

# The Bar-On model of emotional-social intelligence (ESI)<sup>1</sup>

Reuven Bar-On

University of Texas Medical Branch

The present manuscript is an empirically based theoretical paper that presents, describes, and examines the Bar-On Model of Emotional-Social Intelligence (ESI) in deep. First, a description of the Emotional Quotient Inventory (the EQ-i), which has played an instrumental role in developing the model, is given. The EQ-i is a self-report measure of emotionally and socially intelligent behaviour. It has been translated into more than 30 languages, and data have been collected around the world. The impact of age, gender, and ethnicity on the Bar-On model is presented. A description of the model's construct and predictive validity is given. Finally, the author summarizes the key points, discusses the limitations of the model, and raises the ideas for developing a future model of ESI.

*El modelo de Bar-On de Inteligencia Emocional-Social.* El presente manuscrito es un artículo teórico basado en evidencias empíricas que presenta, describe y examina el modelo de Bar-On de Inteligencia Emocional-Social (IES) en detalle. Comienza proporcionando una descripción del Emotional Quotient Inventory (el EQ-i), el cual ha jugado un papel instrumental en el desarrollo del modelo. El EQ-i es una medida autoinformada del comportamiento emocional y socialmente inteligente. Ha sido traducido a más de 30 lenguas, contando con datos de todo el mundo. La influencia de la edad, el género y la raza sobre el modelo de Bar-On es analizada. Además, se describe la validez de constructo y predictiva de este modelo. Finalmente, el autor resume los puntos clave del modelo, describe sus limitaciones y proporciona algunas ideas para el desarrollo de un futuro modelo de IES.

«Emotional intelligence» has become a major topic of interest in scientific circles as well as in the lay public since the publication of a bestseller by the same name in 1995 (Goleman, 1995). Despite this heightened level of interest in this *new idea* over the past decade, scholars have been studying this construct for the greater part of the twentieth century; and the historical roots of this wider area can actually be traced back to the nineteenth century.<sup>2</sup>

Publications began appearing in the twentieth century with the work of Edward Thorndike on *social intelligence* in 1920. Many of these early studies focused on describing, defining and assessing socially competent behavior (Chapin, 1942; Doll, 1935; Moss & Hunt, 1927; Moss et al., 1927; Thorndike, 1920). Edgar Doll published the first instrument designed to measure socially intelligent behavior in young children (1935). Possibly influenced by Thorndike and Doll, David Wechsler included two subscales («Comprehension» and «Picture Arrangement») in his well-known test of cognitive intelligence that appear to have been designed to measure aspects of social intelligence. A year after the first publication of this test in 1939, Wechsler described the influence of *non-intellective factors* on intelligent behavior which was yet another reference to this construct (1940). In the first of a number of publications following this early description moreover,

he argued that our models of intelligence would not be complete until we can adequately describe these factors (1943).

Scholars began to shift their attention from describing and assessing social intelligence to understanding the purpose of interpersonal behavior and the role it plays in effective adaptability (Zirkel, 2000). This line of research helped define human effectiveness from the social perspective as well as strengthened one very important aspect of Wechsler's definition of general intelligence: «The capacity of the individual to act purposefully» (1958, p. 7). Additionally, this helped position social intelligence as part of general intelligence.

The early definitions of social intelligence influenced the way *emotional intelligence* was later conceptualized. Contemporary theorists like Peter Salovey and John Mayer originally viewed emotional intelligence as part of social intelligence (Salovey & Mayer, 1990; p. 189), which suggests that both concepts are related and may, in all likelihood, represent interrelated components of the same construct.

At about the same time that researchers began exploring various ways to describe, define and assess social intelligence, scientific inquiry in this area began to center around *alexithymia* (MacLean, 1949; Ruesch, 1948), which is the essence of emotional-social intelligence in that it focuses on the ability (or rather inability) to recognize, understand and describe emotions.

Two new directions that paralleled and possibly evolved from alexithymia were *psychological mindedness* (Appelbaum, 1973) and *emotional awareness* (Lane & Schwartz, 1987).

Research exploring the neural circuitry that governs emotional awareness (Lane, 2000), as well as additional emotional and social aspects of this concept (Bar-On et al., 2003; Bechara & Bar-On,

---

Correspondence: Reuven Bar-On  
999 Ash Pointe Drive  
University of Texas Medical Branch  
League City, Texas 77573 (USA)  
E-mail: baron@houston.rr.com

2004; Bechara et al., 2000; Damasio, 1994; Lane & McRae, 2004; LeDoux, 1996), has begun to provide tangible evidence of the anatomical foundations of this wider construct which some have questioned as an intangible myth (Davies et al., 1998; Matthews et al., 2003; Zeidner et al., 2001).

The literature reveals various attempts to combine the emotional and social components of this construct. For example, Howard Gardner (1983) explains that his conceptualization of *personal intelligences* is based on *intrapersonal* (emotional) *intelligence* and *interpersonal* (social) *intelligence*. Additionally, Carolyn Saarni (1990) describes *emotional competence* as including eight interrelated emotional and social skills. Furthermore, I have shown that *emotional-social intelligence* is composed of a number of intrapersonal and interpersonal competencies, skills and facilitators that combine to determine effective human behavior (1988, 1997b, 2000).<sup>3</sup> Based on the above, it is more accurate to refer to this construct as «emotional-social intelligence» rather than «emotional intelligence» or «social intelligence» as I have suggested for some time (2000). Throughout this article, I will refer to this wider construct as «emotional-social intelligence» («ESI»).

Since the time of Thorndike (1920), a number of different conceptualizations of ESI have appeared which have created an interesting mixture of confusion, controversy and opportunity regarding the best approach to defining and measuring this construct. In an effort to help clarify this situation, the *Encyclopedia of Applied Psychology* (Spielberger, 2004) recently suggested that there are currently three major conceptual models: (a) the Salovey-Mayer model (Mayer & Salovey, 1997) which defines this construct as the ability to perceive, understand, manage and use emotions to facilitate thinking, measured by an ability-based measure (Mayer et al., 2002); (b) the Goleman model (1998) which views this construct as a wide array of competencies and skills that drive managerial performance, measured by multi-rater assessment (Boyatzis, 2006; Boyatzis, Goleman, & HayGroup, 2001); and (c) the Bar-On model (1997b, 2000) which describes a cross-section of interrelated emotional and social competencies, skills and facilitators that impact intelligent behavior, measured by self-report (1997a, 1997b) within a potentially expandable multi-modal approach including interview and multi-rater assessment (Bar-On & Handley, 2003a, 2003b).

The purpose of this article is to present, describe and examine the Bar-On model of emotional-social intelligence (ESI). This is an empirically based theoretical paper. As such, various findings are presented to describe this theory of ESI and demonstrate that it is a comprehensive, robust and valid conceptualization of the construct.

The first part of the article describes the Bar-On model and measure of emotional-social intelligence and how it was developed. The second part provides the reader with a description of the model's construct validity, and the third part describes its predictive validity. I then show that the Bar-On model is both a teachable and learnable concept. In the last part of the article, I summarize the key points, discuss the limitations of the model that need to be addressed, and raise the idea for developing a more comprehensive and robust model of ESI based on the most powerful aspects of existing conceptualizations of this construct.

#### The theoretical foundation of the Bar-On model

Darwin's early work on the importance of emotional expression for survival and adaptation (1872/1965) has influenced

the ongoing development of the Bar-On model, which both stresses the importance of emotional expression and views the outcome of emotionally and socially intelligent behavior in Darwinian terms of effective adaptation. Additional influence on my thinking can be traced to Thorndike's description of social intelligence and its importance for human performance (1920) as well as Wechsler's observations related to the impact of non-cognitive and conative factors on what he referred to as «intelligent behavior» (1940, 1943). Sifneos' description of alexithymia (1967) on the pathological end of the ESI continuum and Appelbaum's conceptualization of psychological mindedness (1973) on the eupsychic end of this continuum have also had an impact on the ongoing development of the Bar-On model.

From Darwin to the present, most descriptions, definitions and conceptualizations of emotional-social intelligence have included one or more of the following key components: (a) the ability to recognize, understand and express emotions and feelings; (b) the ability to understand how others feel and relate with them; (c) the ability to manage and control emotions; (d) the ability to manage change, adapt and solve problems of a personal and interpersonal nature; and (e) the ability to generate positive affect and be self-motivated.

The Bar-On model provides the theoretical basis for the EQ-i, which was originally developed to assess various aspects of this construct as well as to examine its conceptualization. According to this model, *emotional-social intelligence is a cross-section of interrelated emotional and social competencies, skills and facilitators that determine how effectively we understand and express ourselves, understand others and relate with them, and cope with daily demands*. The emotional and social competencies, skills and facilitators referred in this conceptualization include the five key components described above; and each of these components comprises a number of closely related competencies, skills and facilitators which are described in the Appendix. Consistent with this model, to be emotionally and socially intelligent is to effectively understand and express oneself, to understand and relate well with others, and to successfully cope with daily demands, challenges and pressures. This is based, first and foremost, on one's intrapersonal ability to be aware of oneself, to understand one's strengths and weaknesses, and to express one's feelings and thoughts non-destructively. On the interpersonal level, being emotionally and socially intelligent encompasses the ability to be aware of others' emotions, feelings and needs, and to establish and maintain cooperative, constructive and mutually satisfying relationships. Ultimately, being emotionally and socially intelligent means to effectively manage personal, social and environmental change by realistically and flexibly coping with the immediate situation, solving problems and making decisions. To do this, we need to manage emotions so that they work for us and not against us, and we need to be sufficiently optimistic, positive and self-motivated.

