

---

# Emotional Intelligence

---

## *New Ability or Eclectic Traits?*

---

John D. Mayer  
Peter Salovey and David R. Caruso

University of New Hampshire  
Yale University

*Some individuals have a greater capacity than others to carry out sophisticated information processing about emotions and emotion-relevant stimuli and to use this information as a guide to thinking and behavior. The authors have termed this set of abilities emotional intelligence (EI). Since the introduction of the concept, however, a schism has developed in which some researchers focus on EI as a distinct group of mental abilities, and other researchers instead study an eclectic mix of positive traits such as happiness, self-esteem, and optimism. Clarifying what EI is and is not can help the field by better distinguishing research that is truly pertinent to EI from research that is not. EI—conceptualized as an ability—is an important variable both conceptually and empirically, and it shows incremental validity for predicting socially relevant outcomes.*

**Keywords:** emotion, intelligence, emotional intelligence, personality, measurement

The notion that there is an emotional intelligence (EI) began as a tentative proposal (Mayer, DiPaolo, & Salovey, 1990; Salovey & Mayer, 1990). The original idea was that some individuals possess the ability to reason about and use emotions to enhance thought more effectively than others. Since 1990, EI has grown into a small industry of publication, testing, education, and consulting (Matthews, Roberts, & Zeidner, 2004; Matthews, Zeidner, & Roberts, 2002). Matthews et al. (2002) have outlined the dramatic growth of the psychological literature concerning an EI. Yet the apparent size of the field dwarfs what we regard as relevant scientific research in the area. In fact, one commentator recently argued that EI is an invalid concept in part because it is defined in too many ways (Locke, 2005, p. 425).

The original definition of EI conceptualized it as a set of interrelated abilities (Mayer & Salovey, 1997; Salovey & Mayer, 1990). Yet other investigators have described EI as an eclectic mix of traits, many dispositional, such as happiness, self-esteem, optimism, and self-management, rather than as ability based (Bar-On, 2004; Boyatzis & Sala, 2004; Petrides & Furnham, 2001; Tett, Fox, & Wang, 2005). This alternative approach to the concept—the use of the term to designate eclectic mixes of traits—has led to considerable confusion and misunderstandings as to what an EI is or should be (Daus & Ashkanasy, 2003; Gohm, 2004; Mayer, 2006). Many features, such as self-esteem,

included in these models do not directly concern emotion or intelligence or their intersection (Matthews et al., 2004, p. 185). We agree with many of our colleagues who have noted that the term *emotional intelligence* is now employed to cover too many things—too many different traits, too many different concepts (Landy, 2005; Murphy & Sideman, 2006; Zeidner, Roberts, & Matthews, 2004). “These models,” wrote Daus and Ashkanasy (2003, pp. 69–70), “have done more harm than good regarding establishing emotional intelligence as a legitimate, empirical construct with incremental validity potential.” In this article, we explore these key criticisms of the field, contrasting what we believe to be a meaningful theory of EI with models describing it as a mix of traits.

Our principal claim is that a valid EI concept can be distinguished from other approaches. This valid conception of EI includes the ability to engage in sophisticated information processing about one’s own and others’ emotions and the ability to use this information as a guide to thinking and behavior. That is, individuals high in EI pay attention to, use, understand, and manage emotions, and these skills serve adaptive functions that potentially benefit themselves and others (Mayer, Salovey, & Caruso, 2004; Salovey & Grewal, 2005). As we use the term, *emotional intelligence* is an instance of a standard intelligence that can enrich the discussion of human capacities (Mayer, Salovey, Caruso, & Sitarenios, 2001).

The deeper question raised by Locke’s (2005) and others’ assertions that EI has become overgeneral is “How does one decide something ought or ought not to be called emotional intelligence?” To address this question, in the first section of this article, *The Schism in the Field*, we examine the central conception of EI and the current confusion in the field. In the second section, *The Four-Branch*

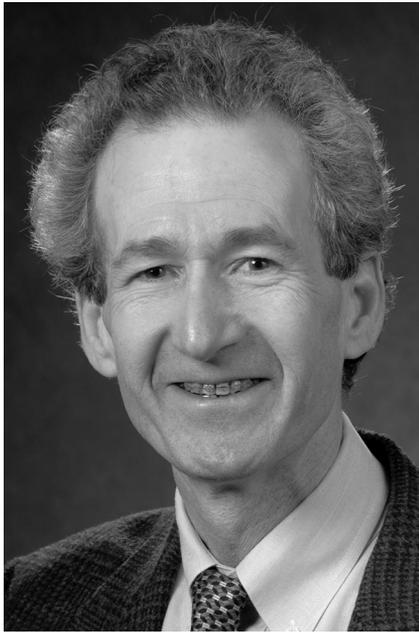
---

John D. Mayer, Department of Psychology, University of New Hampshire; Peter Salovey and David R. Caruso, Department of Psychology, Yale University.

*Full disclosure of interest:* John D. Mayer, Peter Salovey, and David R. Caruso receive royalties from the Mayer–Salovey–Caruso Emotional Intelligence Test, which is published by Multi-Health Systems (MHS), Toronto, Ontario, Canada.

We gratefully acknowledge the comments of Marc A. Brackett and Susan E. Rivers on drafts of this manuscript.

Correspondence concerning this article should be addressed to John D. Mayer, Department of Psychology, University of New Hampshire, 10 Library Way, Durham, NH 03824. E-mail: jack.mayer@unh.edu



**John D. Mayer**

Photo by Lisa Nugent

Model of EI, we further describe our approach to EI. In the third section, The Significance of EI, we examine the various reasons why EI is important as a discrete variable. Finally, in the Discussion and Recommendations section, we consider how the term *emotional intelligence* has come to be so misused and the steps that can be taken to improve terminology and research in the area.

## The Schism in the Field

### Initial Ideas

Our initial view of EI was that it consists of a group of related mental abilities. For example, we first defined EI as “the ability to monitor one’s own and others’ feelings and emotions, to discriminate among them and to use this information to guide one’s thinking and actions” (Salovey & Mayer, 1990, p. 189). An empirical companion piece operationalized aspects of EI as an ability: Participants examined a set of colors, faces, and designs and had to identify each one’s emotional content (Mayer et al., 1990). In a subsequent editorial in the journal *Intelligence*, we discussed the difference between traits such as extraversion, self-confidence, and EI, noting,

Although a trait such as extraversion may depend on social skill, or result in it, [it] is a . . . preference rather than an ability. Knowing what another person feels, in contrast, is a mental ability. Such knowledge may stem from *g*, or be somewhat independent of it. The way in which we have defined emotional intelligence—as involving a series of mental abilities—qualifies it as a form of intelligence. (Mayer & Salovey, 1993, p. 435)

Although we were clear about our ability conception, we acknowledge that our earliest model was, in some of its specifics, overly broad. That model, for example, included flexible planning and creative thinking as two skills in-

involved in utilizing emotions (Salovey & Mayer, 1990, p. 190). Subsequent interpreters of our work, however, were instrumental to (what we regard as) unmooring the concept from its key terms. These interpreters appear to have confused what we thought of as *expressions* of EI with the ability itself. For example, we suggested that the emotionally intelligent person might be “a pleasure to be around” and that those lacking in EI might be prone to depression (Salovey & Mayer, 1990, p. 201). Elsewhere in these early writings, we noted that EI might be related to openness (Mayer & Salovey, 1993, p. 438).

### External Factors

A journalistic rendering of EI created and also complicated the popular understanding of it. Goleman’s (1995) best-selling book *Emotional Intelligence* began with the early version of our EI model but mixed in many other personality traits including persistence, zeal, self-control, character as a whole, and other positive attributes. The book received extensive coverage in the press, including a cover story in *Time* magazine (Gibbs, 1995). Because the book included, in part, the theory we developed, some investigators wrongly believed that we endorsed this complex and, at times, haphazard composite of attributes as an interpretation of EI.

