

Is Trait-Emotional Intelligence Simply or More Than Just a Trait?

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Abstract

The present study examined the usefulness of trait-Emotional Intelligence (EI) among a sample of 1186 top managers who filled out questionnaires for Emotional Intelligence and the Big Five and were evaluated by a consultant on their competencies. Three higher-order factors were found to underlie the Bar-On Emotional Quotient Inventory (Bar-On, 1997): sense of accomplishment, empathy, and planfulness. Trait-EI was found to be substantially related to Extraversion, Agreeableness, Emotional Stability, and Autonomy. Nevertheless, the EI-factors predicted additional variance over and above the Big Five in competency to support. On the whole, top managers scored higher on the EI dimensions compared with a general population sample. High EI scores were particularly found among managers from enterprising occupational environments, that is environments dominated by activities that entail persuading and leading others to attain organizational goals or economic gain. Copyright © 2004 John Wiley & Sons, Ltd.

The concept of Emotional Intelligence is very fashionable within but especially outside science. One of the major reasons for its popularity lies in the fact that the traditional emphasis on analytical intelligence seems to presuppose well defined problems for which one correct answer is usually available. Such problems may exist in the academic world, but certainly not in the daily life of organizations. The common-sense idea of what constitutes intelligent behaviour, namely the ability to solve the highly unstructured problems people encounter in their daily life, asked for new concepts and measures. Emotional Intelligence emerged as a concept referring to intelligent behaviour in the emotional domain. It is expected to apply to a broad range of life domains, such as the home, school, work, and other settings.

The present study focused on the additive value of this concept of Emotional Intelligence (EI) above existing trait models. Salovey and Mayer (1990) define EI as 'the

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ability to monitor one's own and other's emotions, to discriminate among them and to use the information to guide one's thinking and actions'. Note that the authors refer both to cognitive processes of monitoring emotions and discriminating amongst them and to the behavioural process of actually using the information to guide one's thinking and actions. Moreover, they clearly make a distinction between emotions regarding oneself and the emotions of others. In 1997, Mayer and Salovey presented a revised model that gives more emphasis to cognitive processes. This model distinguishes between four dimensions of EI: perception, appraisal and expression of emotion; emotional facilitation of thinking; understanding, analysing, and employing emotional knowledge; and, finally, reflective regulation of emotions so as to promote further emotional and intellectual growth.

EI is generally regarded as a construct within the broad framework of human cognitive abilities (Goleman, 1996; Mayer, Caruso, & Salovey, 2000; Mayer & Geher, 1996; Mayer & Salovey, 1993; Salovey & Mayer, 1994). It must be noted, however, that quite a few studies (e.g. Davies, Stankov, & Roberts, 1998; Van der Zee, Thijs, & Schakel, 2002) failed to reveal a relationship between EI and academic intelligence. In part, the lack of support for a relationship between EI and academic intelligence is due to the fact that whereas academic intelligence refers to maximum performance, the majority of instruments for EI represent measures of typical performance (see Cronbach, 1949; Hofstee, 2001). An item that illustrates such typical performance indicators is 'I'm good at understanding the way I feel'. This as opposed to measures for example developed in the tradition of Sternberg's concept of practical intelligence, that ask respondents to rate the effectiveness of reactions to unstructured problem situations, whereby their answers are evaluated against assessments derived from experts regarding the same situations (see, e.g., Sternberg, 1997).

The increasing awareness of this distinction has led Petrides and Furnham (2000, 2001) to propose a theoretical distinction between trait-EI (also referred to as 'emotional self-efficacy') and ability-EI. These authors argue that the operationalization of EI through self-report inventories of typical performance will produce different findings and presumably lower associations with indicators of academic intelligence than maximum performance indicators (also referred to as cognitive emotional ability) (Petrides & Furnham, 2003). At this point, it seems particularly important to realize that simply making the conceptual distinction does not solve the issue that in order to consider trait-EI as a useful 'new' psychological construct, it is necessary to find evidence that indicators of trait-EI do measure something that is different from general traits and that they have predictive value against important real life criteria above general indicators of personality. In a recent paper De Raad (in press) classified items from several EI questionnaires on a conceptual basis into the Abridged Big Five Circumplex (AB5C) Model (see, e.g., Hofstee, De Raad, & Goldberg, 1992). The AB5C-model represents trait adjectives in terms of their primary and secondary loadings on the Big Five factors. The majority of the items neatly fitted in the Big Five structure; those items that did not were in general rather ambiguous or otherwise posed difficulties to its respondents. De Raad's conclusion is that there is 'little magic there'.

The present study examined the usefulness of trait-EI among a sample of top managers. First, we extended the conceptual work by De Raad by empirically examining the relationship of commonly used EI dimensions with the Big Five. Second, we were interested in the specific value of trait-EI for effective functioning in top executive jobs. It was assumed that the ability to sense and respond to affective meaning would be particularly important in this group. We therefore compared scores on the EI dimensions

between a general sample and a sample of top managers by relying on the Bar-On Emotional Quotient Inventory (Bar-On EQ-i; Bar-On, 1997). In addition, we were interested to what extent scores on the Bar-On EQ-i could discriminate between different professional environments represented by the top managerial positions that were included in the study. Professional environments were classified according to Holland's (1985) RIASEC model. Finally, in order to examine the incremental value of trait-EI, we examined to what extent EI-trait scales were able to predict performance of top managers as indicated by consultants' competency ratings, above and beyond the Big Five.