#### Description of the instrument used to develop the Bar-On model (the EQ-i)

To better understand the Bar-On model of ESI and how it developed, it is important to first describe the Emotional Quotient Inventory (the EQ-i) which has played an instrumental role in developing this model. For the purpose of the present discussion, it is also helpful to stress that the Bar-On model is operationalized by the EQ-i.

The EQ-i is a self-report measure of emotionally and socially intelligent behavior that provides an estimate of emotional-social intelligence. The EQ-i was the first measure of its kind to be published by a psychological test publisher (Bar-On, 1997a), the first such measure to be peer-reviewed in the *Buros Mental Measurement Yearbook* (Plake and Impara, 1999), and the most widely used measure of emotional-social intelligence to date (Bar-On, 2004). A detailed description of the psychometric properties of this measure and how it was developed is found in the *Bar-On EQ-i Technical Manual* (Bar-On, 1997b) and in Glenn Geher's recent book titled *Measuring Emotional Intelligence: Common Ground and Controversy* (2004).

In brief, the EQ-i contains 133 items in the form of short sentences and employs a 5-point response scale with a textual response format ranging from «very seldom or not true of me» (1) to «very often true of me or true of me» (5). A list of the inventory's items is found in the instrument's technical manual (Bar-On, 1997b). The EQ-i is suitable for individuals 17 years of age and older and takes approximately 40 minutes to complete.<sup>4</sup>

The individual's responses render a total EQ score and scores on the following 5 composite scales that comprise 15 subscale scores: Intrapersonal (comprising Self-Regard, Emotional Self-Awareness, Assertiveness, Independence, and Self-Actualization); Interpersonal (comprising Empathy, Social Responsibility, and Interpersonal Relationship); Stress Management (comprising Stress Tolerance and Impulse Control); Adaptability (comprising Reality-Testing, Flexibility, and Problem-Solving); and General Mood (comprising Optimism and Happiness). A brief description of these emotional-social intelligence competencies, skills and facilitators measured by the 15 subscales is found in the Appendix as was previously mentioned.

Scores are computer-generated. Raw scores are automatically tabulated and converted into standard scores based on a mean of 100 and standard deviation of 15. This resembles IQ (Intelligence Quotient) scores, which was my intention when I coined the term «EQ» («Emotional Quotient») during my doctoral studies (1988). Average to above average EQ scores on the EQ-i suggest that the respondent is effective in emotional and social functioning. The higher the scores, the more positive the prediction for effective functioning in meeting daily demands and challenges. On the other hand, low EQ scores suggest an inability to be effective and the possible existence of emotional, social and/or behavioral problems.

The EQ-i has a built-in correction factor that automatically adjusts the scale scores based on scores obtained from two of the instrument's validity indices (Positive Impression and Negative Impression). This is an important feature for self-report measures in that it reduces the potentially distorting effects of response bias thereby increasing the accuracy of the results.

The rigorous development of the EQ-i helped create a robust model of ESI

The EQ-i was originally constructed as an experimental instrument designed to examine the conceptual model of *emotional and social functioning* that I began developing in the early 1980s (1988). At that time, I hypothesized that effective emotional and social functioning should eventually lead to a sense of psychological well-being. It was also reasoned that the results gained from applying such an instrument on large and diverse

population samples would reveal more about emotionally and socially intelligent behavior and about the underlying construct of emotional-social intelligence. Based on findings obtained from applying the EQ-i in a wide range of studies over the past two decades, I have continuously molded my conceptualization of this construct; these changes have been mild and are ongoing in an effort to maintain a theory that is empirically based.

The development of the Bar-On model and measure of ESI proceeded in six major stages over a period of 17 years: (1) identifying and logically clustering various emotional and social competencies thought to impact effectiveness and psychological well-being based on my experience as a clinical psychologist and review of the literature; (2) clearly defining the individual key clusters of competencies, skills and facilitators that surfaced; (3) initially generating approximately 1,000 items based on my professional experience, review of the literature and input from experienced healthcare practitioners who were asked to generate questions they would ask in an interview situation guided by my definitions; (4) determining the inclusion of 15 primary scales and 133 items in the published version of the instrument based on a combination of theoretical considerations and statistical findings generated by item analysis and factor analysis; (5) initially norming the final version of the instrument on 3,831 adults in North America in 1996; and (6) continuing to norm and validate the instrument across cultures. The first normative sample of the EQ-i included individuals from every Canadian province and from nearly all the states in the US. The gender-age composition of the sample included 49% males and 51% females from 16 to 100 years of age, with an average age of 34.3 years. The sample was 79% White, 8% Asian American, 7% African American, 3% Hispanic, and 1% Native American.<sup>5</sup> For more detailed demographic information, including the educational and occupational background of the original normative sample, the reader is referred to the instrument's technical manual (Bar-On, 1997b).

The EQ-i has been translated into more than 30 languages,<sup>6</sup> and data have been collected in numerous settings around the world. Earlier versions of the inventory were completed by a total of 3,000 individuals in six countries (Argentina, Germany, India, Israel, Nigeria and South Africa). The first translation of the EQ-i was from English to Spanish to allow for extensive data collection in Argentina,<sup>7</sup> which was followed by data collection in a number of other countries. In addition to providing cross-cultural data, this preliminary piloting of the EQ-i was important for item selection and alteration, continued scale development and validation, and establishing the final nature of the response format.

Numerous reliability and validity studies have been conducted around the world over the past two decades, a number of which will be referred to in the following sections to describe the reliability and validity of the EQ-i and the construct it measures.

The outcome of this rigorous development process has rendered psychometric properties that shed light on the validity and robustness of the model. After discussing the age-gender effect, factorial structure and reliability, I will focus primarily on the construct validity and predictive validity of the model. This approach of examining the validity of a concept by examining the psychometric properties of scales designed to measure that concept is not uncommon in psychology in general as well as in the specific area of ESI [e.g., Newsome et al., 2000; Petrides & Furnham, 2000; Salovey et al., 1995; Van Rooy & Viswesvaran, 2004].

*The impact of age, gender and ethnicity on the Bar-On model.*

An analysis of variance of the North American normative sample (n= 3,831) was conducted to examine the effect of age, gender and ethnicity on EQ-i scores (Bar-On, 1997b). It was thought that the results would also shed light on the underlying construct of ESI.

Although the results indicated a few significant differences between the age groups that were compared, these differences are relatively small in magnitude. In brief, the older groups scored significantly higher than the younger groups on most of the EQ-i scales; and respondents in their late 40s obtained the highest mean scores. An increase in emotional-social intelligence with age is also observed in children (Bar-On & Parker, 2000). The findings presented here, which are based on a cross-sectional comparison of different age groups, will eventually be compared with findings from an ongoing longitudinal study of the same cohort (n= 23,000) over a 25-year period from birth to young adulthood. This will provide a more accurate indication of how ESI develops and changes over time.<sup>8</sup> Similar increases in ESI with age have been reported by others based on employing the EQ-i, MEIS<sup>9</sup> and other measures of this construct (Goleman, 1998). These findings are interesting when one considers that cognitive intelligence increases up until late adolescents and then begins to mildly decline in the second and third decades of life as was originally reported by Wechsler (1958). The results suggest that as one gets older, one becomes more emotionally and socially intelligent.

With respect to gender, no differences have been revealed between males and females regarding overall ESI. However, statistically significant gender differences do exist for a few of the factors measured by the EQ-i, but the effects are small for the most part. Based on the North American normative sample (Bar-On, 1997b), females appear to have stronger interpersonal skills than males, but the latter have a higher intrapersonal capacity, are better at managing emotions and are more adaptable than the former. More specifically, the Bar-On model reveals that women are more aware of emotions, demonstrate more empathy, relate better interpersonally and are more socially responsible than men. On the other hand, men appear to have better self-regard, are more self-reliant, cope better with stress, are more flexible, solve problems better, and are more optimistic than women. Similar gender patterns have been observed in almost every other population sample that has been examined with the EQ-i. Men's deficiencies in interpersonal skills, when compared with women, could explain why psychopathy is diagnosed much more frequently in men than in women; and significantly lower stress tolerance amongst women may explain why women suffer more from anxiety-related disturbances than men (American Psychiatric Association, 1994).

An examination of the North American normative sample, upon which the EQ-i was normed, did not reveal significant differences in ESI between the various ethnic groups that were compared (Bar-On, 1997b, 2000, 2004; Bar-On & Parker, 2000). This is an interesting finding when compared with some of the controversial conclusions that have been presented over the years suggesting significant differences in cognitive intelligence between various ethnic groups (e.g., Suzuki & Valencia, 1997).

To summarize the above findings, the Bar-On model reveals that older people are more emotionally and socially intelligent than younger people, females are more aware of emotions than males while the latter are more adept at managing emotions than the former, and that there are no significant differences in

emotional-social intelligence between the various ethnic groups that have been examined in North America.