The journalistic version became the public face of EI and attracted further attention, in part, perhaps, owing to its extraordinary claims. Goleman (1995, p. 34) wrote of EI’s importance that “what data exist, suggest it can be as powerful, and at times more powerful, than IQ.” A few years later, Goleman (1998a, p. 94) remarked that “nearly 90% of the difference” between star performers at work and average ones was due to EI. Although these ideas appeared in trade books and magazine and newspaper articles, they influenced scientific articles as well. For example, one refereed journal article noted that “EI accounts for over 85% of outstanding performance in top leaders” and “EI—not IQ—predicts top performance” (Watkin, 2000, p. 89). Our own work never made such claims, and we actively critiqued them (Mayer, 1999; Mayer & Cobb, 2000; Mayer & Salovey, 1997; Mayer, Salovey, & Caruso, 2000). More recently, Goleman (2005, p. xiii) wrote that others who believed that EI predicts huge proportions of success had misunderstood his 1995 book.

### The Advent of Mixed Models

With EI defined in the public mind as a variety of positive attributes, subsequent approaches continued to expand the concept. One defined EI quite broadly as, “an array of noncognitive capabilities, competencies, and skills that influence one’s ability to succeed in coping with environmental demands and pressures” (Bar-On, 1997, p. 14). Although the model included emotion-related qualities such as emotional self-awareness and empathy, into the mix were added many additional qualities, including reality testing, assertiveness, self-regard, and self-actualization. It was this mixing in of related and unrelated attributes that led us to call these *mixed models* of EI (Mayer et al., 2000). A second mixed model of EI included such qualities as



**Peter Salovey**  
Photo by Michael  
Marsland

trustworthiness, adaptability, innovation, communication, and team capabilities as emotional competencies (Goleman, 1998b). The additions of this model led to the characterization of such an approach as “preposterously all-encompassing” (Locke, 2005, p. 428).

Still another research team defined a trait EI as referring to “a constellation of *behavioral dispositions* and *self-perceptions* concerning one’s ability to recognize, process, and utilize emotion-laden information. It encompasses . . . empathy, impulsivity, and assertiveness as well as elements of social intelligence . . . and personal intelligence” (Petrides & Furnham, 2003, p. 278). At this point, the pattern is clear: A large number of personality traits are amassed, mixed in with a few socioemotional abilities, and the model is called one of EI or trait EI. (The “trait” designation is particularly confusing, as *trait* is typically defined as a distinguishing quality, or an inherited characteristic, and could apply to any EI model.) Generally speaking, these models include little or no justification for why certain traits are included and others are not, or why, for that matter, certain emotional abilities are included and others are not, except for an occasional mention that the attributes have been chosen because they are most likely to predict success (e.g., Bar-On, 1997).

Such approaches are disappointing from a theoretical and construct validity standpoint, and they are scientifically challenging in that, with so many independent qualities, it is hard to identify a global theme to these lists of attributes. There is, however, an alternative to such a state of (what we see as) disorganization. We believe that our four-branch model of emotional intelligence, for example, provides one conceptually coherent approach (Mayer & Salovey, 1997). It is to this model that we turn next.

## The Four-Branch Model of EI

### General Introduction to EI

**Intelligence considered.** It is possible to develop a coherent approach to the concept of EI. In order to describe an EI, we need first to define intelligence. From the beginning of intelligence theorizing and testing, debates have raged regarding not only the nature of intelligence but also how many intelligences exist (Neisser et al., 1996). However, even the fiercest of *g* theorists, those proposing that intelligence is best described as consisting of a single, general mental ability factor, allow for the existence of more specific ability factors (e.g., Carroll, 1993).

Intelligences can be divided up in different ways, for example, according to whether they address crystallized (memory-dependent) or fluid (process-dependent) abilities or, alternatively, according to the type of information that is their focus. The approach that divides intelligences into information areas, for example, yields a verbal/propositional intelligence that deals with words and logic and a spatial intelligence that deals with arranging and rotating objects in space, among others. Analogously, an EI would address (a) the capacity to reason with and about emotions and/or (b) the contribution of the emotions system to enhancing intelligence.

One longstanding grouping of intelligences divides them into verbal/propositional and perceptual/organizational areas (e.g., Kaufman, 2000). For decades, researchers have searched for an elusive third intelligence, believing that these two core intelligences by themselves were insufficient to describe individual differences in mental abilities (Walker & Foley, 1973; Wechsler, 1943). In 1920, Thorndike (p. 228) suggested the existence of a social intelligence, which involved “the ability to understand and manage men and women, boys and girls—to act wisely in human relations” (see also Bureau of Personnel Administration, 1930; Thorndike & Stein, 1937). Social intelligence began to be investigated, although it had vocal critics—whose criticisms may have impeded the field’s growth (Cronbach, 1960).

None of the proposed earlier intelligences, however, explicitly concerned an EI—reasoning validly about emotions and then using emotions in the reasoning process. By the early 1980s, there was a greater openness to the idea of specific (or multiple) intelligences (Gardner, 1983; Guilford, 1959; Sternberg, 1985), and at the same time, research in emotions was blossoming. Ekman (1973) and others had resurrected Darwin’s ideas that some types of emotional information—for example, human facial expressions of certain emotions—are universal; others examined how events lead to cognitive appraisals that in turn generate emotions (Dyer, 1983; Roseman, 1984; Scherer, 1993; Sloman & Croucher, 1981; Smith & Ellsworth, 1985).

Perhaps the elusive intelligence that could complement the traditional dichotomy of verbal/propositional and perceptual/organizational might be one of EI. An EI, after all, when compared with social intelligence, arguably could have a more distinct brain locus in the limbic system and its cortical projections (Damasio, 1994; LeDoux, 2000; Mac-



**David R. Caruso**

Photo by Michael Marsland

Lean, 1973; TenHouten, Hoppe, Bogen, & Walter, 1985). An initial theory of EI developed these ideas along with a first demonstration study to indicate how aspects of it might be measured (Mayer et al., 1990; Salovey & Mayer, 1990).

**Emotions as signals.** To describe convincingly what it means to reason with emotions, however, one must understand their informational content. Initially, some people express surprise that emotions convey information at all. Emotions often are viewed as irrational, will-o'-the-wisp states—even pathological in their arbitrariness (Young, 1943). Although this does describe the operation of emotion at times, it is far from a complete picture of a normal, functioning emotion system.

The meanings of specific emotion terms have been understood by philosophers for hundreds of years (Solomon, 2000) and have been refined by psychologists (Clore, Ortony, & Foss, 1987; Frijda, 1988; Ortony, Clore, & Collins, 1988; Roseman, 1984; Smith & Ellsworth, 1985). For example, happiness includes a signal of wanting to join with others; sadness is a signal of loss and of wanting comfort (or to be alone). Until recently, however, the significance of these terms was not always recognized. William James, for example, wrote that he would rather “read verbal descriptions of the shapes of the rocks on my New Hampshire farm” than a catalog of emotional meanings (James, 1892/1920, p. 375).

Such viewpoints began to change as the emotion system increasingly came to be seen as an evolved signaling system (Darwin, 1872/1998; Ekman, 1973). To be sure, some differences exist in expressing and reading emotions across cultures (Ekman, 1973; Elfenbein & Ambady, 2002a; Mesquita, 2001). At the same time, there is compelling evidence that many emotion meanings are in large part universal—and play a key role in helping people to

understand their own and others’ actions (e.g., Dyer, 1983; Ekman, 1973).

By the 1990s, the significance of emotions and their meanings were better appreciated and were increasingly studied empirically. The functional role of emotions as communication signals became widely accepted, although further issues remain to be explored, such as the meanings of affective dimensions and how social influences may modify emotional expression (Averill, 1992; Barrett & Russell, 1999). Prominent undergraduate textbooks on emotion and research handbooks appeared (e.g., Carlson & Hatfield, 1992; Lazarus, 1991; Lewis & Haviland-Jones, 2000; Oatley & Jenkins, 1996; Strongman, 1996). Curricula designed expressly to teach emotional knowledge and literacy in the schools also have been developed (Brackett et al., 2007; Maurer, Brackett, & Plein, 2004; Wilson, Brackett, DeRosier, & Rivers, 2007).

### ***EI and the Four-Branch Model***

Emotional abilities can be thought of as falling along a continuum from those that are relatively lower level, in the sense of carrying out fundamental, discrete psychological functions, to those that are more developmentally complex and operate in the service of personal self-management and goals. Crucial among lower level, fundamental skills is the capacity to perceive emotions accurately. Higher level skills include, for example, the capacity to manage emotions properly. These skills can be arranged in a rough hierarchy of four branches (these branches refer to a tree-like diagram; Mayer & Salovey, 1997). These include the abilities to (a) perceive emotions in oneself and others accurately, (b) use emotions to facilitate thinking, (c) understand emotions, emotional language, and the signals conveyed by emotions, and (d) manage emotions so as to attain specific goals (Mayer & Salovey, 1997). These four branches are illustrated in Figure 1.

