aesthetic and artistic concerns aren't very important to me'.

6.5.7. Relationship Quality ($\alpha = 0.90$)

People were asked to rate their current (or most recent) relationship on 5-point scales anchored by the following adjectives: secure–insecure, disappointing–rewarding, interesting–boring, worthwhile–useless, discouraging–hopeful, and happy–miserable (Forgas, Levinger & Moylan, 1994).

6.5.8. Self-esteem ($\alpha = 0.89$)

People were asked to rate the extent they 'Strongly Agreed' (1) or 'Strongly Disagreed' (5) with eight self-relevant statements, such as 'I feel that I'm a person of worth, at least on an equal basis with others' (Rosenberg, 1965).

7. Results

7.1. Psychometric properties of the MEIS

The reliabilities of the MEIS are reported in Table 1, along with the reliabilities reported in the Mayer et al. (1999a) study. The reliabilities for the emotion identification factor are fairly

Table 1
Means, standard deviations, and reliabilities (coefficient alpha) of the Emotional Intelligence subscales for the present Australian study and the Mayor et al. (1999a) American study

Branch and task	Present Australian sample			Mayer et al. American sample		
	M	SD	α	M	SD	α
1. Emotion identification						
Faces	0.35	0.17	0.82	0.40	0.08	0.89
Designs	0.32	0.11	0.88	0.36	0.08	0.90
Stories	0.36	0.14	0.76	0.38	0.07	0.85
2. Assimilating emotions						
Synesthesia	0.30	0.12	0.59	0.31	0.04	0.86
Feeling biases	0.30	0.09	0.67	0.30	0.05	0.70
3. Understanding emotions						
Blends	0.54	0.17	0.35	0.49	0.10	0.49
Progressions	0.59	0.18	0.46	0.58	0.10	0.51
Transitions	0.29	0.10	0.52	0.30	0.04	0.94
Relativity	0.31	0.09	0.66	0.30	0.04	0.78
4. Managing emotions						
Managing others	0.29	0.05	0.55	0.28	0.04	0.72
Managing self	0.28	0.07	0.43	0.27	0.04	0.70
Unweighted average	0.36	0.12	0.61	0.36	0.06	0.76

similar to those obtained by Mayer et al. (1999a) and reach satisfactory levels. The other reliabilities tend to be about the same or lower than the American sample, and some of the reliabilities (in particular for Blends, Progressions, and Managing Self) are somewhat lower than is desirable (Anastasi & Urbina, 1997, p. 91). Because the Blends Test had the lowest and most unacceptable reliability level, it was dropped from further analysis.

We next examined whether EI, as measured by the MEIS, is best characterised as one or many abilities. We applied exploratory principal components analysis to the tests and found a two-factor solution (the first six Eigenvalues were: 3.577, 1.312, 0.992, 0.893, 0.734, and 0.668). The left side of Table 2 shows the unrotated solution. The first factor, 'General Emotional Intelligence' (Mayer et al., 1999a), loads all the tasks without exception. The second factor is less clear and might be labelled 'Perceiving versus Understanding and Managing Emotions', since it generally discriminates tasks that involve emotional identification from the 'higher' processes involved in managing and understanding emotions. The rotated solution tells a similar story (Table 2). The first factor, Emotional Perception, loads most highly on the branch 1 tasks. The second factor, Emotional Understanding and Management, loads the tasks for branches 2–4.

We used the component score coefficients from the factor analyses to form three new variables: (1) 'Overall EI', which is derived from the first principal component and represents 'general emotional intelligence', a factor that is superordinate to the other two factors (Mayer et al., 1999a); (2) 'Perception', which is derived from the first rotated factor and represents people's ability to perceive and identify emotions, and (3) 'Understanding and Managing Emotions' (UandM), which is derived from the second rotated factor and represents people's

Table 2
Two-factor solution for the Emotional Intelligence test, in unrotated (principal components factoring) and rotated (varimax) solutions[a]