*The factorial structure of the Bar-On model.* Factor analysis was applied to study the 15-factor structure of the EQ-i to empirically evaluate the extent to which it is theoretically valid. Moreover, this statistical procedure was used to examine the factorial structure of the Bar-On model (i.e., to examine the extent to which the factorial components of this model structurally exist). This analysis was first performed on the normative sample, progressing from exploratory to confirmatory factor analysis (Bar-On, 1997b).

Based on a varimax rotation, a 13-factor solution afforded the most theoretically meaningful interpretation. These results provided a reasonable match with the subscale structure of the EQ-i. Nonetheless, the 13-factor empirical structure that emerged raised an important question that had to be addressed: Can the 15-factor model used in the Bar-On model and measure of ESI still be justified in light of the findings which suggested a 13-factor structure? The essential differences that were identified between the theoretical structure and the one that surfaced as a result of exploratory factor analysis were as follows: (a) two factors emerged from the Impulse Control items; (b) although Self-Regard, Self-Actualization, Optimism and Happiness represent four separate scales, most of their items loaded on two factors; (c) although Assertiveness and Independence are considered to be two separate subscales, items from both subscales loaded on one factor; and (d) although two separate experimental factors emerged from the Empathy and Social Responsibility items, they are the two highest correlating factors (.80).

A confirmatory factor analysis was initially applied to resolve the above-mentioned differences between the 15-factor structure of the Bar-On model and the 13 factors that emerged from the exploratory factor analysis. Although the results supported a 15-factor structure in the end, which fits the theoretical basis of the Bar-On model and measure (Bar-On, 1997b), an additional confirmatory factor analysis was subsequently applied to the same dataset (n= 3,831) in an attempt to explore an alternative factorial structure (Bar-On, 2000). The items from the above-mentioned *problematic* factors (Independence, Self-Actualization, Optimism, Happiness, and Social Responsibility) were excluded from the second analysis. Self-Actualization, Optimism and Happiness were excluded from this analysis in that a number of their items loaded on the Self-Regard factor while others loaded on an additional yet weaker factor; moreover, these three factors appear in the literature primarily as facilitators of ESI rather than actual components of the construct itself; Wechsler referred to them as «conative factors» (1940, 1943). Independence was excluded from the analysis because its items loaded heavily on the Assertiveness factor, and because it rarely appears in the literature as an integral component of ESI; however, assertiveness (the ability to express one's emotions and feelings) most definitely appears in the literature, from Darwin to the present, as an important part of this construct. For similar empirical and theoretical reasons, it was decided to exclude Social Responsibility items; moreover, this subscale was shown to correlate extremely high with Empathy as was previously mentioned, meaning that they are most likely measuring the same domain.

The results of this second analysis clearly suggested a 10-factor structure, which is both empirically feasible and theoretically acceptable as an alternative to the above-mentioned 15-factor

structure. In the order of their extraction, the ten factors that emerged are: (1) Self-Regard, (2) Interpersonal Relationship, (3) Impulse Control, (4) Problem-Solving, (5) Emotional Self-Awareness, (6) Flexibility, (7) Reality-Testing, (8) Stress Tolerance, (9) Assertiveness, and (10) Empathy. These ten factors appear to be the key components of ESI, while the five factors that were excluded from the second confirmatory factor analysis (Optimism, Self-Actualization, Happiness, Independence, and Social Responsibility) appear to be important correlates and facilitators of this construct. The ten key components and the five facilitators together describe and predict emotionally and socially intelligent behavior, as will be shown below.

The factorial validation of the EQ-i presented here compares favorably with that of the MSCEIT and ECI.<sup>10</sup>

*The reliability of the Bar-On model.* The reliability of the EQ-i has been examined by a number of researchers over the past 20 years. A consensus of findings reveals that the Bar-On conceptual and assessment model is consistent, stable and reliable (Bar-On, 2004). More specifically, the overall internal consistency coefficient of the EQ-i is .97 based on the North American normative sample (Bar-On, 1997b). This well exceeds the .90 minimum for total scores suggested by Nunnally (1978). Internal consistency was recently reexamined on 51,623 adults in North America, revealing nearly identical results with a slight mean increase of .025 in consistency coefficients (Bar-On, 2004). An overall retest reliability examination of the EQ-i is .72 for males ( $n=73$ ) and .80 for females ( $n=279$ ) at six months (Bar-On, 2004). Other researchers around the world have reported similar findings regarding the reliability of the EQ-i (e.g., Matthews et al., 2002; Newsome et al., 2000; Petrides & Furnham, 2000). These findings compare favorably with those of other measures of this construct.<sup>11</sup>

To summarize, the findings presented here demonstrate that there is good consistency within the factorial components of this model as well as stability over time.

The construct validity of the EQ-i confirms that the Bar-On model is describing ESI

In order to demonstrate that a concept is robust, one must first show that it is actually describing what it was designed to describe. This is usually done by examining its construct validity. There are a number of basic approaches to examining the construct validity of psychometric and conceptual models (Anastasi, 1988). The approach that I have adopted was to simply demonstrate that the EQ-i correlates higher with other measures of ESI than with measures of other constructs such as cognitive intelligence and personality. As will be shown, the findings confirm that the EQ-i has the *least* amount of overlap with tests of cognitive tests. This is followed by findings indicating a *greater* degree of overlap with personality tests. And the *greatest* degree of domain overlap exists between the EQ-i and other ESI measures.

In an effort to examine the divergent construct validity of the Bar-On model, the EQ-i has been concomitantly administered with various measures of cognitive intelligence (including the Wechsler Adult Intelligence Scale, Progressive Raven Matrix and the General Adult Mental Ability Scale) to a total of 4,218 individuals in six studies (Bar-On, 2004). The results indicate that there is only minimal overlap between the EQ-i and tests of cognitive (academic) intelligence, which was expected in that this

instrument was not designed or intended to assess this type of performance. This finding is also confirmed by David Van Rooy and his colleagues (Van Rooy & Viswesvaran, 2004; Van Rooy, Pluta, & Viswesvaran, 2005; D. L. Van Rooy, personal communication from April 2003), who suggests that no more than 4% of the variance of the EQ-i can be explained by cognitive intelligence according to a recent meta-analysis including 10 studies ( $n>5,000$ ). In addition to shedding light on the construct validity of the Bar-On model and measure of ESI (i.e., what it is and is not describing), these findings indicate that emotional-social intelligence and cognitive intelligence are not strongly related and are most likely separate constructs. Not only is this assumption statistically supported by findings presented by me and others (Bar-On, 2004; Van Rooy & Viswesvaran, 2004; Van Rooy et al., 2005), but there is also neurological evidence suggesting that the neural centers governing emotional-social intelligence and those governing cognitive intelligence are located in different areas of the brain. More succinctly, the ventromedial prefrontal cortex<sup>12</sup> appears to be governing basic aspects of ESI (Bar-On et al., 2003; Bechara & Bar-On, 2004; Lane & McRae, 2004), while the dorsolateral prefrontal cortex is thought to govern key aspects of cognitive functioning (Duncan, 2001).

Subsequent to submitting their pioneering meta-analysis of emotional intelligence for publication in December 2002, Van Rooy and Viswesvaran expanded the number of studies in their original analysis of the construct validity of emotional intelligence. Their most recent meta-analysis suggests that the degree of overlap between the EQ-i and personality tests is probably no more than 15% based on 8 studies in which more than 1,700 individuals participated (D. L. Van Rooy, personal communication from April 2003). This overlap is smaller than was previously thought and strongly suggests that the EQ-i must be measuring something else other than personality traits. It also makes sense that the EQ-i is not measuring personality traits, because the 15 emotional and social competencies, skills and facilitators that it measures (a) increase almost continuously from childhood to the end of the fourth decade of life as was previously mentioned, and (b) they can also be significantly increased within a matter of a few weeks as a result of training (Bar-On, 2003, 2004); personality *traits* are simply not as malleable as these competencies, skills and facilitators appear to be. When this small degree of overlap with personality is coupled with the even smaller degree of overlap with cognitive intelligence, the large unexplained variance that remains logically suggests that the EQ-i is measuring something else other than these constructs; and based on what is presented below, I argue that a substantial amount of this unexplained variance in the Bar-On model and measure can be explained by a larger domain overlap which is observed when the EQ-i is correlated with other measures of ESI. More precisely, the degree of significant overlap between the EQ-i and these other measures of ESI is nearly twice as high as that explained by personality and cognitive intelligence combined.

In order to examine the convergent construct validity of the Bar-On model and measure, the correlation between the EQ-i and other ESI instruments was evaluated. In another publication (2004), I have summarized the major findings related to the convergent construct validity of the EQ-i based on 13 studies in which a total of 2,417 individuals participated. These findings indicate that the degree of domain overlap between the EQ-i and other measures of ESI is about 36%, which is substantial when

evaluating construct validity (Anastasi, 1988). When compared with a 4% overlap with IQ tests and a 15% overlap with personality tests, it is obvious that the EQ-i is measuring what these other ESI measures are measuring (i.e., emotional-social intelligence) rather than cognitive intelligence or personality traits.