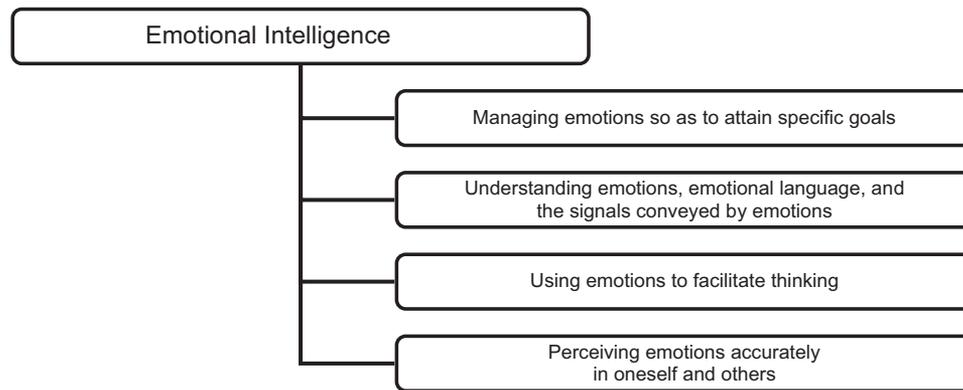
As an example, imagine a situation in which a young man visits a friend in the hospital who has been in a car accident. The first area of EI involves perceiving emotions. As the young man surveys the hospital room, the visiting relatives, and his unconscious friend, he may wonder, “What is each family member feeling?” Perhaps he perceives the worry and anxiety in their faces. Feelings are complex; also emerging from within him may be fear of his own mortality and a guilty relief—with a surge in energy—in response to being spared the accident himself and remaining unharmed.

The anxiety experienced by those around the young man redirects his attention from his own concerns to a focus on the well-being of his friend. Using energy from the fear and relief, he may feel motivated to talk with family members and find out how they are. This is an example of using emotion to facilitate thought.

To understand the emotions of the situation involves asking “What sorts of feelings emerge from such a situation?” and “How can these feelings be expected to change over time?” The accident is unexpected and severe, so the family’s shock is palpable. The young man may reason that one feature of such shock is its emergence from a rapid

**Figure 1**

*The Four-Branch Model of Emotional Intelligence (Mayer & Salovey, 1997)*



*Note.* Each branch describes a set of skills that make up overall emotional intelligence. Each branch has its own developmental trajectory, proceeding from relatively easy skills to more sophisticated ones. For example, Perceiving Emotions typically begins with the ability to perceive basic emotions in faces and voice tones and may progress to the accurate perception of emotional blends and to the detection of emotional microexpressions in the face.

combination of surprise, sadness, and other mostly negative emotions (Goodrum, 2005).

Knowing this, and understanding these feelings, he may find that one possible course would be to engage in emotion management. After regulating his own emotions, perhaps by observing them, and thereby psychologically distancing himself from them, the young person may inquire of the parents how they came to learn of the accident and how they are holding up, what their days are like, and how he can be of assistance. Listening creates a caring environment while helping to clarify the disturbing, ongoing events.

### **Measuring EI**

**Ability measures of EI.** Individual differences exist in each of these four processes. For example, some people are more accurate in initially perceiving how each individual in this story might be feeling, recognizing their feelings from faces and postures. Such individual differences can be measured. Each ability area of our four-branch model of EI can be operationalized formally as a set of to-be-solved problems, and test takers' responses can be checked against a criterion of correctness. There are a number of ability-based scales of emotional perception (Archer, Costanzo, & Akert, 2001; Matsumoto, LeRoux, & Wilson-Cohn, 2000), emotional identification and understanding (Geher, Warner, & Brown, 2001), and emotional integrative complexity (Lane, Quinlan, Schwartz, Walker, & Zeitlin, 1990).

One measure that spans these areas is the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT). It consists of eight tasks, two for each of the four branches of our EI model (Mayer, Caruso, & Salovey, 1999; Mayer, Salovey, & Caruso, 2002; Mayer, Salovey, Caruso, & Sitarenios, 2003). For example, Perceiving Emotions is assessed by asking participants to identify emotions in

pictures of faces, in one task, and in photographs and artwork, in another. As another example, one of the Understanding Emotions tasks employs items such as the following to gauge the capacity to reason with emotions:

What feeling, when intensified and coupled with a sense of injustice, is most likely to lead a person to experience anger? (a) frustration (b) guilt (c) melancholy (d) fatigue

Responses on the MSCEIT are scored with respect to their degree of correctness, as determined by their correspondence with the answers provided by a group of emotions experts (i.e., emotion researchers) or a normative sample of the general population. The best answer to the sample question above is "(a) frustration" because, intensified, it leads to anger. This approach to scoring is somewhat similar to that used for certain subtests of classic intelligence tests such as Comprehension on the Wechsler Adult Intelligence Scale (Matarazzo, 1972; Wechsler, 1997). Criticisms of this scoring procedure also have been raised and are discussed in the next section.

**Theory of the measurement of EI.** There are two powerful theoretical reasons why only such a clearly focused, ability-based approach can best measure EI. First, intelligences most generally are defined as mental abilities, and measuring mental abilities involves asking test takers relevant questions and then evaluating their answers against a criterion of correctness (e.g., Carroll, 1993). The MSCEIT expert scoring system identified correct answers by using the pooled responses of 21 emotions researchers (Mayer et al., 2003).

In addition, according to the *Standards for Educational and Psychological Testing*, validity evidence is partly based on response processes. That is, "Theoretical . . . analyses of the response processes of test takers can provide evidence concerning the fit between the construct and the detailed nature of performance or response" (Amer-

ican Educational Research Association [AERA], American Psychological Association [APA], & National Council on Measurement in Education [NCME], 1999, p. 12; see also Ployhart, 2006). Requiring test takers to meet a criterion of correctness provides an excellent fit to the emotional intelligence concept. Incisive criticism in the area has promoted the progression from an early reliance on the consensus of test takers as a criterion to the use of emotions experts (e.g., Roberts, Zeidner, & Matthews, 2001). The two approaches to scoring—expert and general consensus—correlate highly with each other (Mayer et al., 2003). However, there is further room for refinement of such criteria, including the development of a veridical scoring system for many EI test items.

Mixed models of EI, recall, are those that mix many attributes such as self-esteem and optimism into the ability model. These approaches typically measure EI through self-judgments, using items of the form “I understand my emotions well” (true/false). Such items draw information that is filtered through the self-concept of the test taker. Test takers, however, may or may not be able to understand the question, may or may not have received accurate feedback regarding the accuracy of their emotional perceptions before, and may, in their self-evaluations, be influenced by mood and tendencies toward self-aggrandizement. In direct tests, self-judgment-based response processes are not highly correlated with measured abilities of perceiving, using, understanding, and/or managing emotions (Brackett, Rivers, Shiffman, Lerner, & Salovey, 2006).

In addition, because mixed-model tests often include EI-irrelevant variables such as need for achievement and self-esteem, they assess the wrong concepts. Including other variables increases the degree of construct-irrelevant variance, which, as it rises, progressively invalidates a test (AERA, APA, & NCME, 1999). For example, test makers who add commonly studied personality traits (e.g., assertiveness, optimism) to their scales end up measuring classically defined personality traits rather than EI. Naming such a test one of “emotional intelligence” does not clarify this situation.

A test that focuses specifically on constructs relevant to EI and that evaluates responses as to their correctness possesses good evidence for its validity. A priori, it stands a much greater chance of measuring the concept successfully. This is a strictly conceptual issue. Nonetheless, there is substantial empirical evidence as well that ability tests such as the MSCEIT measure EI rather than other constructs, whereas other scales possess considerable construct-irrelevant variance—most specifically, an overlap with personality traits such as Neuroticism, Extraversion, and Conscientiousness (Brackett & Mayer, 2003; Newsome, Day, & Catano, 2000).