TRAIT-EI AND THE BIG FIVE

Personality can be described in terms of five basic factors, often labelled the 'Big Five' (see, e.g., De Raad, 1992; Digman, 1990; John, 1990; McCrae & Costa, 1984; McCrae & John, 1992). The current labels for the factors are I, Extraversion, II, Agreeableness, III, Conscientiousness, IV, Emotional Stability, and V, Intellect/Autonomy, or Openness to Experience. In general, the evidence for a relationship between EI and personality variables is quite strong (see, e.g., Boyle, Stankov, & Catell, 1995; Eysenck, 1994a, 1994b; Saklofske & Zeidner, 1995; Stankov & Crawford, 1998; Van der Zee et al., 2002). De Raad (in press) asked raters to assess the relevance of Big Five items for the description of EI and found four of the Big Five factors represented in the selection of relevant items: Extraversion, Agreeableness, Emotional Stability, and Autonomy. The relationship between EI and Emotional Stability has also been supported empirically (see, e.g., Davies et al., 1998; Roger & Najarian, 1989), and the same holds for Extraversion (see, e.g., Bagby, Taylor, & Parker, 1994; Davies et al., 1998; Roger & Najarian, 1989; Van der Zee et al., 2002). There is some empirical support that the construct is related to Openness to Experience (Schutte et al., 1998; Van der Zee et al., 2002), and although the evidence for a relationship between EI and Agreeableness is scarce there are some studies in support of it (Davies et al., 1998; Van der Zee et al., 2002).

The instrument that formed the scope of the present study, the Bar-On Emotional Quotient Inventory (Bar-On, 1997), is one of the most cited trait indicators of EI. The instrument has 15 scales that represent intrapersonal, interpersonal, adaptability, stress management, and general mood components of EI. How do these components relate to personality? Examining the scale definitions for the instrument, it is not hard to suspect substantial relationships with the Big Five (see Table 1). With respect to the intrapersonal components, emotional self-awareness was expected to be related to Emotional Stability. The ability to cope with emotions seems to lie at the heart of the Emotional Stability construct. Moreover, Bar-On (1997) argues that serious deficiencies in emotional self-awareness are found in alexithymic conditions. Alexithymia is a concept that describes the inability to put emotions into words. Individuals high in alexithymia experience difficulties in describing or recognizing their emotions; they have a limited fantasy life and a general constriction in the affective life. Bagby et al. (1994) found a negative relationship between scales of the Toronto Alexithymia Scale and Emotional Stability.

Assertiveness is considered to be a facet of Extraversion (Costa & McCrae, 1992), and was therefore expected to relate to this trait. Third, self-regard, or the ability to respect and accept oneself as basically good, seems conceptually close to self-esteem, which in the empirical literature has been negatively linked to Neuroticism (the negative pole of Emotional Stability) and, although somewhat less pronouncedly, positively to

Table 1. Hypothesized relationships between trait-EI and the Big Five

Category	Component	Interpretation (Bar-On, 1997)	Big Five factor ¹
Intrapersonal	Emotional self-awareness	Ability to recognize one's own feelings	IV+
	Assertiveness	Ability to express feelings, beliefs, and thoughts and defend one's rights in a nondestructive manner	I+
	Self-regard	Ability to respect and accept oneself as basically good	I+, IV+
	Self-actualization	Ability to realize one's potential capacities	V+, II+, I+, III+
Interpersonal	Independence	Ability to be self-directed and self-controlled in one's thinking and actions and to be free of emotional dependencies	V+
	Empathy	Ability to be aware of, to understand, and to appreciate the feelings of others	II+, I+
	Interpersonal relationship	Ability to establish and maintain mutually satisfying relationships	I+, II+
	Social responsibility	Ability to demonstrate oneself as a cooperative, contributing, and constructive member of one's social group.	II+
Adaptability	Problem-solving	Ability to identify and define problems as well as to generate and implement potentially effective solutions	V+, III+
	Reality testing	Ability to assess the correspondence between what is experienced and what objectively exist	IV+
	Flexibility	Ability to adjust one's emotions, thoughts, and behaviour to changing situations and conditions	IV+
	Stress tolerance	Ability to withstand adverse events and stressful situations by actively and positively coping with stress	IV+
Stress management	Impulse control	Ability to resist or delay an impulse, drive, or temptation to act	IV+, III+
	Happiness	Ability to feel satisfied with one's life, to enjoy oneself and others, and to have fun	II+, IV+
	Optimism	Ability to look at the brighter side of life and to maintain a positive attitude	II+, IV+

¹I = Extraversion, II = Agreeableness, III = Conscientiousness, IV = Emotional Stability, V = Autonomy.

Extraversion (see, e.g., Costa & McCrae, 1992). Self-actualization was expected to be related to factors V, I, and II. Self-actualization is manifested in becoming involved in pursuits that lead to a meaningful and rich life. Goldberg (1990) for example uses adjectives such as curiosity, depth, and sophistication to denote the fifth factor, whereas Hogan and Hogan (1992) refer to their Intellectance factor in terms of curiosity and thrill-seeking. Excitement seeking, which is regarded as a facet of Extraversion (see, e.g., Costa & McCrae, 1992) also points to this tendency. In addition, the perseverance, goal-directedness, achievement striving, and competence characteristic of individuals high in Conscientiousness (Costa & McCrae, 1992) seem indicative of a tendency to realize one's potentials. Finally, independence was expected to be related to the fifth factor. Individuals high in this factor tend to be autonomous in their thoughts and actions.

It is well accepted that the domain of interpersonal behavior can almost exclusively be described in terms of the dimensions Extraversion and Agreeableness (see, e.g., Wiggins, 1979). It therefore seems reasonable to expect the interpersonal components of trait-EI, or what Gardner (1983) referred to as 'interpersonal intelligence', to be particularly related to these traits. The interpersonal relation scale was expected to be primarily related to Extraversion. Extraverts are open to others and tend to be unreserved and informal in their contacts with other people. Empathy and social responsibility were expected to reveal the strongest relationship with Agreeableness. Agreeableness contrasts a prosocial and communal orientation toward others with antagonism (John & Srivastava, 1999). This factor contains trait terms such as empathy, altruism, tender-mindedness, trust, and morality (see, e.g., Costa & McCrae, 1992; Goldberg, 1999; Hofstee et al., 1992). Agreeable persons are likely to help, being motivated to maintain positive relations with others. In earlier work, Agreeableness has been linked to a willingness to suspend one's personal interest for the good of one's social group (Buss, 1991; see also Koole, Jager, Van den Berg, Vlek, & Hofstee, 2001).