The above findings suggest that EQ-i possesses good construct validity - i.e., for the most part, this instrument is measuring what it was designed to measure. This suggests that the Bar-On model is a valid concept of ESI in that it is describing key aspects of emotional-social intelligence rather than other psychological constructs such as cognitive intelligence or personality. Empirically demonstrating this point (Bar-On, 2004) is thought to dispel what some psychologists have assumed regarding the Bar-On conceptual and psychometric model and have prematurely concluded based on less extensive and conclusive findings (e.g., Brackett & Mayer, 2003; Matthews et al., 2002; Newsome et al., 2000). Other measures of ESI, such as the ECI and MSCEIT, have not yet examined construct validity as robustly as has been done with the EQ-i on larger and more diverse samples.<sup>13</sup>

When the findings related to the EQ-i are compared with the actual degree of domain overlap between ability-based measures of ESI and tests of cognitive intelligence as well as personality (Van Rooy & Viswesvaran, 2004; Van Rooy et al., 2005), the accuracy, meaningfulness and usefulness of dichotomously describing these measures as either «mixed» or (*non-mixed*) «ability» models come into question. On the one hand, the EQ-i overlaps with cognitive intelligence and personality tests no more than 20% while the degree of overlap between the MSCEIT and these types of tests does not exceed 15% (Bar-On, 2004; Van Rooy & Viswesvaran, 2004; Van Rooy et al., 2005; D. L. Van Rooy, personal communication from April 2003). In other words, the vast majority of the variance of both conceptual and psychometric models (80% and 85% respectively) is not explained by personality and/or by cognitive intelligence. Therefore, the «mixed» characteristic used by some (Mayer et al., 2000) to describe *some* of these models, exists in *all* such models and measures in that they all overlap with personality traits and cognitive intelligence to some extent, but the actual difference between them within this small degree of overlap does not justify using descriptors such as «mixed» versus «abilities» as a meaningful way of categorizing these models and measures. All models of human behavior are influenced at least to some extent by a «mixed» cross-section of bio-psycho-social predictors and facilitators including biomedical predispositions and conditions, cognitive intelligence, personality, motivation and environmental influences.<sup>14</sup>

#### The Bar-On model of ESI predicts various aspects of human performance

In addition to demonstrating that the Bar-On model is able to describe what it is meant to describe (ESI), it must also be shown that it is capable of predicting various aspects of human behavior, performance and effectiveness in order to argue that it represents a robust and viable concept. The best way of doing this is to examine its predictive validity (i.e., the predictive validity of the psychometric instrument that measures the Bar-On conceptual model).

In various publications, I have described 20 predictive validity studies to date that have been conducted on a total of 22,971 individuals who completed the EQ-i in seven countries around the

world. These publications shed a great deal of light on the predictive validity of the EQ-i by examining its ability to predict performance in social interactions, at school and in the workplace as well as its impact on physical health, psychological health, self-actualization and subjective well-being (Bar-On, 1997b, 2001, 2003, 2004, 2005; Bar-On et al., 2005; Krivoy et al., 2000). Based on these findings, the average predictive validity coefficient is .59, which suggests that the Bar-On model is indeed able to predict various aspects of human performance. Summarized below are the major findings related to the predictive ability of this conceptual and psychometric model.

*The relationship between the Bar-On model and physical health.* Three studies (Bar-On, 2004; Krivoy et al., 2000) suggest that there is a moderate yet significant relationship between ESI and physical health.

In the first study (Krivoy et al., 2000), the EQ-i results of 35 adolescent cancer survivors were compared with those of a control group comprising 35 randomly selected adolescents from the local normative population sample. In addition to revealing significant differences between the two groups with respect to overall ESI, the most powerful EQ-i subscale that was able to distinguish between the experimental and control groups was Optimism, which is an important facilitator of emotionally and socially intelligent behavior as was previously mentioned.

In another study conducted by me (2004), 3,571 adults completed the EQ-i and responded to the following question: «I feel good about my health in general.» This question was meant to provide a self-perceived assessment of physical health so that I could examine the degree to which it may be influenced by emotional-social intelligence.<sup>15</sup> The results of a multiple regression analysis rendered an overall correlation of .49.

In a recent study (Bar-On & Fund, 2004), a population sample of 2,514 male recruits in the Israeli Defense Forces completed the EQ-i in the beginning of their tour of duty. From this sample, 91 recruits were identified as having medical profiles indicating mild or minor health problems that allowed them to continue to serve in the military with very few limitations. An additional 42 recruits were found, who were shown to have more severe medical problems, yet not severe enough to justify a medical discharge. I then randomly selected an additional group of 42 recruits from the sample (n= 2,514) who did not receive a medical profile and were thus considered to be physically healthy. This procedure created three groups representing three different levels of physical health. A multiple regression analysis was applied to the data, using the three different levels of physical health as the dependent variable and the recruits' scores on the 15 EQ-i subscales as the independent variables. The analysis rendered an overall correlation of .37 suggesting a low-moderate yet significant relationship between ESI and physical health for the sample studied.

Based on the most powerful EQ-i scales that surfaced in these studies, it appears that (a) the ability to be aware of oneself, (b) the ability to manage emotions and handle stress, (c) the ability to solve problems of a personal and interpersonal nature, and (d) the ability to maintain an optimistic disposition are significantly related to physical health.

*The relationship between the Bar-On model and psychological health.* In one of the first studies that examined the relationship between ESI and psychological health, the EQ-i scores of 418 psychiatric patients were compared with matched control groups

in Argentina, Israel, South Africa and the United States (Bar-On, 1997b). In addition to significant differences in overall ESI, the EQ-i scores revealed significant differences on most of the scales between the clinical samples and control groups.

In a more recent study, which included a sample of 2,514 males who completed the EQ-i at the time of their induction into the Israeli Defense Forces, I identified 152 recruits who were eventually discharged for psychiatric reasons (2003). I then randomly selected an additional group of 152 among 241 who were diagnosed with less severe psychiatric disturbances that allowed them to continue their tour of duty with relatively few limitations. The EQ-i scores of these two groups were compared with a randomly selected group of 152 recruits within the same population sample ( $n=2,514$ ) who did not receive a psychiatric profile during the entire period of their military service. This created three groups representing three different levels of psychological health: (a) individuals who were so severely disturbed that they were incapable of serving a full tour of duty, (b) individuals who received less severe psychiatric profiles which allowed them to continue active military service until completion, and (c) individuals who completed their military service without having received a psychiatric profile. A multiple regression analysis was applied to examine the degree of impact of ESI on psychological health; the results revealed a moderate yet significant relationship between the two (.39).

The findings from these studies suggest that the most powerful ESI competencies, skills and facilitators that impact psychological health are (a) the ability to manage emotions and cope with stress, (b) the drive to accomplish personal goals in order to actualize one's inner potential and lead a more meaningful life, and (c) the ability to verify feelings and thinking. This particular constellation of findings makes sense, because deficiencies in these specific competencies may lead to anxiety (an inability to adequately manage emotions), depression (an inability to accomplish personal goals and lead a more meaningful life) and problems related to reality testing (an inability to adequately verify feelings and thinking) respectively. It is also compelling that such deficiencies, in one form or another, are pathognomic for most psychiatric disturbances (American Psychiatric Association, 1994); and if not directly pathogenic, they are most likely significant contributors to these disturbances. Moreover, tranquilizers, anti-depressants and neuroleptics (anti-psychotics) represent three of the four major classifications of psychotropic drugs that have been traditionally administered for treating these specific disturbances (Kaplan & Sadock, 1991).

The findings presented here compare quite favorably with other ESI measures.<sup>16</sup>

*The relationship between the Bar-On model and social interaction.* In addition to a number of older studies that have indicated a significant relationship between ESI and social interaction (Bar-On, 1988, 1997b, 2000), a recent examination of an older dataset sheds new light on the nature of this relationship. When the EQ-i was normed in North America (Bar-On, 1997b), 533 participants in the normative sample completed the 16PF in addition to the EQ-i. Factor H on the 16PF assesses the extent to which one seeks out friendly, genial and positive relationships with others (Cattell et al., 1970). This factor was selected as the dependent variable, and the 15 EQ-i subscales were selected as the independent variables; and the results of applying a multiple regression analysis of the data suggested that ESI, as conceptualized by the Bar-On

model, relates very significantly with social interaction (.69). This strongly indicates that ESI has a substantial impact on and can predict the nature of interpersonal interaction. These findings compare quite favorably with those generated by other measures of ESI.<sup>17</sup>

*The relationship between the Bar-On model and performance at school.* In contrast to a study conducted by Newsome et al., in 2000 that did not reveal a statistically significant relationship between EQ-i scores and performance at school, four major studies conducted on much larger samples in South Africa, Canada and the United States (Bar-On, 1997b, 2003; Parker et al., 2004; Swart, 1996) clearly indicate that such a relationship exists. Moreover, these results confirm that the Bar-On model is capable of identifying and predicting who will perform well at school and who will not.

In a path analysis conducted by James Parker and his colleagues on 667 Canadian high school students (2004), the overall degree of correlation between ESI and scholastic performance was found to be .41 indicating a moderate yet statistically significant relationship between them. This means that at least 17% of scholastic performance is a function of emotional-social intelligence in addition to cognitive intelligence. These findings suggest that the Bar-On model is capable of identifying those students who will perform well and those who will experience problems.