**Key findings concerning EI and other psychological traits.** If, as we claim, EI involves a unique source of variation that reflects a new intelligence, then it should exhibit some overlap with other intelligence scales. Studies indicate that EI, as measured by the MSCEIT and its precursor test the Multifactor Emotional Intelligence Scale (MEIS), correlates about .35 or so with

verbal intelligence, and lower with perceptual/organizational IQ (Ciarrochi, Chan, & Caputi, 2000; Mayer et al., 1999). Most of the overlap with verbal intelligence is accounted for by the third branch of the MSCEIT, Understanding Emotions.

EI also should be relatively independent of more traditional personality scales. To test this, one can correlate scales of EI with the Big Five personality traits. The Big Five traits are Extraversion–Introversion, Neuroticism–Stability, Openness–Closedness, Agreeableness–Disagreeableness, and Conscientiousness–Carelessness. Each of the Big Five traits can be divided into more specific traits. For example, one approach to the Big Five divides Extraversion–Introversion into such facets as gregariousness, assertiveness, and warmth (Costa & McCrae, 1992). The Big Five represents a good starting point for frequently studied personality dimensions, although some traits arguably are not measured by the Big Five (e.g., educated–uneducated, diplomatic–humorous, religious–unreligious; Saucier & Goldberg, 1998).

EI, defined here as an ability, should have minimal correlations with Big Five traits such as Extraversion or Neuroticism: Whether or not people are sociable or emotional, they can be smart about emotions. We did predict that EI would have a modest relation to Openness, as Openness often correlates with intelligences (Mayer & Salovey, 1993). Some representative correlations between the MSCEIT and the Big Five are shown in the first row of Table 1; the scale correlated .25 with Openness and .28 with Agreeableness, a trait that includes empathic and interpersonally sensitive content, and had lower correlations with the rest (Brackett & Mayer, 2003).

In contrast, mixed-model self-judgment scales labeled as measuring “emotional intelligence” appear to measure many variables that are relevant to motivations, social skills, and other areas of personality but not necessarily to an EI (Brackett & Mayer, 2003). Although variables such as optimism, self-control, and the like each have specific and uniquely important variance, as one measures many such traits together, they begin to reflect broader, more general traits of the sort found on the Big Five.

The relations of several mixed-model scales of EI to the NEO–Personality Inventory–Revised (NEO-PI-R; Costa & McCrae, 1992), a measure of the Big Five personality traits, are illustrated in the next four rows of Table 1. Notably, mixed-model scales correlate  $-.57$  and  $-.70$  with Neuroticism in two instances, and  $.47$  and  $.68$  with Extraversion in two others; their relations with Openness or even Agreeableness are somewhat lower. The overlap between mixed-model measures of EI and the NEO-PI-R becomes more striking when it is put into context. Consider a test explicitly designed to be parallel to the NEO-PI-R—the Big Five Inventory (Gosling, Rentfrow, & Swann, 2003). The Big Five Inventory’s correlations with the NEO-PI-R (see Table 1, bottom row) are often not higher than the correlations exhibited by the mixed-model EI scales. That is, the mixed-model EI scales overlap with the Big Five, sometimes as much as scales explicitly designed to measure the Big Five overlap with each other. The

**Table 1***Several Relevant Tests Ordered According to Their Correlation With the NEO-PI-R Measure of the Big Five*

Test	The Big Five				
	Neuroticism	Extraversion	Openness	Agreeableness	Conscientiousness
Emotional intelligence (as ability)					
Mayer-Salovey-Caruso Emotional Intelligence Test: Total EI <sup>a</sup>	-.08	.11	.25***	.28***	.03
Mixed-model, self-judgment scales					
Self-Report Emotional Intelligence Test: Overall EI <sup>a</sup>	-.19**	.32***	.43***	.09	.25***
Emotional Competence Inventory: Self-Awareness Cluster <sup>b</sup>	-.07	.47**	.28**	.00	.30**
Bar-On Emotional Quotient Inventory: Overall EQ <sup>a</sup>	-.57***	.37***	.16*	.27***	.48***
Trait Emotional Intelligence Questionnaire (TEIQue): Overall EI <sup>c</sup>	-.70***	.68**	.44**	-.04	.34**
Big Five subscales with each other (as a comparison)					
Big Five Inventory <sup>d</sup> (Extraversion with extraversion; neuroticism with neuroticism, etc.)	.66***	.76***	.68***	.66***	.70***

Note. NEO-PI-R = Revised NEO Personality Inventory; EI = emotional intelligence.

<sup>a</sup> Results are from Brackett and Mayer (2003); higher correlations between the Bar-On Emotional Quotient Inventory and the NEO-Five-Factor Inventory have been reported (Dawda & Hart, 2000, p. 807). <sup>b</sup> Correlations are from Boyatzis and Sala (2004) and Murensky (2000); only cluster-level results are reported. <sup>c</sup> Correlations are from Petrides and Furnham (2003). <sup>d</sup> An alternative measure of the Big Five traits correlated with the NEO-PI; results are from Gosling, Rentfrow, and Swann (2003).

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

mixed-model scales drop off in association with traits such as Openness and Agreeableness, which arguably are most likely to be related to EI. Overall, the MSCEIT shows the greatest independence from the Big Five. The mixed-model scales' high overlap, and their pattern of overlap, with the Big Five indicates that for such mixed-model measures, construct-irrelevant variance predominates.

A final issue concerning the mixed-model scales labeled "emotional intelligence" is that, unmoored from any constraints of the EI terminology, they sample across the domain of psychological traits in a haphazard fashion. As a consequence, at least some among the different self-judgment mixed-model EI scales in the area correlate at lower levels with one another than they do with the Big Five (Brackett & Mayer, 2003).

Of course, tests such as the MSCEIT must meet additional psychometric standards as well: reliability and structural, convergent, and discriminant validity among them. The split-half reliability of the overall EI score on the MSCEIT is .91, with reliabilities for the four branches ranging from the high .70s to the low .90s, and test-retest reliability is in the high .80s (Mayer et al., 2003). Confirmatory factor analyses indicate that both a one-factor model, indicating the presence of an overall EI, and four-factor models fit the data adequately, with other models possible (notably, a three-factor model that combines Branches 1 and 2 is also plausible; Gignac, 2005; Mayer, Panter, Salovey, & Sitaraneos, 2005; Mayer et al., 2003; Palmer, Gignac, Manocha, & Stough, 2005).

One fly in the MSCEIT ointment concerns its convergent validity with other ability measures of specific EI

skills. The convergence among ability measures of emotional perception such as the Japanese and Caucasian Brief Affect Recognition Test (JACBART; Matsumoto et al., 2000), the Diagnostic Analysis of Nonverbal Accuracy (DANVA; Nowicki & Duke, 1994), and the MSCEIT is low, with most published values falling between .00 and .30 (Mayer, Roberts, & Barsade, 2008). On the plus side, the subscales of the MSCEIT converge with one another (with correlations ranging from .16 to .58) despite using different response formats across branches (Mayer et al., 2003). MSCEIT scores also correlate with the ability to forecast one's future emotions (Dunn, Brackett, Ashton-James, Schneiderman, & Salovey, 2007) and with the accurate perception of emotion in music (Resnicow, Salovey, & Repp, 2004). Nonetheless, this issue is unsettling and requires further understanding (Mayer et al., 2008).

Compared with the convergent validity evidence, the discriminant validity evidence is promising. The very modest correlations between MSCEIT scores and traits of the Big Five (and other personality measures), as well as traditional intelligences, strongly indicate that the ability to reason about emotions (i.e., EI) is a new construct. We earlier reported some MSCEIT-Big Five correlations; the MSCEIT total score correlates at similarly low levels, in the .20 to .35 range, with verbal intelligence and empathy (Mayer et al., 2004).

A number of observers and commentators on the field have expressed reservations about whether such tests are adequate measures of EI and whether they predict important outcomes (e.g., Brody, 2004; Oatley, 2004; Zeidner, Matthews, & Roberts, 2001). The recent *Annual Review of*

*Psychology* examination of EI and its measurement covers such concerns in greater detail and summarizes many of the central, continuing issues (Mayer et al., 2008). To date, however, we believe that ability scales provide the best benchmark for this new construct, although existing scales still have room for substantial improvement.

## The Significance of EI

### General Considerations of the Validity of an EI Measure

We recognize that the MSCEIT has important limitations (see, e.g., our Recommendation 5 below), and yet we consider it among the better and most widely used of the valid measures available. As such, we focus on it in this section. The measurement issues surrounding EI are elements of broader questions: Is a measure such as the MSCEIT a valid assessment of EI? And can a test such as the MSCEIT account for new variance in important outcomes? In the mid-20th century, psychologists believed that such questions about validity could be answered on the basis of findings from key correlational and experimental studies of the test itself (e.g., Barley, 1962).