Branch and task	Unrotated solution		Rotated solution	
	I	II	I	II
1. Emotion identification				
Faces	**0.65**	−0.54	**0.84**	0.03
Designs	**0.61**	−0.55	**0.82**	−0.10
Stories	**0.79**	−0.17	**0.70**	0.40
2. Assimilating emotions				
Synesthesia	0.41	0.48	−0.01	**0.63**
Feeling biases	**0.66**	0.01	0.49	0.45
3. Understanding emotions				
Progressions	0.39	0.24	0.13	0.43
Transitions	0.53	−0.13	0.48	0.25
Relativity	**0.74**	0.21	0.42	**0.65**
4. Managing emotions				
Managing others	0.58	0.50	0.23	**0.62**
Managing self	0.51	0.31	0.05	**0.71**

[a] Loadings above 0.60 are printed in boldface for clarity.

ability to understand and manage their own and others' emotions. As expected, overall EI correlates highly with Perception and UandM, $r = 0.75$ and $r = 0.66$, respectively. The reliabilities for the three emotional intelligence factors were calculated by using a method described by Nunnally and Bernstein (1994) for computing the reliabilities of linear combinations (or factor scores). The reliability coefficients were 0.90 for Overall EI, 0.88 for Perception, and 0.70 for UandM.

7.2. Relation of EI to criterion measures

If the MEIS measures what it purports to measure, then it ought to be related to a number of theoretically relevant criteria. Table 3 shows the correlation of the emotional intelligence factor with the various criterion variables. In order to reduce the problem of type I error, we have used a step-wise significance testing procedure, in which we first test for significant correlations between the criterion variables and the Overall EI variable (since these were of primary interest). Only if the overall correlation was significant at the 0.025 level (one-tailed) did we next consider the correlations between the criterion variable and the other two EI variables, which were considered subfactors of the overall EI variable and highly correlated with it.

The most important correlations are those relating to the first unrotated Overall EI factor. The correlations between the EI factors and intelligence were non-significant, $P > 0.1$. The correlations between Overall EI and Empathy, Extraversion, Openness to Feelings, and Self-Esteem were all significant, $P < 0.005$, but the correlations between Overall EI and Neuroticism and Openness to Aesthetics were nonsignificant. Concerning the other criteria,

Table 3
Correlations between Emotional Intelligence variables and selected criterion variables

Criterion variables[a]	Overall EI	Perception	Understanding and managing
Ability			
IQ	0.05	0.10	−0.03
Personality			
Empathy	0.43[b]	0.24[c]	0.37[b]
Extraversion	0.26[b]	0.19[c]	0.19[c]
Neuroticism	0.04	−0.03	0.09
Open to aesthetics	0.09	0.06	0.08
Open to feelings	0.24[b]	0.22[c]	0.12
Self esteem	0.31[b]	0.25[b]	0.19[c]
Other criteria			
Life satisfaction	0.28[b]	0.20[c]	0.20[c]
Relationship quality	0.19[c]	0.09	0.19[c]
Parental warmth	0.15	0.18[c]	0.03

[a] $n = 129$ for IQ, $n = 123$ for Relationship Quality, and $n = 114$ for all other variables.
[b] $P < 0.005$ level, one-tailed test.
[c] $P < 0.025$ level, one-tailed test.

Overall EI was significantly related to Life Satisfaction and Relationship Quality, $P < 0.05$, but not to Parental Warmth, $P > 0.05$.

7.3. Relation of EI to sex

We tested the hypothesis that women perform higher than men on the emotional intelligence tasks by using sex as an independent variable in an ANOVA to predict Overall EQ, Perception, and UandM. As expected, women scored significantly higher than men on Overall EI ($M_{\text{women}} = 0.18$; $M_{\text{men}} = -0.61$; $F(1,132) = 14.87$, $P < 0.01$), Perception ($M_{\text{women}} = 0.12$; $M_{\text{men}} = -0.40$; $F(1,132) = 6.69$, $P < 0.05$), and UandM ($M_{\text{women}} = 0.14$; $M_{\text{men}} = -0.47$; $F(1,132) = 9.43$, $P < 0.01$).