With respect to the adaptability components, problem-solving seems related to the fifth factor, that has been associated with generation of ideas, science, intellectual games (see, e.g., Hogan & Hogan, 1992), intelligence, intellectuality, and in a negative sense with imperceptiveness (see, e.g., Goldberg, 1990). Problem-solving was also expected to be related to Conscientiousness, as the third factor seems to reflect goal-directness and perseverance (see, e.g., Costa & McCrae, 1992). Reality testing was expected to be related to Emotional Stability. The tendency to be carried away in fantasies versus keeping things in the right perspective seems indicative of Emotional Instability.

In earlier research, both stress management dimensions Flexibility and Stress tolerance were shown to be related to the Big Five dimension of Emotional Stability (see, e.g., Van der Zee & Van Oudenhoven, 2000). The dimension of impulse control was expected to be related to Emotional Stability as well as to Conscientiousness. Metcalfe and Mischel (1999) propose a system analysis of willpower and delay of gratification in terms of the interaction between a hot emotional system and a cool cognitive system. Self-regulatory skills and strategies and some situational factors are argued to shift the balance towards the cool system, therefore allowing for an easier suppression of behaviours that are cognitively undesirable although emotionally gratifying (see also Van der Zee & Perugini, in press). In this regard, it is particularly Conscientiousness that has been associated with an internalized tendency to comply with rules and moral standards (Costa & McCrae, 1992; Johnson & Ostendorf, 1993). Among high-Conscientiousness individuals, compliance is driven by an intrinsic need to achieve and to reach their purposes. John and Srivastava (1999) define Conscientiousness in terms of 'behaviors' such as thinking before acting and

delay of gratification. The emotionally driven 'hot system' can easily be recognized in the literature on temperamental systems. Impulsivity as opposed to self-control is an important dimension in such systems (see, e.g., Buss & Plomin, 1975). The impulsive person has a tendency to react immediately instead of inhibiting his or her first response. Impulsivity is closely related to and even considered to be a facet of Neuroticism (Costa & McCrae, 1992).

Finally, the two general mood indicators of happiness and optimism were expected to be positively related to Extraversion and Emotional Stability. Extraversion is associated with optimism and cheerfulness (Costa & McCrae, 1992) and is also referred to as positive affectivity (Watson & Clark, 1984). By contrast, individuals high in Neuroticism, the negative pole of Emotional Stability, seem to report fewer happy and more unhappy memories (Mayo, 1983; Ruiz-Caballero & Bermudez, 1995). This trait is sometimes referred to as negative affectivity in the literature (Watson & Clark, 1984).

TRAIT-EI AMONG TOP MANAGERS

To what extent are emotional capabilities critical to successful performance among top managers? Although many books and papers have been devoted to the question of what it takes to be a good manager, little sound research has been performed in this area, and even less sound empirical research has specifically focused on top managers (see Russell, 2001, for a concise overview). In early management selection work, Katz (1955) and Mann (1965) described a three-dimensional model containing technical, interpersonal, and conceptual competencies, but they did not report any evidence to support this conceptualization. Boyatzis (1982) developed a nine-competency model derived from interview-based assessments of 253 managers from all levels (75 at executive levels). Competencies included efficiency orientation, concern with impact, proactivity, self-confidence, oral presentation skills, conceptualization, diagnostic use of concepts, use of socialized power, and managing group processes. McCall and Lombardo (1983) and Leslie and Van Velsor (1996) interviewed a large number of managers to identify characteristics associated with executive success or failure. Their study pointed at success dimensions such as emotional stability and composure, (lack of) defensiveness, interpersonal skills, and technical-cognitive skills. Finally, Posner and Kouzes (1993) developed five competencies labelled challenging the process, inspiring a shared vision, enabling others to act, modelling the way, and encouraging the heart. All these classification systems encompass dimensions that directly or indirectly point to the ability to perceive and deal with emotions in an effective way.

Also, the literature on inspirational leadership points to the importance of emotional skills for effective leaders. Theories on inspirational leadership assume that specific behaviours of leaders inspire followers to achieve more than is expected from them (Bass, 1998). Bass argues that leaders have to act as role models, to show high moral standards, and to inspire followers to emulate and identify with the leader. In addition, inspirational leaders motivate and inspire followers by challenging them, by creating a sense of teamwork and shared goals, and by articulating and communicating a shared vision. They take a personal and special interest in each follower, give individualized attention and try to develop followers on an individual basis, and mentor and coach followers. Moreover, inspirational leaders use open, two-way communication and tolerate individual differences, and delegate authority on an individualized basis. Even more so than in the

general models on executive performance, these behaviours seem to reflect processes that are emotionally driven. To conclude, emotions seem highly relevant in the task of motivating people and communicating one's vision. In the present study we assumed that top managers would score higher on the components of EI than general population samples.

TRAIT-EI ACROSS OCCUPATIONAL ENVIRONMENTS

In the previous section, we stressed the importance of EI for top managerial positions. However, not all top managerial positions are equal and it seems that situation characteristics moderate relationships between executive competencies and performance (Russell, 2001). Different competencies will be required from a top manager in information and communication technology than from his or her colleague who is top manager at a large hospital. Moreover, organizations have different cultures and these cultures ask for different behaviours. In this regard, it has been argued that differences between organizations in terms of goals, processes, structures, and cultures reflect characteristics of the people that work in them, particularly the characteristics of the founders and top management (Schneider & Goldstein, 1995). Organizations are assumed to sustain their typical attributes by attracting and selecting people with similar characteristics. Well known in the area of this work on person–environment fit (or person–person fit, see Schneider & Goldstein, 1995) is Holland's (1985) theory. Holland states that vocational interests can be used to meaningfully categorize people *and* work environments into six types, Realistic, Investigative, Artistic, Social, Enterprising, or Conventional, and that a good fit between characteristics of the individual and attributes of the environment is associated with positive work outcomes. Holland's (1985) RIASEC typology has been widely validated in the vocational literature (Tracey & Rounds, 1993).