Findings from a study conducted on 448 university students in South Africa indicated that there is a significant difference in ESI between successful and unsuccessful students (Swart, 1996). These results were confirmed by an additional study conducted on 1,125 university students in the United States, which was described by me in 1997. In both studies, the more successful students were found to be the more emotionally and socially intelligent. More specifically, the ability to manage one's emotions, to be able to validate one's feelings and to solve problems of a personal and interpersonal nature are important for being academically successful; additionally, academic performance appears to be facilitated by being able to set personal goals as well as to be sufficiently optimistic and self-motivated to accomplish them.

More recently, Claude Marchessault examined the impact of EQ-i scores on the grade point average (GPA) of 106 first-year university students in an American university (C. Marchessault, personal communication from the 7<sup>th</sup> of January 2005). The students completed the EQ-i in the beginning of the academic year, and their GPA was calculated during the middle of the year. Multiple regression analysis revealed a correlation of .45, which once again confirms a significant relationship between ESI and performance in school. The students' EQ-i scores will be compared with their GPA at the end of the academic year as well, and the findings will later be published.

The importance of developing and applying ESI performance models in the school setting is that they will be helpful in identifying students who are in need of guided intervention. Comparing the students' EQ-i results with such performance models will provide a scientific way of pinpointing their ESI strengths and weaknesses. Based on the results to date, the enhancement of the weaker ESI competencies and skills is expected to increase performance at school.

The findings presented here compare quite favorably with those generated by other ESI measures.<sup>18</sup>

*The relationship between the Bar-On model and performance in the workplace.* In six studies that I and my colleagues have

conducted, summarized and cited over the past few years (Bar-On, 1997b, 2004; Bar-On et al., 2005; Handley, 1997; Ruderman & Bar-On, 2003), the EQ-i has demonstrated that there is a significant relationship between ESI and occupational performance.

In the first known study that directly examined the relationship between ESI and occupational performance, the EQ-i scores of 1,171 US Air Force recruiters were compared with their ability to meet annual recruitment quotas (Handley, 1997; Bar-On et al., 2005). Based on USAF criteria, they were divided into those who were able to meet at least 100% of their annual quota («high performers») and those who met less than 80% («low performers»), representing a very robust method of assessing occupational performance. A discriminant function analysis indicated that EQ-i scores were able to fairly accurately identify high and low performers, demonstrating that the relationship between ESI and occupational performance is high (.53) based on the sample studied. Prior to 1996, it was costing the USAF approximately \$ 3 million for an average 100 mismatches a year. After one year of combining pre-employment ESI screening with interviewing and comparing EQ-i scores with the model for successful recruiters, they increased their ability to predict successful recruiters by nearly threefold, dramatically reduced first-year attrition due to mismatches and cut their financial losses by approximately 92%. Based on these results, the US General Accounting Office submitted a Congressional Report to the Senate Committee on Armed Services praising the USAF's use of ESI screening (United States General Accounting Office, 1998).

In two other studies, performance in highly stressful and potentially dangerous occupations was studied by comparing EQ-i scores with externally rated performance for a sample of 335 regular combat soldiers in the Israeli Defense Forces (IDF) and for an additional sample of 240 soldiers in an elite IDF unit (Bar-On et al., 2005). Both studies clearly revealed a significant relationship between ESI and this specific type of occupational performance; the predictive validity coefficient in the former study was .55 and .51 in the latter.

In three additional studies described by me (Bar-On, 2004; Bar-On et al., 2005), leadership was studied by examining the relationship between EQ-i scores and peer-nomination in one study (i.e., those considered to possess leadership capacity among new recruits in the IDF), criterion group membership in another study (i.e., IDF recruits who were accepted to officer training versus those who were not) and multi-rater evaluations in the third study which was conducted at the Center for Creative Leadership in the US (i.e., ratings on 21 different leadership criteria made by an average of seven to eight coworkers). The results indicated, respectively, that there is a moderate to high relationship between ESI and leadership based on the predictive validity coefficients of .39 (n= 536), .49 (n= 940) and .82 (n= 236) that were revealed. The third study shows that successful leadership is based to large extent on emotional-social intelligence - approximately two-thirds (67%) to be exact.

The average predictive validity coefficient for the six studies described above is .54, meaning that nearly 30% of the variance of occupational performance is based on ESI as described by the Bar-On model. When compared with Wagner's extensive meta-analysis that revealed that cognitive intelligence accounts for approximately 6% of occupational performance (1997), the findings presented here suggest that EQ accounts for about five

times more variance than IQ when explaining this type of performance. The findings indicate that high performers in the workplace have significantly higher ESI than low performers. It is interesting to note that in one of the studies described above (Bar-On et al., 2005), the results suggest that the EQ-i was able to predict performance quite well (.55) even over a period of 18 months.

The findings described here suggest that the most powerful ESI contributors to occupational performance are: (a) the ability to be aware of and accept oneself; (b) the ability to be aware of others' feelings, concerns and needs; (c) the ability to manage emotions; (d) the ability to be realistic and put things in correct perspective; and (e) the ability to have a positive disposition.

Based on the findings presented here, the EQ-i compares quite favorably with other ESI measures in predicting occupational performance.<sup>19</sup>

*The relationship between the Bar-On model and self-actualization.* Self-actualization is the process of striving to actualize one's potential capacity, abilities and talents. It requires the ability and drive to set and achieve goals, and it is characterized by being involved in and feeling committed to various interests and pursuits. Self-actualization is thought to be a life-long effort leading to an enriched and meaningful life. It is not merely performance but an attempt to do one's best.

In a reexamination of an older dataset used in my doctoral research (1988), I recently ran a multiple regression analysis to study the impact of ESI competencies, skills and facilitators on self-actualization. A subset of 67 South African university students were identified within the dataset who concomitantly completed an earlier version of the EQ-i and the Personal Orientation Inventory (Shostrom, 1974) which is a popularly used measure of self-actualization. The I Scale, which captures 85% of the POI's items, was designated the dependent variable while the EQ-i subscale scores were identified as the independent variables. The results indicated that ESI significantly impacts self-actualization (.64).

Three additional studies have also examined this relationship (Bar-On, 2001). Large samples were studied in the Netherlands (n= 1,639), Israel (n= 2,702) and North America (n =3,831). The results from these studies confirm the South African study indicating that ESI strongly impacts self-actualization with multiple regression correlations reaching .78, .75 and .80 for the Dutch, Israeli and American samples respectively. It is equally interesting to note that the relationship between cognitive intelligence<sup>20</sup> and self-actualization for the Israeli sample (.02) and the Dutch sample (.08) was not statistically significant (Bar-On, 2001). This means that it is emotional-social intelligence much more than cognitive intelligence that influences one's ability to do one's best, to accomplish goals and to actualize one's potential to its fullest. Evidently a high IQ does not guarantee that one will actualize one's potential, but a high EQ is definitely more important in this respect.

A very similar model surfaced in each of the above-mentioned studies regarding the ability of ESI to predict self-actualization. In addition to being sufficiently motivated to set and accomplish personal goals, self-actualization depends, first and foremost, on a deep sense of self-awareness and understanding of who one is, what one wants to do, can do and enjoys doing. Self-actualization also depends upon good problem solving for making sound independent decisions regarding what one wants to do, and then



being assertive enough to follow through with these personal decisions. Additionally, one must be optimistic and positive to more fully actualize one's potential and lead a more meaningful life based on the findings of these studies.

*The relationship between the Bar-On model and subjective well-being.* In a recent study (Bar-On, 2005), it has been demonstrated that ESI, as conceptualized by the Bar-On model, also impacts subjective well-being. Well-being was defined in this study as a subjective state that emerges from a feeling of satisfaction (a) with one's physical health and oneself as a person, (b) with one's close interpersonal relationships, and (c) with one's occupation and financial situation. A measure of subjective well-being was constructed from nine questions that directly tap these three areas. On a large North American sample ( $n=3,571$ ), the relationship between ESI and well-being was examined with multiple regression analysis. The results indicate that the two constructs are highly correlated (.76). Based on the four highest ESI predictors of well-being, it appears that the following competencies, skills and facilitators contribute the most to this subjective state: (a) the ability to understand and accept one's emotions and oneself, (b) the ability to strive to set and achieve personal goals to enhance one's potential, and (c) the ability to verify one's feelings and put things in their correct perspective.

These findings are substantially higher than those generated by other ESI measures.<sup>21</sup>

The findings presented here suggest that the Bar-On model is a better predictor of human performance than the other existing models, especially when compared with the «ability model» as some have assumed was the case (Matthews et al., 2002). It also appears to predict a wider range of performance than the other ESI models based on the current literature (e.g., Geher, 2004).

#### The Bar-On model is teachable and learnable

After demonstrating that the Bar-On model of ESI significantly impacts various aspects of human performance, it is logical to ask if emotionally and socially intelligent behavior can be enhanced in order to improve performance as well as self-actualization and subjective well-being. To address this question empirically, the findings from four studies are briefly summarized below to show that emotionally and socially intelligent behavior can be enhanced in school, the workplace and in the clinical setting.