7.4. Relation of EI to mood-relevant processes

We next investigated the possibility that Overall EI moderated the relationship between mood and mood-based judgmental and recall biases. We also investigated whether IQ was an important moderator of mood effects and whether EI predicted variance over and above IQ. A General Linear Model (GLM) was used to predict the three outcome measures. The mood variable was dummy coded, so that positive, neutral, and negative mood received values of 1,0,0 for the first dummy variable, and 0,1,0 for the second dummy variable. The continuous predictor variables (Overall EI and IQ) were standardised. The core statistical model in all the analyses involved the main effects of Overall EI, mood, and IQ, and all the two- and three-way interactions between these variables. Both EI and IQ and the interactions of these variables with mood were treated as covariates in the GLM. When the GLM analyses uncovered a significant effect involving a continuous variable (EI and IQ), we followed a method suggested by Aiken and West (1991) to engage in post-hoc probing of this effect. In this method, simple effects are assessed by substituting a value of SD + 1 or −1 into the continuous variable ('Z') in the equation to generate a series of simple equations or regression lines at specific values of Z. If there is a significant Mood × EI interaction, we could probe this interaction by generating two simple regression lines that represent the impact of the mood induction (e.g., sad vs happy) on the judgments of low EI people (1 SD below average in EI) and high EI people (1 SD above average). We could then test whether the slope of the regression line for low (or high) EI people was significantly different from 0, which would indicate that the mood induction influenced the judgments of these people.

7.4.1. Mood and judgmental biases

We examined the hypothesis that the judgments of high EI people would be less influenced by an irrelevant mood state than those of low EI people. The mood main effect and the Mood × EI interaction were non-significant for both the Negativity of Early Judgments, $F(2,108) = 1.63$ (main effect), $P > 0.1$ and $F(2,108) = 0.41$, $P > 0.1$ (interaction), and the Negativity of Late Judgments, $F(2,108) = 0.12$ (main effect), $P > 0.1$ and $F(2,108) = 0.30$, $P > 0.1$ (interaction). There was also no significant effect of IQ and Mood × IQ for the Negativity of Late Judgments, $F(1,108) = 2.07$, $P > 0.1$ and $F(2,108) = 0.12$, $P > 0.1$, respectively. There was, however, a significant interaction between Mood and IQ for the

Negativity of Early Judgments, $F(2,108) = 4.93$, $P < 0.01$. Post-hoc probing of this interaction revealed that mood had no significant biasing effects on the judgments of high IQ people: Positive ($M = 2.8$) vs neutral ($M = 2.6$), $t(108) = 1.4$, P > 0.1, positive vs negative ($M = 2.8$), $t(108) = -0.35$, $P > 0.1$, and neutral vs negative, $t(108) = -1.76$, $P = 0.08$. However, mood did significantly bias low IQ people's judgments. Low IQ people in a negative mood expressed more positive judgments ($M = 2.5$) than those in a positive mood ($M = 3.0$), $t(108) = 3.7$, $P < 0.01$, a mood-incongruent effect. Low IQ people did not differ in their judgments in the neutral ($M = 2.8$) vs negative condition, $t(108) = 1.9$, $P = 0.07$; nor did they differ in the positive vs neutral condition, $t(108) = -1.4$, $P > 0.1$.

7.4.2. Mood and positivity of recall

We next tested the hypothesis that high EI people would be more likely than others to retrieve positive memories in both a positive mood (mood maintenance) and negative mood (mood-repair) relative to a neutral control. Two raters scored the three high school memories recalled by each participant on a scale from −2 (most negative) to 2 (most positive) and satisfactory reliability between the raters was achieved, $r_{\text{memory1}} = 0.82$, $r_{\text{memory2}} = 0.87$, and $r_{\text{memory3}} = 0.85$.