It seems that, at the top level also, different professional environments will both attract and stimulate the development of specific traits and abilities. In the present study we were interested to what extent scores on the Bar-On EQ-i could discriminate between different occupational environments represented by the top managerial positions that were included in the study. Occupational environments were classified according to Holland's (1985) RIASEC model. Thus, we were able to compare top managerial positions in investigative, social, enterprising, and conventional environments. In his vocational theory, Holland (1985) describes *investigative* environments as dominated by activities that entail the observational, symbolic, systematic, and creative investigation of physical, biological, and cultural phenomena in order to control them. Investigative individuals tend to be analytical, curious, methodical, and precise, rather than social and emotional. In the present study, the tendency of investigative individuals to search for meaning in phenomena and an inclination to be analytical rather than social was first expected to be reflected in high scores on independence and self-actualization. Second, we predicted top managers in investigative environments directed at systematic investigation of phenomena to score highly on the adaptability components of problem-solving and reality testing, both pertaining to such systematic processes. Third, we predicted that top managers from such environments would obtain relatively low scores on the social dimensions.

According to Holland (1985), *social* environments are dominated by demands and opportunities that entail the manipulation of others to inform, train, cure, develop, or enlighten. Employees in such environments tend to be empathic, tactful, warm, and

understanding. They enjoy working with and helping others. We therefore predicted that top managers in social environments tend to be particularly high in the interpersonal dimensions of empathy, interpersonal relationship, and social responsibility.

In addition, the *enterprising* environment is characterized by a dominance of environmental demands and opportunities for activities that entail persuading and leading others to attain organizational goals or economic gain. Manipulation of others requires intrapersonal competencies as well as assertiveness and we therefore first expected top managers in enterprising environments to obtain high scores on these subdimensions of EI. Second, we assumed that top managers in enterprising environment would score highly on independence, self-regard, and self-actualization. This expectation was based on overviews in the literature on typical characteristics of entrepreneurs, in which mention is made of dimensions such as desire for independence or autonomy (Caird, 1991; Cromie & O'Donoghue, 1992; Hornady & Aboud, 1971; Kuratko & Hodgetts, 1995) and self-confidence (Koh, 1996). Self-actualization seems reflected in a continuous need for new challenges and experiences.

Finally, *conventional environments* are characterized by a dominance of activities encompassing the explicit, ordered, and systematic manipulation of data and an aversion to social activities. Employees in such environments enjoy the systematic manipulation of data, filing records, or reproducing materials. Therefore, in the present study, relatively high scores on the adaptability subcomponents of problem-solving and reality testing and relatively low scores on the interpersonal dimensions were expected among top managers from conventional environments.

In sum, top managers from investigative and conventional environments were expected to score higher on problem-solving and reality testing than managers from social and enterprising environments. By contrast, managers from social and enterprising environments were expected to score higher on interpersonal competencies than top managers from investigative and conventional environments. Third, managers from investigative and enterprising environments were expected to score higher on independence and self-actualization than managers from social and conventional environments. Finally, managers from enterprising environments were expected to score higher on self-regard than managers from investigative, social, and conventional environments.

METHOD

Respondents and procedure

A sample of 1186 top managers filled out the Bar-On EQ-i and the Five Factor Personality Inventory (FFPI: Hendriks, Hofstee, & De Raad, 1999) as part of a training or coaching program provided by Top Executive Care. Top Executive Care is a consulting agency that provides training and coaching for top executives. The sample was in majority male (80.4% male versus 19.6% female). The mean age of the participants was $M = 43.65$ years ($SD = 7.16$). In total 72.7% of the sample were referred to Top Executive Care by their company as a group for training or consulting, 8.6% participated in a training that was generally accessible, and 18.7% referred themselves to Top Executive Care for individual coaching. On the whole, 26.8% of the respondents operated within medical settings and were classified as investigative; 2.2% were managers of training and consulting agencies or trade unions and were classified as social; 61.6% of the managers were top executives of

commercial service industries and were labeled enterprising; and, finally, 9.4% worked in business environments undertaking financial administration, and were typified as conventional. Environments were classified by a Top Executive Care consultant relying on detailed knowledge of the occupational environments and the descriptions of the Holland (1985) types. Companies were informed about the study; all participants received feedback on their personal scores. In the present study we were also interested in differences between top managers and the general population on the trait-EI dimensions. As a reference sample a general population sample ($N=1.639$) consisting of Dutch citizens was used. In terms of age-gender characteristics, this group was aged between 16 and 93 years ($M=48$ years, $SD=15.4$); 57% male versus 43% female (Derksen & Bögels, manuscript in preparation).

Instruments

- (1) *Trait-Emotional Intelligence*. The Bar-On Emotional Quotient Inventory (Bar-On, 1997) is a 133-item questionnaire aimed at measuring Emotional Intelligence. The instrument has 15 subscales. A Dutch version was used (Derksen, Jeuken, & Klein-Herenbrink, 1997). The first five scales refer to intrapersonal components. Sample items from these scales are 'It's fairly easy for me to express feelings' (*emotional self-awareness*), 'it's difficult for me to stand up for my rights' (–) (*assertiveness*), 'I feel sure of myself in most situations' (*self-regard*), 'I try to make my life as meaningful as I can' (*self-actualization*), and 'I prefer a job in which I'm told pretty much what to do' (–) (*independence*).

Three scales indicate interpersonal components of EI. First *empathy* ('I'm unable to understand the way other people feel' (–)), second *interpersonal relationship* ('It's easy for me to make friends'), and finally *social responsibility* ('I care what happens to other people'). In addition, the instrument also has three scales for adaptability and two for stress management. Sample items for adaptability are 'My approach to overcoming difficulties is to move step by step' (*problem-solving*), 'I tend to fade out and lose contact with what happens around me' (–) (*reality testing*), and 'It's difficult for me to begin new things' (–) (*flexibility*). With respect to stress management, *stress tolerance* is indicated by items such as 'I know how to deal with upsetting problems', and *impulse control* by items such as 'It is a problem controlling my anger' (–). Finally, the instrument includes two general mood indicators: *happiness* ('I am satisfied with my life'), and *optimism* ('I'm optimistic about most things I do'). A five-point scale was used ranging from *very seldom or not true for me* (1) to *very often true for me or true for me* (5).