Over the past few years, children in a growing number of schools throughout the United States have been introduced to the «Self-Science» curriculum that was developed by Karen Stone-McCown and her colleagues 40 years ago (1998). In light of the fact that this project is ongoing and the results are still being analyzed, I would like to focus on one of the most successful examples that have surfaced to date which reveals the potential of this endeavor. The specific example is a 7<sup>th</sup> grade class of 26 children whose average age was 12 years at the time of the study (Freedman, 2003). They were tested with the youth version of the EQ-i (the EQ-i:YV) in the beginning of the school year 2002-2003 and again at the end of the school year. A comparison of the pre- and post-intervention assessments suggests that the children's emotional-social intelligence increased significantly after receiving one year of this ESI-enriching curriculum. At the end of the year, the children were better able to understand and express themselves, understand and relate with others, manage and control their emotions, and adapt to their immediate environment at

school. These significant changes suggest that this and similar educational programs can make a difference and that the Bar-On model can accurately monitor and measure these changes. What needs to be done in such studies in the future is to examine pre- and post-intervention behavioral parameters to see if positive changes have occurred such as better school attendance, higher scholastic performance, less violence, fewer incidents of drug abuse and teen pregnancy, and so forth.

One of the most interesting studies which demonstrates that emotionally and socially intelligent behavior can be enhanced in adults was conducted by Sjölund and Gustafsson in Sweden (2001). They compared the EQ-i scores of 29 individuals before and after they participated in a workshop designed to increase managerial skills. At the time the workshop was conducted in 2000, most of the participants were in their early 40s and had approximately 15 years of managerial experience. Among other skills, they were taught techniques designed to strengthen ESI competencies thought to be important for their work as managers; and these specific competencies and skills were those described in the Bar-On model. Not only did their total EQ score increase from a mean of 97 to 106 ( $p\text{-level}<.000$ ), but 9 out of the 15 EQ-i subscales increased significantly as well. The two ESI competencies which increased the most as a result their participation in the workshop were emotional self-awareness and empathy, which many consider to be the two most important components of emotional-social intelligence. Another interesting outcome was that those participants who began the workshop with the lowest EQ-i scores were the ones who made the most progress. Kate Cannon, who developed this program, confirmed similar findings based on her experience in conducting these workshops in the United States (Bar-On, 2003). This is particularly important and encouraging, because the people with the lowest EQ scores are the ones who need to improve their ESI competencies the most.

At a conference on emotional intelligence held in Nova Scotia in 2003, Geetu Orme presented findings from the individual coaching she has been providing to corporate executives in the UK since 1999. She assessed 47 executives with the EQ-i before she began coaching them and then a number of months following the completion of the weekly sessions that were provided. Her coaching was based on strengthening the weaker ESI factors that were identified by their EQ-i scores. The five EQ-i subscale scores that revealed the most significant changes were the following: Self-Regard (87 to 95), Self-Actualization (92 to 102), Stress Tolerance (97 to 102), Reality-Testing (97 to 109) and Happiness (93 to 100).

In addition to the classroom and workplace, there is also evidence that ESI competencies and skills can be enhanced in the clinical setting. Using an earlier version of the EQ-i, a graduate student at the University of Pretoria tested a group of 58 patients who were hospitalized for myocardial infarct (Dunkley, 1996). Subsequent to being tested, 22 of these patients were randomly selected to participate in a stress management program. The program included instructions on how to better identify sources of stress in their lives and to apply more effective ways to cope with these situations. The EQ-i was administered a second time five weeks after completing this program. In addition to significant changes in the total EQ score (92 versus 102,  $t\text{-value}=-5.47$ ,  $p\text{-level}=.000$ ), nine of the subscale scores revealed statistically significant changes. Taking into consideration the primary purpose of this stress management program, it is not surprising that the ESI competency that changed the most as a result of this training was

Stress Tolerance (the ability to manage emotions); this is even more important when one considers that stress is considered to be one of the major psychosocial factors that impact cardiovascular disturbances such as myocardial infarct. Most of the EQ-i scores for the patients who participated in the stress management program were significantly higher than the scores obtained by those who did not participate in the program.

The results from these studies suggest that the ESI factors described by the Bar-On model are both teachable and learnable, and that these factors can be enhanced by relatively simple didactic methods over a relatively short period of time.

### Discussion

The findings presented in this article have shown that emotional-social intelligence, as conceptualized by the Bar-On model, is a multi-factorial array of interrelated emotional and social competencies, skills and facilitators that influence one's ability to recognize, understand and manage emotions, to relate with others, to adapt to change and solve problems of a personal and interpersonal nature, and to efficiently cope with daily demands, challenges and pressures. It has also been shown that the development of this model has been rigorous, and that the outcome of this process has produced a valid concept and measure of ESI. Not only is this model consistent and stable over time and across cultures, but it is also capable of describing the construct it was designed to describe (emotional-social intelligence). The importance and usefulness of Bar-On model has also been demonstrated by examining its ability to predict various aspects of human behavior and performance. Furthermore, showing that the concept is both teachable and learnable and that the ESI factors involved can be enhanced underscores the importance and usefulness of this model.

The studies presented need to be replicated in more diverse settings. It is important to continue to study this model in order to learn how best to apply it at home, school and work. Future studies should use a wide variety of methods to examine the relationship between the Bar-On model and an even wider variety of human performance. In light of the fact that all of the studies presented were cross-sectional moreover, future research should also attempt to longitudinally examine this model and its ability to describe ESI and predict human performance over time; and it was explained that such a study is presently underway. It is particularly important to continue to examine ESI and its predictive validity across cultures in an effort to better evaluate its applicability in parenting, education, work and healthcare worldwide.

Hopefully, this model and the findings it has generated will more routinely make their way into the home, school and workplace. Parents and educators can benefit from this by raising and educating children to be more emotionally and socially intelligent, effective and productive from an early age onward. Human resources personnel in organizations could also make more widespread use of this model and measure in hiring, training and succession planning in order to increase individual effectiveness and organizational productivity. Furthermore, healthcare practitioners could benefit from focusing on the above-mentioned ESI components of the Bar-On model in diagnostic, remedial and preventive work. Such an approach could be used in mapping out those ESI areas that need to be enhanced in order to increase individual effectiveness, self-actualization and general well-being.

One particular ESI model, no matter how valid, robust and viable it might be, describes only a limited view of the individual's capacity for emotionally and socially intelligent behavior. In order to provide a more complete and comprehensive description of the capacity for this type of behavior, we should consider creating an expanded model that incorporates the best conceptual and psychometric aspects of existing ESI models. As such, a future challenge in this field is to explore how best to create a multi-dimensional model that captures both the potential (or ability) for emotionally and socially intelligent behavior as well as a self-report and multi-rater assessment of this type of behavior. Our ability to more fully describe ESI will be incomplete until we succeed in creating such a multi-dimensional and multi-modal approach. By applying an expanded model of ESI, we will eventually be more effective in mapping out this construct, evaluating its importance and understanding how best to apply it. Encouraging such an approach is also the best way to discourage the proliferation of ungrounded theorizing that abets misconceptions and false claims of what emotional-social intelligence is and is not and what it can and cannot predict.

### Notes

- <sup>1</sup> For a number of years, I have referred to this construct as «emotional and social intelligence» which I have recently abbreviated to «emotional-social intelligence».
- <sup>2</sup> It was Charles Darwin who published the first known work in the wider area of emotional-social intelligence as early as 1872 (on the importance of emotional expression for survival and adaptation).
- <sup>3</sup> This work began in the early 1980s as part of my doctoral research (1988).
- <sup>4</sup> I have also developed a 60-item youth version of the EQ-i (the EQ-i:YV), which is applicable from 8 to 18 years of age and takes approximately 15 minutes to complete (Bar-On & Parker, 2000).
- <sup>5</sup> Approximately 2% of the sample did not indicate their ethnicity.
- <sup>6</sup> The translation process has created not only over 30 different translations but also more than one version of the same language for a number of languages. For example, there are two versions of French (European and North American), Spanish (European and Central American) and Portuguese (European and South American). The purpose of this ongoing process of translation is to facilitate the use of the Bar-On model and measure by practitioners and researchers. For more details, the reader is referred to the publisher's Foreign Language Translation Department at Multi-Health Systems in Canada ([www.mhs.com](http://www.mhs.com)).
- <sup>7</sup> The Spanish translation was carried out by Prof. Daniel Gómez Dupertuis and his colleagues at Universidad Nacional de La Plata in Buenos Aires. This highly methodical and professional approach became a benchmark for future translations and was replicated by other translators.
- <sup>8</sup> This study is being conducted by Human Resources Development Canada and is presently in its 10<sup>th</sup> year. It represents the first longitudinal study of emotional-social intelligence and is expected to shed a great deal of light on how this construct develops, what affects it and what is affected by it from birth to early adulthood. The individuals and their

parents have been providing a wide array of biomedical, developmental, personality, cognitive, educational, social and behavioral information. Additionally, the subjects have been tested with the youth version of the EQ-i every two years, and they will continue to be tested with the adult version of the EQ-i from 18 years of age onward.