The GLM analyses with positivity of the first, second, and third memories as dependent variables revealed no significant effects for the second and third memory recalled, all $P > 0.1$. However, there was a significant interaction between EI and mood on the positivity of the first memory recalled, $F(2,104) = 7.5$, $P < 0.01$. As expected, high EI people retrieved more positive memories in positive mood ($M = 1.1$) than in neutral mood ($M = -1.0$), $t(104) = 3.45$, $P < 0.01$, and more positive memories in negative mood ($M = 0.28$) than in neutral mood, $t(104) = 2.34$, $P < 0.05$. There was no significant difference between positive and negative mood conditions for high EI people, $t(104) = 0.46$, $P > 0.1$. Low EI people showed no significant difference in memory retrieval between positive ($M = -0.23$) vs neutral ($M = 0.74$) conditions, $t(104) = -1.84$, $P = 0.07$, neutral vs negative ($M = 0.03$) conditions, $t(104) = 1.29$, $P > 0.1$, and positive vs negative conditions, $t(104) = -0.46$, $P = 0.64$.

There was also a significant effect of Mood × IQ on the negativity of the first memory, $F(2,104) = 3.87$, $P = 0.024$. Post-hoc probing of this interaction revealed that there was no significant difference between positive ($M = 0.478$), neutral ($M = 0.739$), and negative ($M = -0.145$) mood conditions among high IQ people, $P > 0.1$. Among low IQ people, in contrast, there was a significant difference between positive (0.382) and neutral ($M = -1.03$) mood, $t(104) = 2.45$, $P < 0.05$, and between neutral and negative ($M = 0.44$) mood, $t(104) = -2.5$, $P < 0.05$, and no significant differences between negative and positive moods, $t(104) = 0.09$, $P > 0.1$.

To gain a better understanding of what aspects of EI moderate the mood-recall relationship, we next assessed whether the perception subfactor of EI and/or the UandM subfactor was more related to the recall effects. We replaced the Overall EI variable in the GLM (described above) with the Perception and UandM variables and re-ran the analyses. We found that the Mood × Perception interaction was significant, $F(2,104) = 7.78$, $P < 0.01$, but the Mood × UandM interaction was nonsignificant, $F(2,104) = 1.34$, $P > 0.1$. Thus, individual difference in emotion perception, and not in UandM, moderates the mood-recall relationship.

7.4.3. Mood report

We next investigated the role that mood had in influencing mood self-report. To do so, we first combined the two sets of six mood scales (sad, unhappy, cheerful, negative, tense, positive) into two reliable measures of negative mood, Negative1 (mood after first movie induction, $\alpha = 0.92$) and Negative2 (mood after second movie induction, $\alpha = 0.95$).

The mood manipulation, as expected, produced a highly significant effect on Negative1 and Negative2, $F(2,108) = 138.9$ and $F(2,108) = 249.6$, $P < 0.01$, respectively, indicating that the mood induction was effective. For Negative1, the positive induction produced significantly more positive mood ratings ($M = 1.59$) than the neutral induction ($M = 2.3$), $t(108) = -16.42$, $P < 0.01$, and the negative induction produced significantly more negative ratings ($M = 3.7$) than the neutral induction, $t(108) = 7.18$, $P < 0.01$. For Negative2, the positive induction produced non-significantly more positive mood ratings ($M = 1.78$) than the neutral induction ($M = 1.91$), $t(108) = 0.84$, $P > 0.1$, the negative induction produced significantly more negative ratings ($M = 4.15$) than the neutral induction, $t(108) = 11.85$, $P < 0.01$, and the negative induction produced significantly more negative ratings than the positive induction, $t(108) = -20.38$, $P < 0.01$.

We examined whether high EI people were in a more positive mood after recalling more positive memories after the second positive and negative mood induction. The interaction between mood and overall EI was significant for Negative2, $F(2,108) = 5.1$, $P < 0.01$ (see Fig. 1). (The interaction between IQ and mood was not significant, $F(2,108) = 0.21$, $P > 0.1$.) Post-hoc tests revealed that the difference between the positive and neutral mood conditions was greater among high EI people than among low EI people, $t(108) = 2.52$, $P < 0.01$. Similarly, the difference between positive and negative mood was greater among high EI people than among low EI people, $t(108) = 2.86$, $P < 0.01$. There was no significant difference between high and low EI people for the neutral vs negative contrast, $t(108) = 0.25$, $P > 0.1$.