- (2) The *Five-Factor Personality Inventory* (Hendriks et al., 1999) assesses the Big Five factors of personality. It consists of 100 brief statements, with 20 statements referring to each of the five factors. Items are phrased in the third person singular, presuming that this invites a more objective perspective from the person who is rating him- or herself in comparison with 'I'-statements. A sample item for *Extraversion* ($\alpha=0.88$) is 'Loves to chat'. *Agreeableness* ($\alpha=0.81^1$) is measured by items such as 'Respects others' feelings'. An item for *Conscientiousness* ($\alpha=0.85$) is 'Does things according to plan'. *Emotional Stability* ($\alpha=0.89$) is indicated by items such as 'Can take his/her mind off his/her problems'. Finally, a sample item from the scale for *Autonomy*

¹Alphas pertain to the scale scores rather than for the factor scores. See Hendriks et al. (1999) for an overview of factor reliabilities.

($\alpha = 0.85$) is 'Can easily link facts together'. Ratings were made on a five-point scale ranging from *not at all applicable* (1) to *totally applicable* (5). Anchored factor scores were computed for each of the five personality dimensions (see Hofstee & Hendriks, 1998).

- (3) *Competencies*. A subsample of 171 participants was evaluated by a Top Executive Care consultant on nine competencies: coaching, collaboration, listening, sensitivity, individual leadership, group leadership, presentation, cogency, and sociability. Consultants made their assessments on a five-point Likert scale ranging from *not at all applicable* (1) to *totally applicable* (5). Factor analysis on the competency set revealed support for two underlying dimensions that explained 70.8% of variance: *support* (coaching, listening, sensitivity, and sociability) and *leadership* (individual leadership, group leadership, presentation, and cogency). The reliability of the resulting scales was high: ($\alpha = 0.85$ for support and $\alpha = 0.84$ for leadership).

RESULTS

Internal structure of the Bar-On EQ-i

First, we considered internal consistencies and intercorrelations of the trait dimensions (Table 2). As Table 2 reveals, four scales showed modest reliabilities. For empathy, social responsibility, problem-solving, and optimism Cronbach's alphas were below 0.70. For the remaining scales, internal consistencies were satisfactory. Examining the pattern of intercorrelations, some of the scales clearly appeared to capture common variance. For example, scales for self-regard, self-actualization, happiness, and optimism were highly interrelated, as well as the scales for assertiveness, independence, and stress tolerance. To examine the internal structure of the inventory more closely, a principal component analysis was performed on the 15 dimensions. After oblimin rotation three factors were found with eigenvalues greater than unity, which explained 63.48% of variance. Table 3 reveals the factor loadings for the three-factor structure. Examining the pattern of factor loadings more closely, on the first factor the highest loadings were found for items from the original scales for self-regard, stress tolerance, and optimism. This scale refers to confidence in one's ability to accomplish things independently and can be labelled as 'sense of accomplishment'. The second factor revealed the highest loadings for items from the scales for empathy, interpersonal relations, and social responsibility. This factor can perhaps best be described as 'empathy'. The fourth factor encompassed the scales for impulse control and problem solving. This factor seems to indicate a planful, rational, and purposeful approach to problems, and can be interpreted as 'planfulness'. In order not to lose specific variance that is present at the scale level, but that is lost by aggregating into higher order factors, further analysis will be performed on the 15 *a priori* dimensions.

Next, we examined the relationship of the EI dimensions and the five higher EI factors with the orthogonal Big Five scores. As Table 3 reveals, emotional self-awareness revealed the highest correlation with Extraversion and not as expected with Emotional Stability. In line with our predictions, assertiveness was most strongly related to Extraversion. Assertiveness also revealed a strong relationship with Autonomy. Both self-regard and self-actualization were positively related to Extraversion and Emotional Stability. Self-actualization was as predicted also related to Autonomy, although less strongly than we expected. Empathy was as predicted primarily related to Agreeableness, and revealed its

Table 2. Internal consistencies and intercorrelations of the Trait EI dimensions

	α	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Emotional self-awareness	0.82	0.47	0.36	0.46	0.26	0.44	0.65	0.31	0.14	0.40	0.41	0.32	0.03	0.42	0.30
2 Assertiveness	0.79		0.53	0.52	0.57	0.14	0.40	0.11	0.18	0.43	0.46	0.54	-0.01	0.49	0.49
3 Self-regard	0.80			0.60	0.50	0.10	0.42	0.13	0.22	0.53	0.46	0.61	0.22	0.65	0.65
4 Self-actualization	0.74				0.49	0.26	0.48	0.27	0.31	0.46	0.50	0.50	0.17	0.64	0.56
5 Independence	0.77					0.09	0.24	0.12	0.19	0.46	0.44	0.60	0.10	0.38	0.57
6 Empathy	0.66						0.53	0.73	0.18	0.21	0.26	0.13	0.13	0.27	0.17
7 Interpersonal relationship	0.75							0.40	0.16	0.36	0.43	0.33	0.14	0.60	0.39
8 Social responsibility	0.61								0.22	0.27	0.21	0.14	0.20	0.23	0.17
9 Problem-solving	0.67									0.31	0.24	0.27	0.26	0.21	0.25
10 Reality testing	0.70										0.46	0.59	0.44	0.47	0.48
11 Flexibility	0.72											0.52	0.24	0.48	0.45
12 Stress tolerance	0.75												0.32	0.50	0.68
13 Impulse control	0.80													0.17	0.16
14 Happiness	0.81														0.58
15 Optimism	0.66														

Correlations above 0.10 are significant at $p < 0.001$.