- 9 The MEIS (Multifactor Emotional Intelligence Test) is an earlier version of the MSCEIT (Mayer-Salovey-Caruso Emotional Intelligence Test), which was designed to measure the authors' 4-branch theory of emotional intelligence.
- 10 While the 4-metafactor structure of the MSCEIT is evidently confirmed by factor analysis (Brackett & Salovey, 2006), an examination of the subfactor structure of the 8 EI tasks included within the measure's four branches has not been found in the literature which could mean that it has not been confirmed. The 18-factor structure of the ECI does not appear to be empirically justified based on the latest findings (Boyatzis & Sala, 2004); a 9-factor structure has emerged in place of the measure's present structure (Boyatzis et al., 2001) as well as earlier conceptualizations of the Goleman model (Goleman, 1998).
- 11 Brackett and Salovey reported split-half reliability correlations of .93 and .91 for the MSCEIT's total score and a retest reliability of .86 after a relatively short period of three weeks (2006).
- 12 Fairly recent findings suggest that the right somatosensory and insular cortices as well as the right amygdala are also involved, forming a neural circuitry with the ventromedial prefrontal cortex (Bar-On et al., 2003; Bechara & Bar-On, in press).
- 13 Unfortunately, very few published studies have examined the degree of correlation between the MSCEIT and other measures of ESI; and most of the existing publications present primarily divergent evidence for the MSCEIT's construct validity. However, it is insufficient to assess the construct validity of a measure by examining only its divergent construct validity

(i.e., what it is not measuring); one must logically present convergent construct validity as well (i.e., what it is measuring). In order to establish that a particular measure of a psychological construct is psychometrically sound, it is axiomatic in test construction to examine and compare both divergent as well as convergent evidence (Anastasi, 1988; Campbell & Fiske, 1959).

- 14 This argument has been made in psychology more than a quarter of century ago (Bem & Allen, 1974); and more than half a century ago, David Wechsler specifically argued that part of this «mix» impacts intelligent behavior (Wechsler, 1940, 1943).
- 15 There is a growing body of medical literature which suggests that self-perceived health is significantly correlated with clinically assessed health and is a good predictor of one's overall physical condition (Shadbolt et al., 2002).
- 16 The MSCEIT has demonstrated correlations with measures of anxiety and depression ranging from .25 to .33 (Brackett & Salovey, 2006). However, it is not clear if actual clinical samples have been studied with this instrument.
- 17 Brackett, Warner and Bosco (2005) have found correlations in the .28 to .45 range between the MSCEIT and the «quality of interpersonal relationships».
- 18 Brackett and Salovey describe correlations between the MSCEIT and scholastic performance in the .20 to .25 range (2006).
- 19 The correlation between the MSCEIT and various aspects of occupational performance ranges between .22 and .46 (Brackett & Salovey, 2006).
- 20 Cognitive intelligence was assessed with the Raven Progressive Matrix in the Israeli sample and with the General Adult Mental Ability Scale in the Dutch sample.
- 21 The highest correlations obtained between the MSCEIT and various scales of subjective well-being range from .27 to .36 based on study conducted by Brackett and Mayer (2003).

| <i>Appendix</i><br>The EQ-i scales and what they assess  |   |
|--|---|
| EQ-i SCALES  | The EI competencies and skills assessed by each scale   |
| Intrapersonal<br>Self-egard<br>Emotional self-awareness<br>Assertiveness<br>Independence<br>Self-actualization | Self-awareness and self-expression:<br><i>To accurately perceive, understand and accept oneself</i><br><i>To be aware of and understand one's emotions</i><br><i>To effectively and constructively express one's emotions and oneself</i><br><i>To be self-reliant and free of emotional dependency on others</i><br><i>To strive to achieve personal goals and actualize one's potential</i> |
| Interpersonal<br>Empathy<br>Social responsibility<br>Interpersonal relationship                                | Social awareness and interpersonal relationship:<br><i>To be aware of and understand how others feel</i><br><i>To identify with one's social group and cooperate with others</i><br><i>To establish mutually satisfying relationships and relate well with others</i>   |
| Stress management<br>Stress tolerance<br>Impulse control   | Emotional management and regulation:<br><i>To effectively and constructively manage emotions</i><br><i>To effectively and constructively control emotions</i>   |
| Adaptability<br>Reality-testing<br>Flexibility<br>Problem-solving  | Change management:<br><i>To objectively validate one's feelings and thinking with external reality</i><br><i>To adapt and adjust one's feelings and thinking to new situations</i><br><i>To effectively solve problems of a personal and interpersonal nature</i>   |
| General mood<br>Optimism<br>Happiness  | Self-motivation:<br><i>To be positive and look at the brighter side of life</i><br><i>To feel content with oneself, others and life in general</i>  |

## References

- American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders*, 4<sup>th</sup> ed. Washington, DC: American Psychiatric Association.
- Anastasi, A. (1988). *Psychological testing* (6<sup>th</sup> ed.). New York: Macmillan Publishing.
- Appelbaum, S.A. (1973). Psychological mindedness: word, concept and essence. *International Journal of Psycho-Analysis*, 54, 35-46.
- Bar-On, R. (1988). *The development of a concept of psychological well-being*. Unpublished doctoral dissertation, Rhodes University, South Africa.
- Bar-On, R. (1997a). *The Emotional Quotient Inventory (EQ-i): a test of emotional intelligence*. Toronto, Canada: Multi-Health Systems, Inc.
- Bar-On, R. (1997b). *The Emotional Quotient Inventory (EQ-i): technical manual*. Toronto, Canada: Multi-Health Systems, Inc.
- Bar-On, R. (2000). Emotional and social intelligence: insights from the Emotional Quotient Inventory (EQ-i). In R. Bar-On & J.D.A. Parker (eds.): *Handbook of emotional intelligence*. San Francisco: Jossey-Bass.
- Bar On, R. (2001). Emotional intelligence and self-actualization. In Joseph Ciarrochi, Joe Forgas, & John D. Mayer (eds.): *Emotional intelligence in everyday life: a scientific inquiry*. New York: Psychology Press.
- Bar-On, R. (2003). How important is it to educate people to be emotionally and socially intelligent and can it be done? *Perspectives in Education*, 21, 3-13.
- Bar On, R. (2004). The Bar-On Emotional Quotient Inventory (EQ-i): rationale, description and summary of psychometric properties. In Glenn Geher (ed.): *Measuring emotional intelligence: common ground and controversy*. Hauppauge, NY: Nova Science Publishers, pp. 111-142.
- Bar On, R. (2005). Emotional intelligence and subjective wellbeing. Manuscript submitted for publication.
- Bar-On, R. & Fund, S. (2004). The impact of emotional and social intelligence on self-perceived physical health. Unpublished manuscript.
- Bar On, R. & Handley, R. (2003a). *The Bar On EQ-360*. Toronto, Canada: Multi-Health Systems.
- Bar On, R. & Handley, R. (2003b). *The Bar On EQ-360: technical manual*. Toronto, Canada: Multi-Health Systems.
- Bar On, R., Handley, R., & Fund, S. (2005). The impact of emotional and social intelligence on performance. In Vanessa Druskat, Fabio Sala, & Gerald Mount (eds.): *Linking emotional intelligence and performance at work: Current research evidence*. Mahwah, NJ: Lawrence Erlbaum.
- Bar-On, R. & Parker, J.D.A. (2000). *The Bar-On Emotional Quotient Inventory: youth version (EQ-i:YV) technical manual*. Toronto, Canada: Multi-Health Systems, Inc.
- Bar-On, R., Tranel, D., Denburg, N.L., & Bechara, A. (2003). Exploring the neurological substrate of emotional and social intelligence. *Brain*, 126, 1790-1800.
- Bechara, A. & Bar-On, R. (2004). The neurological substrates of emotional and social intelligence: evidence from patients with focal brain lesions. In J.T. Cacioppo & G.G. Bernston (eds.): *Essays in social neuroscience*. Cambridge, MA: MIT Press.
- Bechara, A., Tranel, D., & Damasio, R. (2000). Poor judgment in spite of high intellect: neurological evidence for emotional intelligence. In R. Bar-On & J.D.A. Parker (eds.): *Handbook of emotional intelligence*. San Francisco: Jossey-Bass.
- Bem, D.J. & Allen, A. (1974). On predicting some of the people some of the time: the search for cross-situational consistencies in behavior. *Psychological Review*, 81, 506-520.
- Boyatzis, R.E. (2006). Using tipping points of emotional intelligence and cognitive competencies to predict financial performance of leaders. *Psicothema*, 18, suppl., 124-131.
- Boyatzis, R.E., Goleman, D., & HayGroup (2001). *The Emotional Competence Inventory (ECI)*. Boston: HayGroup.
- Boyatzis, R.E. & Sala, F. (2004). The Emotional Competency Inventory (ECI). In Glenn Geher (ed.): *Measuring emotional intelligence: common ground and controversy*. Hauppauge, NY: Nova Science Publishers.
- Brackett, M.A. & Mayer, J.D. (2003). Convergent, discriminant and incremental validity of competing measures of emotional intelligence. *Personality and Social Psychology Bulletin*, 29(9), 1147-1158.
- Brackett, M.A. & Salovey, P. (2006). Measuring emotional intelligence with the Mayer-Salovey-Caruso Emotional Intelligence Test (MS-CEIT). *Psicothema*, 18, suppl., 34-41.
- Brackett, M.A., Warner, R.M., & Bosco, J.S. (2005). Emotional intelligence and relationship quality among couples. *Personal Relationships*, 12, 197-212.
- Campbell, D.T. & Fiske, D.W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, 56, 81-105.
- Cattell, R.B., Eber, H.W., & Tatsuoka, M.M. (1970). *Handbook for the Sixteen Personality Factor Questionnaire (16PF)*. Champaign, Illinois: Institute for Personality and Ability Testing.
- Chapin, F.S. (1942). Preliminary standardization of a social impact scale. *American Sociological Review*, 7, 214-225.
- Damasio, A.R. (1994). *Descartes' error: emotion, reason and the human brain*. New York: Grosset/Putnam.
- Darwin, C. (1872/1965). *The expression of the emotions in man and animals*. Chicago: University of Chicago Press.
- Davies, M., Stankov, L., & Roberts, R.D. (1998). Emotional intelligence: in search of an elusive construct. *Journal of Personality and Social Psychology*, 75, 989-1015.
- Doll, E.A. (1935). A generic scale of social maturity. *American Journal of Orthopsychiatry*, 5, 180-188.
- Duncan, J. (2001). An adaptive coding model of neural function in the prefrontal cortex. *Nature Reviews Neuroscience*, 2, 820-829.
- Dunkley, J. (1996). The psychological well-being of coronary heart disease patients before and after an intervention program. Unpublished master's thesis. University of Pretoria, South Africa.
- Freedman, J. (2003). Key lessons from 35 years of social-emotional education: how self-science builds self-awareness, positive relationships and healthy decision-making. *Perspectives in Education*, 21, 69-80.
- Gardner, H. (1983). *Frames of mind*. New York: Basic Books.
- Geher, G. (ed.) (2004). *Measuring emotional intelligence: common ground and controversy*. Hauppauge, NY: Nova Science Publishers.
- Goleman, D. (1995). *Emotional intelligence*. New York: Bantam Books.
- Goleman, D. (1998). *Working with emotional intelligence*. New York: Bantam Books.
- Handley, R. (1997, April). AFRS rates emotional intelligence. *Air Force Recruiter News*.
- Kaplan, H.I. & Sadock, B.J. (1991). *Synopsis of psychiatry* (6<sup>th</sup> ed.). Baltimore, MD: Williams and Wilkins.
- Krivoy, E., Weyl Ben-Arush, M., & Bar On, R. (2000). Comparing the emotional intelligence of adolescent cancer survivors with a matched sample from the normative population. *Medical and Pediatric Oncology*, 35, 382.
- Lane, R.D. (2000). Levels of emotional awareness: neurological, psychological and social perspectives. In R. Bar-On & J.D.A. Parker (eds.): *Handbook of emotional intelligence*. San Francisco: Jossey-Bass.
- Lane, R.D. & McRae, K. (2004). Neural substrates of conscious emotional experience: a cognitive-neuroscientific perspective. In B.M. Amsterdam & J. Benjamins (eds.): *Consciousness, emotional self-regulation and the brain*, pp. 87-122.
- Lane, R.D. & Schwartz, G.E. (1987). Levels of emotional awareness: a cognitive-developmental theory and its application to psychopathology. *American Journal of Psychiatry*, 144, 133-143.
- LeDoux, J. (1996). *The emotional brain: the mysterious underpinnings of emotional life*. New York: Simon and Schuster.
- MacLean, P.D. (1949). Psychosomatic disease and the visceral brain: recent developments bearing on the Papez theory of emotion. *Psychosomatic Medicine*, 11, 338-353.
- Mathews, G., Roberts, R.D., & Zeidner, M. (2003). Development of emotional intelligence: A skeptical—but not dismissive—perspective. *Human Development*, 46, 109-114.
- Mathews, G., Zeidner, M., & Roberts, R.D. (2002). *Emotional intelligence: science and myth*. Cambridge, MA: The MIT Press.
- Mayer, J.D. & Salovey, P. (1997). What is emotional intelligence. In P. Salovey & D. Sluyter (eds.): *Emotional development and emotional intelligence: implications for educators* (pp. 3-31). New York: Basic Books.