A more contemporary view, by contrast, considers the validity of a test a consequence of ongoing critical evaluation not only of the test itself but also of the theoretical framework supporting it and its embeddedness in broader conceptualizations. For example, a test's measure of a concept depends on how the test author(s) define the concept, and that definition, in turn, will be reliant on other hypotheses and definitions, sometimes referred to as auxiliary theories. As summarized by G. T. Smith (2005), "In part for this reason, no theory is ever fully proved or disproved. At any given time, evidence tends to favor some theories or research programs, over others" (pp. 397–398).

Thus far, the measurement evidence tends to favor the ability-based EI approach described here over other research alternatives (such as dismissing EI or using mixed models). Valid approaches to EI can be divided into two central areas: specific-ability approaches, such as the study of accurate emotional perception, and integrative models of EI, one example of which is the four-branch model and the MSCEIT (see Mayer et al., 2008, for other measures). Drawing on revised criteria for test validity (AERA, APA, & NCME, 1999), a research team (including one of the present authors) surveyed such EI measures and concluded that tests based either on specific or integrative ability approaches to measurement exhibited generally good evidence for their validity. Tests based on mixed models, by contrast, did not adequately measure EI (Mayer et al., 2008).

Here, we elaborate more specifically on the validity—both general and incremental—of the MSCEIT measure and the four-branch approach, particularly as it relates to clinical and applied phenomena. Hunsley and Meyer (2003, p. 446; cf. McFall, 2005) noted, "The concept of incremental validity is essentially a simple and straightforward one: does a measure add to the prediction of a criterion above what can be predicted by other sources of data?" Second-

arily, new measures can incrementally increase conceptual clarity and understanding within a field.

Journalistic accounts of EI raised unrealistic ideas such as that "90% of the difference" between star performers and other workers is attributable to "emotional intelligence factors" (Goleman, 1998a, p. 94) and that 85% of success could be attributed to EI (Watkin, 2000, p. 89)—claims that we have repeatedly pointed out are misleading and unsupported by research (e.g., Mayer, 1999; Mayer & Cobb, 2000; Mayer & Salovey, 1997; Mayer et al., 2000). EI is just one variable among many other mental abilities, cognitive styles, and socioemotional traits, and EI should predict important outcomes at levels usually found for other such psychological variables. Predictions for psychological measures to outcome variables for complex behavior are considered satisfactory in the .10 to .20 range, good in the .20 to .30 range, and still better when higher than .30 (Meyer, Finn, et al., 2001, p. 134). With this in mind, we examined studies in which EI predicted, or failed to predict, key outcomes; Table 2 reports instances where EI added incremental validity in a study—to indicate where EI may make its most important predictions.

### EI and Understanding Feelings

Higher EI does appear to promote better attention to physical and mental processes relevant to clinical outcomes. For example, people higher in some EI skills are more accurate in detecting variations in their own heartbeat—an emotion-related physiological response (Schneider, Lyons, & Williams, 2005). Higher EI individuals also are better able to recognize and reason about the emotional consequences of events. For example, higher EI individuals are more accurate in affective forecasting—that is, in predicting how they will feel at some point in the future in response to an event, such as the outcome of a U.S. presidential election (Dunn et al., 2007).

### EI and Subjective Symptoms

Abilities such as affective forecasting are important, for example, because psychotherapy patients from a wide diversity of backgrounds seek help with the hope of gaining insight into their feelings and motives (Evans, Acosta, & Yamamoto, 1986; Noble, Douglas, & Newman, 1999). If EI increases an individual's attention to and accuracy about his or her feelings under various conditions, this could, in turn, minimize the individual's psychiatric symptoms. David (2005) examined EI and psychiatric distress on the Symptom Checklist-90-Revised (SCL-90-R). The higher a person's EI, the lower their reports of symptoms on the Positive Symptom Total ( $r = -.38$ ), including, for example, fewer headaches and less trouble concentrating. Scores on the Symptom Distress Index, which measures symptom intensity, also declined as EI rose ( $r = -.22$ ). After she controlled for the Big Five personality dimensions, EI still accounted for between 1% and 6% of the variance in SCL-90-R scales—supporting the incremental validity of EI (see Table 2). Other reports have indicated that, for example, those diagnosed with dysthymia have lower EI scores than other psychiatric groups (Lizeretti, Oberst, Chamorro, & Farriols, 2006).

**Table 2**

*Selected Correlations From Several Studies Indicating That High Emotional Intelligence (EI) Is Associated With Better Social Relations, and Low EI With Deviant Behavior*

Study and criterion measure	Correlation with EI	Incremental relation or partial correlation with EI
David (2005)		
SCL-90-R Global Severity Index	-.31**	$\Delta R^2 = .03^{***}$
SCL-90-R Positive Symptom Total	-.38**	$\Delta R^2 = .06^{***}$
SCL-90-R Positive Symptom Distress	-.22**	$\Delta R^2 = .01^*$
Lopes, Salovey, Côté, & Beers (2005) <sup>a</sup>		
Peer nominations of interpersonal sensitivity	.29*	—
Peer nominations of interpersonal competence, dominance, and assertiveness	.05	—
Reciprocal friendship nominations	.23*	—
Rosete (2007)		
Manager's rating of achieving business outcomes	.26**	$\beta = .24^{**}$
Manager's effective interpersonal behaviors	.52**	$\beta = .49^{**}$
Brackett & Mayer (2003)		
Drug use (Amount of marijuana owned? Times used illegal drugs in last month?)	-.05	-.07
Social deviance (Number of physical fights in the last year? Number of times vandalized something?)	-.27***	-.20**
Brackett, Mayer, & Warner (2004)		
Illegal drug user (men only) (Times smoked marijuana in the last month? Money spent on drugs in last month?)	-.32*	-.34**
Deviant behavior (men only) (Number of physical fights in last year? Times vandalized something last year?)	-.40*	-.27*
Trinidad & Johnson (2002) <sup>b</sup>		
Overall tobacco and alcohol use	-.19*	$R^2 = .12^{***}$

Note. For more complete reporting, see the original reports. The criterion scale is the Mayer–Salovey–Caruso Emotional Intelligence Test (MSCEIT) unless otherwise noted. SCL-90-R = Symptom Checklist-90-Revised.

<sup>a</sup> Emotional Regulation scale (only) from the MSCEIT. <sup>b</sup> Trinidad and Johnson (2002) used the Multifactor Emotional Intelligence Scale (MEIS; Mayer, Caruso, & Salovey, 1999), which was a precursor ability scale to the MSCEIT.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

### **EI and Understanding Social Relationships**

Many psychotherapy clients hope to improve what have become problematic social behaviors and relationships (Evans et al., 1986; Noble et al., 1999). Research on EI indicates that people with high EI tend to be more socially competent, to have better quality relationships, and to be viewed as more interpersonally sensitive than those lower in EI (Brackett et al., 2006; Brackett, Warner, & Bosco, 2005; Lopes et al., 2004; Lopes, Salovey, Côté, & Beers, 2005; Lopes, Salovey, & Straus, 2003). Many associations between EI and these kinds of variables remain significant even after one controls for the influence of traditional personality variables and general intelligence on the measured outcome.

In one study of friendships, the relationship between EI and participants' engagement in destructive responses to life events experienced by their friends was often significant, even after the researchers controlled for the Big Five, psychological well-being, empathy, life satisfaction, and Verbal SAT scores, but for men only (Brackett et al., 2006); MSCEIT correlations ranged from  $-.02$  to  $-.33$ .

Although the findings described above were based on self-evaluated outcome criteria, similar findings have come from observer reports of the same individuals. For exam-

ple, judges' positive ratings of a videotaped "getting acquainted" social interaction were predicted by the MSCEIT, although again, only for men and not for women. Ratings of the ability to work well with others as well as overall judged social competence correlated  $.53$  and  $.51$ , respectively, with EI. The authors noted that significant correlations remained after they partialled out the Big Five (Brackett et al., 2006).