Table 3. Factor Loadings of the trait-EI dimensions on three higher-order factors and correlations of trait-EI dimensions with the Big Five and competency ratings¹

	F1	F2	F3	I ²	II	III	IV	V	R	R ²	Support ³	Leadership ³
Emotional self-awareness	0.54	0.67	-0.12	0.46 ⁴	0.14	0.07	0.16	0.18	0.52	0.27	0.08	0.04
Assertiveness	0.77	0.23	0.00	0.47	-0.18	0.09	0.30	0.42	0.69	0.48	0.04	0.18*
Self-regard	0.81	0.20	0.20	0.34	0.01	0.12	0.60	0.21	0.70	0.49	0.06	0.17*
Self-actualization	0.76	0.40	0.16	0.37	0.09	0.15	0.44	0.29	0.64	0.41	0.21**	0.24**
Independence	0.73	0.00	0.16	0.28	-0.09	0.02	0.31	0.60	0.73	0.53	0.01	0.22**
Empathy	0.18	0.89	0.17	0.25	0.51	0.08	-0.03	0.13	0.61	0.38	0.10	-0.11
Interpersonal relationship	0.56	0.75	0.00	0.58	0.28	0.13	0.23	0.07	0.70	0.49	0.15	0.01
Social responsibility	0.16	0.80	0.32	0.18	0.49	0.21	-0.01	0.15	0.62	0.38	0.01	-0.13
Problem-solving	0.29	0.22	0.60	-0.03	0.17	0.37	0.22	0.14	0.50	0.24	-0.01	0.13
Reality testing	0.67	0.30	0.53	0.21	0.16	0.31	0.49	0.17	0.65	0.42	0.09	0.21**
Flexibility	0.67	0.35	0.24	0.32	0.15	-0.00	0.39	0.31	0.59	0.35	0.16	0.29**
Stress tolerance	0.80	0.14	0.39	0.25	0.05	0.08	0.64	0.36	0.77	0.60	0.06	0.18*
Impulse control	0.20	0.13	0.84	-0.19	0.42	0.21	0.39	-0.08	0.62	0.38	0.14	0.10
Happiness	0.76	0.43	0.10	0.51	0.13	0.10	0.57	0.05	0.74	0.55	0.18*	0.19*
Optimism	0.80	0.20	0.22	0.30	0.03	0.06	0.57	0.30	0.70	0.48	0.03	0.12

¹For each scale, the highest loadings on each factor and highest correlations with the Big Five are presented in italics.²I = Extraversion, II = Agreeableness, III = Conscientiousness, IV = Emotional Stability, V = Autonomy.³N = 162.⁴Correlations above 0.10 are significant at $p < 0.001$.

second-highest relationship with Extraversion. The reversed pattern was found for interpersonal relationship, revealing the highest correlation with Extraversion and the second-highest correlation with Agreeableness. Social responsibility was as expected particularly related to Agreeableness.

With respect to the adaptation dimensions, findings also largely converged with our *a priori* expectations. Problem solving was moderately related to Conscientiousness, but unexpectedly not substantially to Autonomy. Reality testing revealed the highest relationship with Emotional Stability. Flexibility was moderately related to Emotional Stability and Autonomy, and also to Extraversion. Emotional Stability was as predicted the best predictor of stress tolerance. Impulse control was related to Agreeableness and Emotional Stability, but appeared not to be substantially related to Conscientiousness. Finally, as we expected happiness and optimism were strongly related to Extraversion and Emotional Stability. Optimism also correlated moderately with Autonomy.

Emotional intelligence, personality, and competency level

Next, we were interested in the predictive value of EI against other-rated competency. As Table 3 reveals, the trait-EI scales for self-actualization and happiness were significantly related to support. Regression analysis revealed that, together, the trait-EI scales explained 18% of variance in support, $R = 0.42$, $F(15, 147) = 2.09$, $p < 0.01$. Of the Big Five dimensions, both Emotional Stability ($r = 0.14$, $p < 0.10$) and Agreeableness ($r = 0.13$, $p < 0.10$) were marginally significantly related to support. Regression analysis examining the effects of the Big Five on support showed that, as predicted, the Big Five were less predictive² of support than the trait-EI dimensions, $R = 0.21$, $R^2 = 0.04$, $F(5, 157) = 1.40$, n.s. Moreover, on stepwise regression analysis, entering the Big Five in the first step in the regression and the EI dimensions in the second step, it was found that trait-EI significantly explained support ratings above the Big Five ($R^2_{\text{change}} = 0.14$, $F_{\text{change}}(15, 142) = 1.65$, $p < 0.05$). Vice versa, the Big Five failed to explain additional variance in this criterion when it was entered in the regression after controlling for the effects of trait-EI ($R^2_{\text{change}} = 0.01$, $F_{\text{change}} < 1$).

Emotional intelligence was equally predictive of our leadership factor. Again, the scales explained 18% of variance in leadership competency ($R = 0.42$, $F(15, 147) = 2.12$, $p < 0.01$). Examining the raw correlations between the EI dimensions and leadership, self-actualization, happiness, assertiveness, self-regulation, independence, reality testing, flexibility, and stress tolerance all were significant related to this dimension. The Big Five were slightly (but not significantly²) less predictive of leadership: general personality explained 10% less variance in leadership as compared with trait-EI ($R = 0.32$, $F(5, 157) = 3.64$, $p < 0.01$), with Emotional Stability as the single significant predictor ($r = 0.26$, $p < 0.01$). A regression analysis in which the predictive value of trait-EI was examined after entering the Big Five in the first step in the regression revealed that the EI scales did not add significantly to the prediction of leadership ($R^2_{\text{change}} = 0.08$, $F_{\text{change}} < 1$, n.s.). In turn, the Big Five failed to explain additional variance above trait-EI in leadership ($R^2_{\text{change}} = 0.01$, $F_{\text{change}} < 1$, n.s.). The data thus provide support for the additive value of EI, but only for behaviours that are indicative of support.

²A *z*-test on the Fisher *z* transformed values of the multiple correlations revealed that the difference in predictive value of trait-EI versus the Big Five was significant for support ($z = 2.10$, $p < 0.05$), but not for leadership ($z = 1.03$, n.s.).