We next assessed whether the perception subfactor of EI and/or the UandM factor moderated the mood induction–mood-report relationship. We used mood self-report as the dependent variable in the same GLM as described above, except that Perception and UandM were substituted in the model for overall EI. We found that the Mood × Perception interaction was nonsignificant, $F(2,108) = 0.882$, $p > 0.1$, but the Mood × UandM interaction was

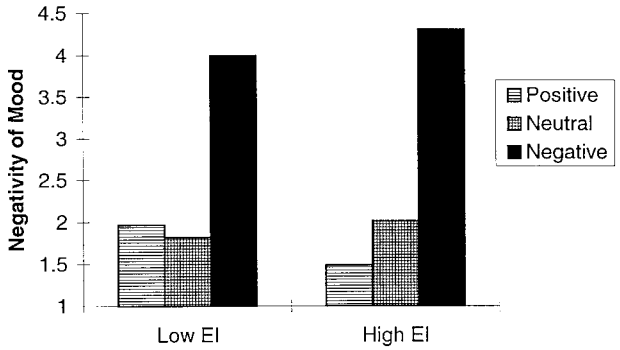

Fig. 1. The impact of Mood and EI on Self-Report Mood ratings (ratings provided approximately 8 min after the Mood Induction).

significant, $F(2,108) = 4.24$, $P < 0.05$. Thus, individual differences in UandM, and not in emotion perception, moderates the mood induction–mood-report relationship.

To further uncover what aspect of UandM was responsible for this effect, we predicted mood self-report using the GLM described above except that each of the subscales of UandM was substituted (one at a time) into the model for overall EI. The subscales that most clearly make up UandM (see Table 2) and were hence substituted into the model were: Synesthesia, Relativity, Progressions, Managing Own Emotions, and Managing Others' Emotions. The only subscale that interacted significantly with mood induction to predict mood self-report was Managing Own Emotions, $F(2,108) = 5.12$, $P < 0.01$, indicating that it was the emotion management component of UandM that was important in predicting mood self-reports.

7.4.4. Discriminant validity of EI

We next addressed the issue of whether EI relates to important criteria even after controlling for IQ and personality variables. Partial correlations were computed between the EI variables and Relationship Quality, Life Satisfaction, and Parental Warmth, while controlling for IQ, Extraversion, Neuroticism, Empathy, Openness to Feelings, and Self-esteem. As can be seen in Table 4, there was a significant relationship between Overall EI and Relationship Quality and Life Satisfaction, $P < 0.05$, between UandM and Life Satisfaction, $P < 0.05$, and between Perception and Parental Warmth, $P < 0.05$. The remaining partial correlations were non-significant, $P > 0.1$.

We then tested the hypotheses that EI moderates the mood-recall relationship (as described above) even after controlling for the effects of self-esteem, which has been shown to moderate the mood-recall relationship (Smith & Petty, 1995). We entered Self-esteem and Mood × Self-esteem as covariates into the GLM described above, and found that the Mood × EI interaction was still highly significant, $F(2,87) = 7.90$, $P < 0.01$, whereas the mood × self-esteem interaction was not significant, $F(2,87) = 1.91$, $p > 0.1$.

Next, we tested whether EI still moderated the impact of mood induction on mood self-report even after controlling for extraversion and neuroticism, two variables that have been shown to relate to emotional reactivity to positive and negative mood induction, respectively (Larsen & Ketelaar, 1991). We entered extraversion and neuroticism and the interaction of these variables with mood into the GLM as covariates, and found that the Mood × EI interaction was still significant, $F(2,85) = 3.40$, $P < 0.05$, whereas the Mood × Neuroticism and

Table 4
Partial correlations between Emotional Intelligence variables and selected criterion variables after controlling for IQ, Extraversion, Neuroticism, Self-esteem, Empathy, and Openness to Feelings

Criterion variables[a]	Overall EI	Perception	Understanding and management
Life satisfaction	0.19[b]	0.07	0.21[b]
Relationship quality	0.22[b]	0.16	0.13
Parental warmth	0.09	0.22[b]	−0.15

[a] $n = 95$.
[b] $P < 0.05$ level, one-tailed test.

the Mood × Extraversion interactions were not significant, $F(2,85) = 0.98$, $P > 0.1$, and $F(2,85) = 0.57$, $P > 0.1$, respectively.