Just as higher EI predicts better social outcomes, lower EI predicts interpersonal conflict and maladjustment. Teenagers lower in EI were rated as more aggressive than others and tended to engage in more conflictual behavior than their higher EI peers in two small-sample studies (Mayer, Perkins, Caruso, & Salovey, 2001; Rubin, 1999). Lower EI also predicted greater drug and alcohol abuse. For example, levels of drug and alcohol use are related to lower EI among males (Brackett, Mayer, & Warner, 2004). Inner-city adolescents' smoking is also related to their EI (Trinidad & Johnson, 2002).

### **EI and Understanding Work Relationships**

High EI correlates with better relationships in business settings as well. Managers higher in EI are better able to cultivate productive working relationships with others and

to demonstrate greater personal integrity according to multirater feedback (Rosete & Ciarrochi, 2005). EI also predicts the extent to which managers engage in behaviors that are supportive of the goals of the organization, according to the ratings of their supervisors (Côté & Miners, 2006). In one study, 38 manufacturing supervisors' managerial performance was evaluated by their 1,258 employees. Total EI correlated .39 with these managerial performance ratings, with the strongest relations for the ability to perceive emotions and to use emotions (Kerr, Garvin, & Heaton, 2006).

Rosete (2007) studied 122 public service managers' business and leadership performance and found that the MSCEIT correlated .26 with a supervisor's appraisal of a manager's effective business performance ("focuses strategically," "ensures closure and delivers on intended results") and .52 with an appraisal of a manager's effective interpersonal behaviors ("guides, mentors, and develops people," "someone who communicates clearly"). A hierarchical regression analysis predicting effective business performance indicated that EI was a significant predictor even after both an estimate of cognitive ability (16 PF Questionnaire, Scale B) and the Big Five were entered. A similar analysis for the interpersonal behavior rating showed that ability EI was also a significant predictor after cognitive ability and personality were statistically controlled (see Table 2).

A somewhat more complex relationship between EI and other variables was found by Côté and Miners (2006). In their study, employees with low cognitive intelligence (scoring one standard deviation or more below the sample mean on the Culture Fair Intelligence Test) exhibited better performance and citizenship behavior if they scored higher on the MSCEIT but not otherwise, whereas those with high cognitive intelligence (one standard deviation or more above the mean) showed no advantage of EI. In a small-sample study of employees in the finance division of an insurance company, higher MSCEIT scores were associated with positive ratings of work behavior by peers and supervisors as well as with recommendations for greater year-end salary increases (Lopes et al., 2006).

### **Considerations of Incremental Validity**

Empirical evidence suggests that EI often contributes to incremental predictions of social effectiveness, over and above frequently employed measures of personality and intelligence, as exhibited in Table 2. The EI concept further incrementally increases our clarity in understanding why certain people—those who score higher on EI scales—are more successful in their relationships at home and at work. These higher EI individuals are better able to recognize and reason about their emotions, as well as about the emotional consequences of their decisions, and the emotions of others. Together, the empirical and conceptual increments indicate that EI is a useful variable for study.

## **Discussion and Recommendations**

### **EI as a Valid and Significant New Concept**

In this article, we have argued that there exists a valid and conceptually important new variable for investigators and

practitioners. EI can be defined as an intelligence that explains important variance in an individual's problem solving and social relationships. Yet the acceptance of the construct is threatened less by its critics, perhaps, than by those who are so enthusiastic about it as to apply the term indiscriminately to a variety of traditional personality variables (as pointed out by Daus & Ashkanasy, 2003, and Murphy & Sideman, 2006).

### **Why Do Some Investigators and Practitioners Use the Term Emotional Intelligence Overly Broadly?**

**Expansion of the emotional and cognitive areas of thinking.** Why are traits such as the need for achievement, self-control, and social effectiveness (let alone character and leveraging diversity) sometimes referred to as EI? Perhaps one contributing cause is a lack of perspective on personality as a whole. Psychology needs good overviews of the central areas of mental function—models that define personality's major areas. Yet few such overviews reached any level of currency or consensus in the psychology of the 1980s and 1990s. Hilgard (1980) indicated that psychology is thrown out of balance by the absence of such models. Indeed, the cognitive revolution of the 1960s and 1970s (Miller, 2003), followed by the intense interest in affective (emotional) sciences in the 1980s and 1990s (e.g., Barsade, Brief, & Spataro, 2003), contributed to a sense that cognitive and emotional systems were dominant aspects of the whole of personality. Many psychologists and other investigators began to refer to cognition, affect, and behavior, as though they provided complete coverage of the study of mental life (e.g., Thompson & Fine, 1999). In that impoverished context, the term emotional intelligence could be mistaken as a label for much of mental processing. In fact, however, the three-legged stool of cognition, affect, and behavior underemphasizes such areas of personality as representations of the self, motivation, and self-control processes; more comprehensive models have since been proposed (Mayer, 2003, 2005; McAdams & Pals, 2006).

**Reaction to the Big Five.** Also during the 1980s and 1990s, the most pervasive empirical work in personality psychology involved the study of the Big Five traits (Goldberg, 1993; Goldberg & Rosolack, 1994; John & Srivastava, 1999)—so much so that many people identified personality as merely, or essentially, the Big Five (Block, 1995). Yet that Big Five model dispossessed many traditionally important personality variables (Block, 1995; Mayer, 2005). There was a reaction against the Big Five model that had, during those years, so represented the field.

The advent of EI encouraged some to revisit a number of social and emotional traits and conceive of them as forming new models of social effectiveness and well-being. Furnham and Petrides included in their model self-judged adaptability, assertiveness, social competence, and stress management, among other traits, which were included under those authors' label *trait emotional intelligence* (Petrides & Furnham, 2001, pp. 40, 47). Acknowledging the considerable overlap between their dimensions and those of

the Big Five traits, they stated that “even if there were *complete* overlap between trait EI and the main personality dimensions . . . we believe that the theoretical and explanatory power of any psychological construct, including trait EI, is much more important than its incremental validity” (Petrides & Furnham, 2001, p. 54). Their research was recently used as part of the basis for the launch of yet another self-judgment scale with “emotional intelligence” in its name (Tett et al., 2005).

Although we agree that theoretical clarity is, at times, more important than incremental validity, we also believe in staying within scientific bounds in the use of such terms as *emotion* and *intelligence*—unless, of course, such terms require revision. Those investigators who wander outside the conceptual network, however, offer no rationale for revising such terms.

**The seduction of the emotional.** There is a broader cultural perspective, as well, that may promote such yearnings for a broader EI. Throughout history, philosophers and pundits alike have argued about whether to follow one’s “head” or one’s “heart.” Through much of this time, the “heads” have had the upper hand, so to speak. The Stoic tradition that thought trumps emotions is well embedded in Western philosophy. Still, at times, those with emotional urges have leapt forward to argue that the heart should be all-important. It appears that some of our writings have inspired a bit of an outbreak of that type.

And yet, viewing emotions as all-important would be a mistake, as it represents a false dichotomy (cf. Damasio, 1994). Relying on emotional characteristics, or on motives, or on any single part of personality would leave the individual unbalanced, from our perspective. A truly healthy individual has neither thought alone, nor emotion alone, but a functional integration among his or her major psychological processes. In this view, mental energy—a combination of motives and emotions—works with adaptive thinking and leads to effective behaviors, all the while being monitored, guided, and controlled, where necessary, by self-consciousness (Mayer, 2007). Being warm is not enough (although it may be pleasant); ditto exhibiting assertiveness. Rather, all its parts must come together for personality to work.

**Our viewpoint.** We agree with a number of observers of this area of study that the term emotional intelligence is used in too all-inclusive a fashion and in too many different ways (Landy, 2005; Locke, 2005; Matthews et al., 2004; Murphy, 2006). Referring in particular to the broadened definitions of EI, Locke (2005) remarked, “What does EI . . . not include?” (p. 428). We believe that there is a valid EI concept. However, we certainly agree that there is widespread misuse of the term to apply to concepts that simply are not concerned with emotion or intelligence or their intersection. The misuses of the term are, to us, invalid in that they attempt to overthrow or subvert the standard scientific language in psychology, with no apparent rationale for doing so. Other investigators similarly have pointed out that it is important to distinguish between valid and invalid uses of the concept (Daus &

Ashkanasy, 2005; Gohm, 2004); to date, however, this message has not been heeded as we believe it should be.