Table 4. Scale means of the Trait EI dimensions among top managers versus a reference sample

	Top managers (<i>N</i> = 1130)		Reference sample (<i>N</i> = 1639)		<i>t</i> (2767)
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
1 Emotional self-awareness	30.57	4.74	28.00	4.80	13.92*
2 Assertiveness	27.59	4.07	24.99	4.17	16.28*
3 Self-regard	37.63	4.98	35.28	5.59	11.36*
4 Self-actualization	37.69	4.06	35.76	4.32	11.84*
5 Independence	28.61	3.68	26.20	4.46	14.98*
6 Empathy	31.52	3.37	31.34	4.09	1.19
7 Interpersonal relationship	44.35	4.82	42.02	5.40	11.65*
8 Social responsibility	38.96	3.85	39.88	4.45	-5.64*
9 Problem-solving	29.90	3.72	29.55	3.94	2.35
10 Reality testing	40.96	4.27	38.36	4.63	14.98*
11 Flexibility	30.03	3.96	27.68	4.28	14.63*
12 Stress tolerance	36.26	4.46	32.23	5.03	21.69*
13 Impulse control	33.12	5.23	32.94	5.40	<1
14 Happiness	38.75	4.22	36.92	4.86	10.27*
15 Optimism	32.84	3.35	30.45	3.90	16.77*

* $p < 0.001$ (two tailed).

Emotional intelligence among top managers

To what extent do top managers differ from 'ordinary people' on the dimensions of Emotional Intelligence? Table 4 reveals means and standard deviations for our sample of top managers and for the reference sample of Dutch citizens. Separate *T*-tests were performed in order to compare the differences in scores between both groups. Performing a number of independent univariate tests poses the problem of controlling type I errors. The Bonferroni inequality states that the overall α level for a series of tests is less than or equal to the sum of α levels for each test (overall $\alpha = p\alpha'$, with p = number of dependent variables). In our case $p = 15$, which implies that if we set overall $\alpha = 0.05$, each univariate test must be done at the $0.01/15 = 0.0033$ level of significance (Stevens, 1996). Departing from this criterion, as predicted, top managers scored higher than the reference group on 11 of the 15 dimensions. No differences were found for empathy, problem solving, or impulse control. Interestingly, top managers scored *lower* than the reference sample on social responsibility.

Emotional intelligence and occupational environment

To what extent do top managers from different occupational environments differ on the dimensions of Emotional Intelligence? Table 5 reveals means and standard deviations for managers from investigative, social, enterprising, and conventional environments. We first expected higher scores on problem-solving and reality testing among managers from investigative and conventional environments than among managers from social and enterprising environments. No group differences in problem-solving and reality testing were found, although the means for investigative managers differed from those for enterprising managers in the predicted direction. Second, we predicted that managers from social and enterprising environments would score higher on the interpersonal dimensions. In contrast with our predictions, no group differences in scores on empathy, interpersonal

Table 5. Trait EI as a function of professional environment

	Investigative (<i>N</i> = 252)		Social (<i>N</i> = 21)		Enterprising (<i>N</i> = 578)		Conventional (<i>N</i> = 88)		<i>F</i> (3,880)
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
1 Emotional self-awareness	30.64	4.74	30.52	2.82	30.80	4.41	30.74	4.14	<1
2 Assertiveness	26.53 _a	4.14	28.67 _b	3.38	28.31 _b	3.67	28.46 _b	2.98	14.05**
3 Self-regard	37.21 _a	4.72	36.29 _a	4.45	38.55 _b	4.59	37.95 _a	4.46	5.84**
4 Self-actualization	37.74	3.81	38.05	3.69	38.32	3.74	37.64	3.83	1.78
5 Independence	28.35 _a	3.89	27.57 _a	3.37	28.93 _b	3.41	29.12 _b	2.95	2.62*
6 Empathy	31.76	3.32	32.48	3.04	31.34	3.27	31.44	3.19	1.58
7 Interpersonal relationship	44.15	5.20	44.57	4.74	44.47	4.56	44.29	4.15	<1
8 Social responsibility	39.42	3.71	39.38	4.06	38.77	3.73	39.18	3.92	1.79
9 Problem-solving	30.47	3.52	29.43	4.21	29.90	3.46	29.66	3.65	2.03
10 Reality testing	41.06	4.12	40.10	4.37	40.84	4.00	40.92	3.40	<1
11 Flexibility	29.47 _a	3.83	29.57 _{ab}	3.20	30.59 _b	3.71	30.31 _{ab}	3.85	5.26**
12 Stress tolerance	35.44 _a	4.48	35.81 _{ab}	3.74	36.90 _b	4.04	37.11 _b	3.53	8.01**
13 Impulse control	33.02	5.66	32.34	4.40	32.65	4.80	31.58	5.41	1.55
14 Happiness	38.35 _a	4.31	39.24 _{ab}	3.62	39.48 _b	3.76	39.22 _{ab}	3.76	4.72**
15 Optimism	32.43 _a	3.26	32.81 _{ab}	3.02	33.19 _b	3.18	33.21 _b	2.91	3.35*

p* < 0.05, *p* < 0.01. Row means with unequal subscripts differ significantly at *p* < 0.05.

relations, or social responsibility were found. As can be derived from Table 5, managers from investigative environments also scored lower on assertiveness compared to the other groups, which was not explicitly predicted, but can be understood from their aversion against social contexts.

Third, the group of enterprising managers obtained as predicted the highest score on independence and self-actualization, but unexpectedly exceeded investigative managers, who ended among the lowest scoring groups in their scores on these dimensions. As predicted, enterprising managers scored higher on self-regard compared with the other groups. Moreover, they obtained superior results for flexibility and stress tolerance, happiness, and optimism.

DISCUSSION

The present study examined the usefulness of the construct of trait-EI among a sample of top managers. Three higher-order dimensions were found to underlie the Bar-On Emotional Quotient Inventory: sense of accomplishment, empathy, and systematic problem-solving. The dimension of *sense of accomplishment* seems related to what Hofstee (2001) refers to as 'p-factor'. Hofstee argues that, departing from personality traits for the Big Five scored in the positive direction, a first principal component (p-factor) can be derived that can be interpreted as 'competence' or 'coping', in the sense of adequacy of reaction to situations. According to Hofstee, in this p-factor 'stylistic intelligence and other traits seem to be united in an evolutionary function: adequate reaction to reality leads to survival' (Hofstee, 2001). Trait-EI dimensions with high loadings on this factor were particularly related to Autonomy and Emotional Stability.