8. Follow-up validation of mood induction

A second, small study was undertaken to resolve a potential confound in the results of the major study. The results of that study indicated that high EI people tended to recall more positive memories in positive mood and to report feeling more positive after the positive mood induction than after the neutral mood induction. In contrast, low EI people did not show any differences in mood between the positive and neutral mood induction (e.g., see Fig. 1).

There are at least two possible explanations for this finding: (1) Low EI people's moods were less affected by the positive mood induction than high EI people's moods, or (2) as we predicted, low EI people's moods were just as influenced as high EI people's moods, but low EI people were less likely to actively maintain their positive mood. If the second hypothesis is true, then if we make people report their moods immediately after the mood induction and do not give them a chance to manage their moods, we should find no difference between high and low EI people. If, in contrast, high and low EI people show immediate differences in how they respond to the mood inductions, then the first hypothesis would be supported.

To evaluate these competing hypotheses, 27 undergraduate psychology students (20 females, 7 males) who had not seen the positive or neutral films in the major study participated in the second small study to satisfy a course requirement. The procedure and materials were identical to those described in phase 2 of the major study, except that the 5-min positive and 5-min neutral mood inductions were shown during the same testing session. Twelve of the participants viewed the 5-min comedy and then the 5-min neutral film, while the other 15 saw the films in the reverse order. All participants then rated how the films made them feel.

A General Linear Model Repeated Measures Analysis was undertaken, with film order and EI as between-subject factors and the positive vs neutral mood induction as the within-subject factor. There was no effect of induction order but there was a highly significant effect of mood induction, $F(1,24) = 21.00$, $P < 0.01$, indicating that the mood induction was indeed successful. Importantly, the EI × Mood Induction effect did not approach significance, $F(1,24) = 0.039$, $P > 0.5$. As can be seen in Fig. 2 (and in contrast to Fig. 1), both low and high EI people

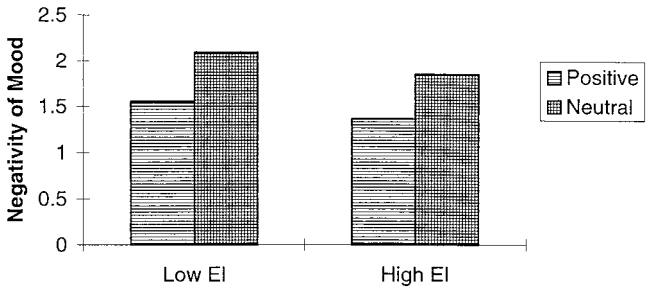

Fig. 2. The impact of Mood and EI on Self-Reported Mood ratings (ratings provided immediately after the Mood Induction).

reported a clearly more positive (less negative) mood after the positive induction than the neutral induction.

9. Discussion

The present study critically evaluated the EI construct as measured by the MEIS. In general, we found support for the reliability and the validity of the test (though there were some limitations to be discussed shortly). The EI factors were reliable, all the subscales loaded on a single 'emotional *g*' factor, EI related in expected ways to a number of criterion variables and to mood-based processes even after controlling for IQ and well-established personality variables. Taken together, these results make a case for the distinctiveness and usefulness of EI.

9.1. Psychometric properties of the MEIS

Although the emotion perception subscales reached satisfactory levels of reliability, the other subscales did not reach such levels. Our reliabilities tended to be lower than those originally reported by Mayer et al. (1999a), although in a more recent study, Mayer (J. Mayer, personal communication, October 15, 1998) also reported lower reliabilities. Despite the low reliabilities of the subscales, the emotional factors that were derived from these subscales did reach satisfactory reliability.