- Mayer, J.D., Salovey, P., & Caruso, D. (2000). Models of emotional intelligence. In R.J. Sternberg (ed.): *Handbook of intelligence*. Cambridge, UK: Cambridge University Press.
- Mayer, J.D., Salovey, P., & Caruso, D.R. (2002). *Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT)*. Toronto, Canada: Multi-Health Systems, Inc.
- Moss, F.A. & Hunt, T. (1927). Are you socially intelligent? *Scientific American*, 137, 108-110.
- Moss, F.A., Hunt, T., Omwake, K.T., & Ronning, M.M. (1927). *Social intelligence test*. Washington, DC: Center for Psychological Service.
- Newsome, S., Day, A.L., & Cantano, V.M. (2000). Assessing the predictive validity of emotional intelligence. *Personality and Individual Differences*, 29, 1005-1016.
- Nunnally, J.C. (1978). *Psychometric theory* (2<sup>nd</sup> ed.). New York: McGraw-Hill.
- Orme, G. (2003). Emotional intelligence: the cutting edge of interventions in corporate and educational settings. Paper presented on the 29<sup>th</sup> of May 2003 at the Nexus EQ Conference, Halifax, Nova Scotia, Canada.
- Parker, J.D.A., Creque, R.E., Barnhart, D.L., Harris, J.I., Majeski, S.A., Wood, L.M., Bond, B.J., & Hogan, M.J. (2004). Academic achievement in high school: does emotional intelligence matter? *Personality and Individual Differences*, 37, 1321-1330.
- Petrides, K.V. & Furnham, A. (2000). On the dimensional structure of emotional intelligence. *Personality and Individual Differences*, 29, 313-320.
- Plake, B.S. & Impara, J.C. (eds.) (1999). *Supplement to the thirteenth mental measurement yearbook*. Lincoln, NE: Buros Institute for Mental Measurement.
- Ruderman, M. & Bar On, R. (2003). The impact of emotional intelligence on leadership. Unpublished manuscript.
- Ruesch, J. (1948). The infantile personality. *Psychosomatic Medicine*, 10, 134-144.
- Saarni, C. (1990). Emotional competence: how emotions and relationships become integrated. In R.A. Thompson (ed.): *Socioemotional development. Nebraska symposium on motivation* (vol. 36, pp. 115-182). Lincoln, NE: University of Nebraska Press.
- Salovey, P. & Mayer, J.D. (1990). Emotional intelligence. *Imagination, Cognition and Personality*, 9, 185-211.
- Salovey, P., Mayer, J.D., Goldman, S.L., Turvey, C., & Palfai, T.P. (1995). Emotional attention, clarity and repair: exploring emotional intelligence using the Trait Meta-Mood Scale. In J.W. Pennebaker (ed.): *Emotion, disclosure and health* (pp. 125-154). Washington DC: American Psychological Association.
- Shadbolt, B., Barresi, J., & Craft, P. (2002). Self-rated health as a predictor of survival among patients with advanced cancer. *Journal of Clinical Oncology*, 20(10), 2514-2519.
- Shostrom, E.L. (1974). *Personal orientation inventory: an inventory for the measurement of self-actualization*. San Diego, CA: Educational Industrial Testing Service.
- Sifneos, P.E. (1967). Clinical observations on some patients suffering from a variety of psychosomatic diseases. *Acta Medicina Psychosomatica*, 21, 133-136.
- Sjölund, M. & Gustafsson, H. (2001). *Outcome study of a leadership development assessment and training program based on emotional intelligence*. An internal report prepared for the Skanska Management Institute in Stockholm, Sweden.
- Spielberger, C. (ed.) (2004). *Encyclopedia of Applied Psychology*. Academic Press.
- Stone-McCown, K., Jensen, A.L., Freedman, J.M., & Rideout, M.C. (1998). *Self-science: the emotional intelligence curriculum*. San Mateo, CA: Six Seconds.
- Suzuki, L.A. & Valencia, R.R. (1997). Race-ethnicity and measured intelligence. *American Psychologist*, 52, 1103-1114.
- Swart, A. (1996). *The relationship between well-being and academic performance*. Unpublished master's thesis, University of Pretoria, South Africa.
- Thorndike, E.L. (1920). Intelligence and its uses. *Harper's Magazine*, 140, 227-235.
- Unites States General Accounting Office (1998). Military recruiting: the Department of Defense could improve its recruiter selection and incentive systems. A United States Congressional Report submitted to the Committee on Armed Services in the United States Senate on the 30th of January, 1998 (GAO/NSIAD - 98 - 58).
- Van Rooy, D.L., Pluta, P., & Viswesvaran, C. (2005). An evaluation of construct validity: what is this thing called emotional intelligence. *Human Performance*, 18, 445-462.
- Van Rooy, D.L. & Viswesvaran, C. (2004). Emotional intelligence: a meta-analytic investigation of predictive validity and nomological net. *Journal of Vocational Behavior*, 65, 71-95.
- Wagner, R.K. (1997). Intelligence, training and employment. *American Psychologist*, 52, 1059-1069.
- Wechsler, D. (1940). Nonintellective factors in general intelligence. *Psychological Bulletin*, 37, 444-445.
- Wechsler, D. (1943). Nonintellective factors in general intelligence. *Journal of Abnormal Social Psychology*, 38, 100-104.
- Wechsler, D. (1958). *The measurement and appraisal of adult intelligence* (4th ed.). Baltimore, MD: The Williams and Wilkins Company.
- Zeidner, M., Matthews, G., & Roberts, R.D. (2001). Slow down, you move too fast: emotional intelligence remains an «elusive» intelligence. *Emotion*, 1, 265-275.
- Zirkel, S. (2000). Social intelligence: the development and maintenance of purposive behavior. In R. Bar-On & J.D.A. Parker (eds.): *Handbook of emotional intelligence*. San Francisco: Jossey-Bass.