## Recommendations

The tradition of exaggerated tenderness in psychiatry and psychology reflects our “therapeutic attitude” and contrasts with that of scholars in fields like philosophy or law, where a dumb argument is called a dumb argument, and he who makes a dumb argument can expect to be slapped down by his peers. (Meehl, 1973, p. 228)

Those investigators interested in EI increasingly are asking for clarification of what is and is not legitimate work in the field. Murphy and Sideman (2006, p. 296) put it as a need to “succeed in separating the valid work from the hype.” One central concern of ours (and of others), here and elsewhere, has been to distinguish better from poorer approaches to EI.

From our perspective, renaming the Big Five and other classic personality traits as “emotional intelligence” reflects a lack of understanding of personality theory and undermines good scientific practice. It obscures the meaning of EI, and EI is an important enough new construct as to make that unfortunate and problematic. Only when researchers revert to using the term to refer to its legitimate meaning within the conceptual, scientific network can it be taken seriously (AERA, APA, & NCME, 1999; Cronbach & Meehl, 1955). There are a good number of researchers who understand this and who have used the term consistently in a meaningful fashion. As for the others, one of our reasons for writing this article is to convince them of the common sense of using the current personality terminology. On a very practical level, it is often impossible to evaluate a journal article purporting to study EI on the basis of keywords or the abstract: The study may examine well-being, assertiveness, self-perceptions of emotional abilities, or actual abilities.

We have provided an overview of EI in particular with an eye to helping distinguish EI from other more traditional personality variables. We have attempted to make it clearer than before where EI begins and ends and where other personality approaches pick up. Much of the mixed-model research on EI (sometimes called EQ), can be described by what Lakatos (1968, cited in G. T. Smith, 2005, p. 401) referred to as a “degenerating research program,” which consists of a series of defensive shifts in terminology and hypotheses “unlikely to yield new knowledge or understanding.”

We realize that the recommendations below may be obvious to many, even to those who have not read our article. To be as clear as we can be, however, we propose a set of simple recommendations that we believe will help to safeguard the field and foster its progress.

**Recommendation 1.** In our opinion, the journalistic popularizations of EI frequently employ inadequate and overly broad definitions of EI, implausible claims, and misunderstandings of the concepts and research more generally. We urge researchers and practitioners alike to refer to the scientific literature on emotions, intelligence, and

emotional intelligence to guide their thinking. Simply put, researchers need to cite the research literature rather than journalistic renderings of scientific concepts, which serve a different purpose.

**Recommendation 2.** Referring to the diverse approaches to EI, one research group observed, “It is precisely because of this heterogeneity that we need clear conceptualization and definition” (Zeidner et al., 2004, p. 247). To restore clarity to the study of EI, we recommend that the term *emotional intelligence* be limited to abilities at the intersection between emotions and intelligence—specifically limited to the set of abilities involved in reasoning about emotions and using emotions to enhance reasoning.

**Recommendation 3.** We recommend that those interested in EI refocus on research relevant to the ability conception of EI. This includes studies using emotional knowledge measures, emotional facial recognition ability, levels of emotional awareness, emerging research on emotional self-regulation, and related areas (e.g., Elflein & Ambady, 2002b; Izard et al., 2001; Lane et al., 1990; Mayer et al., 2003; Nowicki & Mitchell, 1998).

**Recommendation 4.** We recommend that groups of widely studied personality traits, including motives such as the need for achievement, self-related concepts such as self-control, emotional traits such as happiness, and social styles such as assertiveness should be called what they are, rather than being mixed together in haphazard-seeming assortments and named emotional intelligence.

**Recommendation 5.** Much remains unknown about EI (Matthews, Zeidner, & Roberts, 2007). Our final recommendation is that, following the clearer terminology and conceptions above, good theorizing and research on EI continue until more is known about the concept and about human mental abilities more generally. Enough has been learned to indicate that EI is a promising area for study but also that significant gaps in knowledge remain. For example, there needs to be greater attention to issues of culture and gender and their impact on theories of EI and the measurement of EI. Further progress in the measurement of EI generally also is required. Applications of EI must be conducted with much greater attention to the research literature, be grounded in good theory, and reject outlandish claims.

The MSCEIT, we believe, is a useful, integrative approach to measuring EI. At the same time, we acknowledge that the test has important limitations. For example, the present version of the MSCEIT may be insufficient to validly assess a person’s accuracy in emotional perception (e.g., O’Sullivan & Ekman, 2004; Roberts et al., 2006). In addition, its factor structure remains open for discussion (Palmer et al., 2005; Rode et al., in press). There remains room for further understanding and substantial improvement in these and other areas.

Regarding the recommendations as a whole, we realize that there are many stakeholders in this area. A number of those stakeholders would naturally hope to continue using the term *emotional intelligence* as they have been. We hope that by highlighting the valid criticism of the

overly broad uses of the term, and by recommending alternatives, we can apply some persuasion gradually to discourage such usage and make others aware of its problematic nature. That said, we continue to believe that EI is an important, newly described construct. It organizes a number of specific mental abilities having to do with identifying, understanding, managing, and using emotions; it is distinct from other constructs; it unifies a set of heretofore diverse psychological processes for examination; and it makes practical, though modest, predictions about key interpersonal behaviors.

In this article, we hope to have separated this EI from other constructs that may be important in their own right but are ill-labeled as *emotional intelligence*. By clarifying our model and discussing some of the confusion in the area, we hope to encourage researchers and practitioners to distinguish EI from other domains of study. Such distinctions will help pave the way for a healthier, more convincing, and better understood EI, one that best can serve the discipline of psychology and other fields.

## REFERENCES

- American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (1999). *Standards for educational and psychological testing*. Washington, DC: American Educational Research Association.
- Archer, D., Costanzo, M., & Akert, R. (2001). The Interpersonal Perception Task (IPT): Alternative approaches to problems of theory and design. In J. A. Hall & F. J. Bernieri (Eds.), *Interpersonal sensitivity: Theory and measurement* (pp. 161–182). Mahwah, NJ: Erlbaum.
- Averill, J. R. (1992). The structural bases of emotional behavior: A metatheoretical analysis. *Review of Personality and Social Psychology, 13*, 1–24.
- Barley, W. W. (1962). *The retreat to commitment*. New York: Knopf.
- Bar-On, R. (1997). *Bar-On Emotional Quotient Inventory: Technical manual*. Toronto, Ontario, Canada: Multi-Health Systems.
- Bar-On, R. (2004). The Bar-On Emotional Quotient Inventory (EQ-i): Rationale, description and summary of psychometric properties. In G. Geher (Ed.), *Measuring emotional intelligence: Common ground and controversy* (pp. 115–145). New York: Nova Science.
- Barrett, L. F., & Russell, J. A. (1999). The structure of current affect: Controversies and emerging consensus. *Current Directions in Psychological Science, 8*, 10–14.
- Barsade, S. G., Brief, A. P., & Spataro, S. E. (2003). The affective revolution in organizational behavior: The emergence of a paradigm. In J. Greenberg (Ed.), *Organizational behavior: The state of the science* (2nd ed., pp. 3–52). Mahwah, NJ: Erlbaum.
- Block, J. (1995). A contrarian view of the five-factor approach to personality description. *Psychological Bulletin, 117*, 187–215.
- Boyatzis, R. E., & Sala, F. (2004). The Emotional Competence Inventory (ECI). In G. Geher (Ed.), *Measuring emotional intelligence: Common ground and controversy* (pp. 147–180). New York: Nova Science.
- Brackett, M. A., Kremenitzer, J. P., Maurer, M., Carpenter, M. D., Rivers, S. E., & Katulak, N. A. (2007). *Emotional literacy in the classroom: Upper elementary*. Port Chester, NY: Dude Publishing/National Professional Resources.
- Brackett, M. A., & Mayer, J. D. (2003). Convergent, discriminant, and incremental validity of competing measures of emotional intelligence. *Personality and Social Psychology Bulletin, 29*, 1147–1158.
- Brackett, M. A., Mayer, J. D., & Warner, R. M. (2004). Emotional intelligence and the prediction of behavior. *Personality and Individual Differences, 36*, 1387–1402.
- Brackett, M. A., Rivers, S. E., Shiffman, S., Lerner, N., & Salovey, P. (2006). Relating emotional abilities to social functioning: A comparison of self-report and performance measures of emotional intelligence. *Journal of Personality and Social Psychology, 91*, 780–795.