Consistent with Mayer et al. (1999a), we found that the subscales of MEIS all loaded on the first principal component, which supports the idea that they are all measuring 'emotional *g*'. However, some of our factor analysis findings where somewhat different from Mayer et al. (1999a). Those researchers uncovered three factors in the MEIS, which they labelled emotion perception, emotion understanding, and emotion management. We identified only two EI factors, which we labelled emotion perception, and emotion understanding and management (our second factor combines Mayer et al.'s second and third factors). Such a reduction in factors may be the consequence of the lower reliabilities of the subscales or because we used only 10 of the 12 MEIS subtests (which made up 90% of the total MEIS test). Still, our factors clearly overlap conceptually with those of Mayer et al. (1999a).

9.2. Emotional intelligence and criterion variables

EI was unrelated to Neuroticism, Openness to Aesthetics, and IQ, which is inconsistent with what has been predicted by Mayer et al. (1999a). One major difference between the present study and the Mayer et al. study is that Mayer et al. measured verbal IQ, whereas we measured something closer to performance IQ (Raven's Matrices). We expected to obtain similar results to Mayer et al. based on the assumption that all intelligence measures—whether they be performance, verbal, or EI—ought to be related to each other (Mayer et al., 1999a). However, it might be that EI is in fact more closely related to verbal than performance abilities. It would be reasonable to assume, for example, that the skill of correctly applying a verbal label to emotions would be related more to verbal than to performance skill. Future research will be needed to determine whether this assumption is correct.

Despite its failure to correlate significantly with Neuroticism and IQ, EI did correlate with a number of personality criteria, including Self-esteem, Empathy, Extraversion, and Openness to Feelings. EI was also related to the two non-personality criteria, including Life Satisfaction and Relationship Quality. Importantly, we found that the EI factors were correlated to these non-personality criteria even after controlling for IQ, Neuroticism, Self-esteem, Empathy, Extraversion, and Openness to Feelings. These findings provide support for the proposition that EI, generally, relates to variables it ought to relate to. They also provide support for the discriminant validity of EI, in that EI explains variance in real-life criteria even after numerous other well-established measures are controlled for.

As predicted, women scored higher than men on Overall EI, Perception, and UandM. This is consistent with previous research which suggests that women are better than men at perceiving emotions (Mayer et al., 1999a; Mayer & Geher, 1996; Rosenthal et al., 1979). There are a number of reasonable explanations for the sex difference. Women may be socialised to read emotions better than men. Or they may be biologically prepared for emotion perception (LaFrance & Banaji, 1992; Mayer et al., 1999a). Future research will be needed to decide between these issues.

9.3. Emotional intelligence and mood

As expected, EI was related to mood management, but unexpectedly was not related to mood-based judgmental biases. High EI people were more likely than others to retrieve positive memories in a positive mood (consistent with mood maintenance) and to retrieve positive memories in a negative mood (consistent with mood repair). This effect occurred even after controlling for Self-esteem, a variable that has been shown to relate to mood management (Smith & Petty, 1995). Also, the effect was significant for the first memory recalled after the mood induction, but not for the next two memories recalled, perhaps because the induced mood became attenuated by the passage of time, as has been found in previous research (Forgas & Ciarrochi, 1999).

The findings for mood self-report data also provide some support for the hypothesis that high EI people are better than others at managing their moods. High EI people reported being in a more positive mood after the positive mood induction than the neutral mood induction, whereas low EI people reported feeling the same after the positive and neutral mood inductions. This effect held even after controlling for two variables related to positive and negative emotional reactivity, extraversion and neuroticism (Larsen & Ketelaar, 1991). A follow up study indicated that when the mood self-report task occurred close in time to the mood induction and therefore reduced the opportunity for mood management, then the positive mood had the same effect on both low and high EI people. Also consistent with the notion that mood management strategies played a role in the mood-report findings is the fact that the only subscale of the MEIS that interacted with mood to significantly predict mood self-reports was the Managing Emotions of Self scale.