The interpersonal dimensions, as well as intrapersonal dimensions that referred to the ability to understand one's own emotions, collapsed together in an *Empathy* factor. The dimensions were, as could be expected, particularly related to the interpersonal factors Extraversion and Agreeableness. This finding is in accordance with the Van der Zee et al. (2002) study in which 'empathy'-related dimensions were also most strongly related to the first two factors of the Big Five. Finally, impulse control and problem solving loaded on a third factor that we interpreted as 'planfulness'. These dimensions showed a different pattern of correlations with the Big Five. The dimension of problem solving showed its highest loading on the third factor. In his study, De Raad (in press) concludes that the areas of the Big Five comprising personality items that are about being good at processing information in an organized way are left unexplored by EI. This processing information in an organized way seems to correspond to what is measured by the Bar-On dimension for problem solving. Unexpectedly, impulse control was most strongly related to Agreeableness and Emotional Stability, and not as predicted to Conscientiousness and Emotional Stability. Apparently, the item content refers to a controlled way of responding that fits the expectation of others or societal norms and rules.

Despite the fact that the *a priori* scales and the higher trait-EI factors revealed clear relationships with the Big Five, the correlations were not so high as conclude against the independent value of the trait-EI dimensions. Moreover, the trait-EI factors were able to explain variance in competency ratings of support, above and beyond the Big Five. What exactly encompasses the variance in trait-EI that is not captured in the Big Five? It has been argued in the literature that, despite the usefulness of a structural model of personality such as the Big Five framework that posits a small number of universal

personality dimensions, global traits are less successful in predicting important job criteria as compared with more specific, narrow traits (see, e.g., Ashton, 1998; Hough, 1992; Paunonen, 1998). It seems that the psychological meaningfulness and interpretability of findings regarding the relationship between personality and job performance will be compromised by the use of global measures (see, e.g., Paunonen, Rothstein, & Jackson, 1999; Schneider, Hough, & Dunette, 1996).

Trait-EI items are designed to cover more narrowly the aspects of broader traits that are relevant to what is considered to be emotionally intelligent behaviour, that is the ability to monitor one's own and other's emotions, to discriminate among them, and to use the information to guide one's thinking and actions. Apparently, it is this specificity that causes superior prediction against criteria referring to such intelligent behaviour, rather than specific content that has to be considered from a different domain of psychological functioning than the trait domain that is covered by the Big Five. So we do agree with De Raad's (in press) conclusion that there is 'little magic there', but we do not agree that it is not worthwhile to use instruments that are more specifically attuned to aspects of personality that refer to emotional capabilities instead of more global trait instruments.

In the introduction, we argued that top managers might score higher on the EI-dimensions as compared with the general population. Emotions seem highly relevant in their task of motivating and inspiring people and in communicating a shared vision. Indeed, our sample of top managers exceeded the reference group in their scores on most of the trait-EI dimensions. Interestingly, top managers did not differ from the reference sample on problem solving or impulse control. In this regard, Mintzberg's (1976) split brain metaphor of managerial decision making seems relevant. Mintzberg contrasts between planning and routine work that he associated with the right hemisphere versus holistic and relational thinking that is associated with left hemisphere activity. Whereas right hemisphere activity characterizes much of what managers at lower levels in the organization do, it is less essential at higher levels of management, where holistic and relational thinking are essential to policy making. This may explain why top managers do not exceed the general population in such right hemisphere processes as problem solving.

Top managers also did not differ from the reference group in their scores on empathy. This can perhaps best be understood from the link between this dimension and Agreeableness. In inspiring and motivating employees, it is important that top managers are able to take the perspective of others, to listen to them, and to express their sympathy. However, in trying to change undesired behaviour or in negotiating on important outcomes, top managers also need to be able to disagree and to accept that they will not always be liked. Indeed, a high need for affiliation seems to be negatively related to managerial success (McClelland, 1985; McClelland & Boyatzis, 1982). Moreover, research in the area of conflict behaviour suggests that agreeable, problem-solving behaviour is most effective when it is combined with disagreeable, forcing behaviour (Van de Vliert, Euwema, & Huismans, 1995; Van de Vliert & De Dreu, 1994).

Interestingly, top managers obtained lower scores on social responsibility. One could argue that individuals who are particularly concerned with high achievements will aim at chances to manipulate the environment in order to gain success rather than sticking to rules or contributing to collective goals. Indeed, at the level of nations, Hofstede (1980) found that a high need for achievement³ is associated with low uncertainty avoidance, a

³Hofstede (1980) derived his need for achievement scores from a study by McClelland (1961).

dimension that points at an emphasis on rules and dependability. Finally, as predicted, the present data showed that managers from enterprising environments are among the highest scoring group on the majority of EI dimensions. Not only do they appear among the highest scoring groups on the dimensions assertiveness, self-regard, self-actualization, and independence, as we predicted, but also on flexibility, stress tolerance, happiness, and optimism. Also in line with our prediction, they do not exceed the other occupational groups on problem-solving and impulse control. Top managers from enterprising environments seem to be most representative of our typical image of the top manager, with a strong emphasis on left hemisphere holistic and relational thinking rather than right hemisphere activity (see also Allinson, Chell, & Hayes, 2000).

In sum, in line with the findings from earlier studies (Boyle et al., 1995; Eysenck, 1994a, 1994b; Saklofske & Zeidner, 1995; Stankov & Crawford, 1998; Van der Zee et al., 2002), the present data suggest that trait-EI is certainly not something magic, but can easily be incorporated in existing trait approaches. Nevertheless, the work on trait-EI has resulted in instruments that do have something to offer in terms of prediction of important real world criteria. In a conceptual sense, one could perhaps better refer to the available instruments in terms of the names linked to the specific dimensions and regard them as part of the trait domain rather than using the magical and elusive concept of Emotional Intelligence.

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