Although the mood self-report data supported the notion that high EI people try to maintain their positive mood, it did not support the notion that they repair their negative moods: high EI people did not report less negative mood than low EI people in the negative mood condition. One explanation for this null result may be that high EI people are not

strongly motivated to engage in mood repair because such repair may often prove harmful: avoiding negative thoughts when in a bad mood may allow them to reduce their bad mood but may also prevent them from focusing on what caused the mood in the first place.

9.4. IQ and mood

Part of the motivation for developing a measure of EI was the assumption that IQ was not particularly relevant to emotional processes (e.g., Goleman, 1995). Our study provides some initial evidence that challenges this assumption, and suggests that IQ may at times be more important than EI in understanding emotional processes. It was IQ, not EI, that was important in explaining judgmental mood biases. Low and high EI people were similar in their judgmental biases (or lack thereof), but low IQ people tended to show greater judgmental biases than high IQ people. Specifically, low IQ people made more positive judgments in a negative mood than in a positive mood, a mood-incongruent bias. This kind of finding is consistent with previous research which suggests people will sometimes 'bend over backwards' to prevent mood from influencing their judgments and may actually overcorrect for such influences (Ciarrochi & Forgas, 1999). This overcorrection is irrational in the sense that low IQ people are allowing something irrelevant (the mood) to influence their judgments.

Surprisingly, even after controlling for EI, we found that IQ moderated the relationship between mood and positivity of recall. Post-hoc analyses revealed that low IQ people were more likely than others to recall positive memories in a positive and negative mood, a finding that is consistent with mood maintenance and repair. However, low IQ people were not more likely than others to also report feeling more positive. This hints at the interesting possibility that low IQ people tried but did not succeed at managing their moods. In contrast to low IQ people, high EI people appeared to engage in mood management and succeed (they reported more positive moods). In general, these findings suggest that IQ may explain variance in mood-relevant behaviour over and above that explained by EI.

9.5. Future research

We are still at the early stages in the investigation of EI. Future research is needed to better understand the relationship between EI and mood management. Do high EI people need to have substantial cognitive resources to effectively manage their moods, or can they do so with relatively little effort? Do high EI people have more motivation or more ability to manage their moods? Research also needs to take seriously the proposition that traditional IQ, not just EI, is important in understanding mood-related processing. We found that low, but not high IQ people allowed irrelevant mood to bias their judgments. What other aspects of emotional life give low IQ people trouble?

A number of the relationships we found between EI and personality certainly warrant further study. What, for example, is the causal link underlying the positive relationship between EI and self-esteem? Are low EI people less skilled at managing their emotions because they are low in self-esteem, or are they low in self-esteem in part because they are not good at managing their emotions? Any attempt to improve EI or self-esteem would probably have to be informed by a good causal model of how the two variables relate.

The current study suggested that EI is related to life satisfaction and relationship quality. It will be important for future research to explore the causal direction of these relationships. It seems reasonable to assume that low EI leads to lower life satisfaction and relationship quality, but the causal direction of these relationships could plausibly go the other way. For example, perhaps when people are in a horrible relationship or life situation they become less skilled at perceiving and managing their emotions.

Further research is also needed to understand the cognitive mechanisms that mediate between emotional intelligence and mood-relevant behaviour. For example, future research could examine the length of time it takes low and high EI people to retrieve positive memories when in a positive mood (mood maintenance behaviour). If high EI people are more cognitively efficient than others at engaging in mood regulation, they should be faster than others at retrieving positive memories in a positive mood.

9.6. Conclusions

A number of people have made rather bold claims for the power of EI, suggesting that it is more important than IQ and may be the most important determinant of success in relationships and careers. Despite its popularity, many EI measures have received surprisingly little scientific support (Davies et al., 1998). The present study critically evaluated one of the more promising theories and measures of EI, the MEIS. In general, we found support for the reliability and the validity of the MEIS, though we also discovered some potential limitations. Even with these limitations, however, the EI construct showed a great deal of promise in predicting important outcomes. Perhaps some of the enthusiasm surrounding the EI construct, as measured by the MEIS, is indeed justified.

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