- Brackett, M. A., Warner, R. M., & Bosco, J. (2005). Emotional intelligence and relationship quality among couples. *Personal Relationships, 12*, 197–212.
- Brody, N. (2004). What cognitive intelligence is and what emotional intelligence is not. *Psychological Inquiry, 15*, 234–238.
- Bureau of Personnel Administration. (1930). Partially standardized tests of social intelligence. *Public Personnel Studies, 8*, 73–79.
- Carlson, J. G., & Hatfield, E. (1992). *Psychology of emotion*. San Diego, CA: Harcourt Brace Jovanovich.
- Carroll, J. B. (1993). *Human cognitive abilities: A survey of factor analytic studies*. New York: Cambridge University Press.
- Ciarrochi, J. V., Chan, A. Y., & Caputi, P. (2000). A critical evaluation of the emotional intelligence concept. *Personality and Individual Differences, 28*, 539–561.
- Clare, G. L., Ortony, A., & Foss, M. A. (1987). The psychological foundations of the affective lexicon. *Journal of Personality and Social Psychology, 53*, 751–766.
- Costa, P. T., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.
- Côté, S., & Miners, C. T. H. (2006). Emotional intelligence, cognitive intelligence and job performance. *Administrative Science Quarterly, 51*, 1–28.
- Cronbach, L. J. (1960). *Essentials of psychological testing* (2nd ed.). New York: Harper & Row.
- Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin, 52*, 281–302.
- Damasio, A. R. (1994). *Descartes' error*. New York: Putnam.
- Darwin, C. (1998). *The expression of the emotions in man and animals; with an introduction, afterword, and commentaries by Paul Ekman* (3rd ed.). New York: Oxford University Press. (Original work published 1872)
- Daus, C. S., & Ashkanasy, N. M. (2003). Will the real emotional intelligence please stand up? On deconstructing the emotional intelligence "debate." *The Industrial–Organizational Psychologist, 41*, 69–72.
- Daus, C. S., & Ashkanasy, N. M. (2005). The case for the ability-based model of emotional intelligence in organizational behavior. *Journal of Organizational Behavior, 26*, 453–466.
- David, S. A. (2005). *Emotional intelligence: Conceptual and methodological issues, and its role in coping and well-being*. Unpublished doctoral dissertation, University of Melbourne, Melbourne, Victoria, Australia.
- Dawda, D., & Hart, S. D. (2000). Assessing emotional intelligence: Reliability and validity of the Bar-On Emotional Quotient Inventory (EQ-I) in university students. *Personality and Individual Differences, 28*, 797–812.
- Dunn, E. W., Brackett, M. A., Ashton-James, C., Schneiderman, E., & Salovey, P. (2007). On emotionally intelligent time travel: Individual differences in affective forecasting ability. *Personality and Social Psychology Bulletin, 33*, 85–93.
- Dyer, M. G. (1983). The role of affect in narratives. *Cognitive Science, 7*, 211–242.
- Ekman, P. (1973). *Darwin and facial expression: A century of research in review*. New York: Academic Press.
- Elfenbein, H. A., & Ambady, N. (2002a). On the universality and cultural specificity of emotion recognition: A meta-analysis. *Psychological Bulletin, 128*, 203–235.
- Elfenbein, H. A., & Ambady, N. (2002b). Predicting workplace outcomes from the ability to eavesdrop on feelings. *Journal of Applied Psychology, 87*, 963–971.
- Evans, L. A., Acosta, F. X., & Yamamoto, J. (1986). Patient requests: Correlates and therapeutic implications for Hispanic, Black, and Caucasian patients. *Journal of Clinical Psychology, 42*, 213–221.
- Frijda, N. H. (1988). The laws of emotion. *American Psychologist, 43*, 349–358.
- Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. New York: Basic Books.
- Geher, G., Warner, R. M., & Brown, A. S. (2001). Predictive validity of the Emotional Accuracy Research Scale. *Intelligence, 29*, 373–388.
- Gibbs, N. (1995, October 2). The EQ factor. *Time, 146*, 60–68.
- Gignac, G. E. (2005). Evaluating the MSCEIT V2.0 via CFA: Comment on Mayer et al. (2003). *Emotion, 5*, 233–235.
- Gohm, C. L. (2004). Moving forward with emotional intelligence. *Psychological Inquiry, 15*, 222–227.
- Goldberg, L. R. (1993). The structure of phenotypic personality traits. *American Psychologist, 48*, 26–34.
- Goldberg, L. R., & Rosolack, T. K. (1994). The Big Five factor structure as an integrative framework: An empirical comparison with Eysenck's P-E-N model. In C. F. Halverson, G. A. Kohnstamm, & R. P. Martin (Eds.), *The developing structure of temperament and personality from infancy to adulthood* (pp. 7–35). Hillsdale, NJ: Erlbaum.
- Goleman, D. (1995). *Emotional intelligence*. New York: Bantam.
- Goleman, D. (1998a). What makes a leader? *Harvard Business Review, 76*, 93–102.
- Goleman, D. (1998b). *Working with emotional intelligence*. New York: Bantam.
- Goleman, D. (2005). *Emotional intelligence* (10th anniversary ed.). New York: Bantam.
- Goodrum, S. (2005). The interaction between thoughts and emotions following the news of a loved one's murder. *Omega: Journal of Death and Dying, 51*, 143–160.
- Gosling, S. D., Rentfrow, P. J., & Swann, W. B. J. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality, 37*, 504–528.
- Guilford, J. P. (1959). *Personality*. New York: McGraw-Hill.
- Hilgard, E. R. (1980). The trilogy of mind: Cognition, affection, and conation. *Journal of the History of the Behavioral Sciences, 16*, 107–117.
- Hunsley, J., & Meyer, G. J. (2003). The incremental validity of psychological testing and assessment: Conceptual, methodological, and statistical issues. *Psychological Assessment, 15*, 446–455.
- Izard, C., Fine, S., Schultz, D., Mostow, A. J., Ackerman, B., & Youngstrom, E. (2001). Emotion knowledge as a predictor of social behavior and academic competence in children at risk. *Psychological Science, 12*, 18–23.
- James, W. (1920). *Psychology: Briefer course*. New York: Henry Holt. (Original work published 1892)
- John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 102–138). New York/London: Guilford Press.
- Kaufman, A. S. (2000). Tests of intelligence. In R. J. Sternberg (Ed.), *Handbook of intelligence* (pp. 445–476). New York: Cambridge University Press.
- Kerr, R., Garvin, J., & Heaton, N. (2006). Emotional intelligence and leadership effectiveness. *Leadership & Organization Development Journal, 27*, 265–279.
- Landy, F. J. (2005). Some historical and scientific issues related to research on emotional intelligence. *Journal of Organizational Behavior, 26*, 411–424.
- Lane, R. D., Quinlan, D. M., Schwartz, G. E., Walker, P. A., & Zeitlin, S. B. (1990). The Levels of Emotional Awareness Scale: A cognitive-developmental measure of emotion. *Journal of Personality Assessment, 55*, 124–134.
- Lazarus, R. S. (1991). *Emotion and adaptation*. New York: Oxford University Press.
- LeDoux, J. E. (2000). Emotion circuits in the brain. *Annual Review of Neuroscience, 23*, 155–184.
- Lewis, M., & Haviland-Jones. (2000). *Handbook of emotions* (2nd ed.). New York: Guilford Press.
- Lizeretti, N. P., Oberst, U., Chamarro, A., & Fariols, N. (2006). Evaluación de la inteligencia emocional en pacientes con psicopatología: Resultados preliminares usando el TMMS-24 y el MSCEIT [Assessment of emotional intelligence in patients with psychopathology: Preliminary results using TMSS-24 and the MSCEIT]. *Ansiedad y Estrés, 12*, 355–364.
- Locke, E. A. (2005). Why emotional intelligence is an invalid concept. *Journal of Organizational Behavior, 26*, 425–431.
- Lopes, P. N., Brackett, M. A., Nezlek, J. B., Schütz, A., Sellin, I., & Salovey, P. (2004). Emotional intelligence and social interaction. *Personality and Social Psychology Bulletin, 30*, 1018–1034.
- Lopes, P. N., Côté, S., Grewal, D., Salovey, P., Kadis, J., & Gall, M. (2006). Evidence that emotional intelligence is related to job perfor-

- mance, interpersonal facilitation, affect and attitudes at work, and leadership potential. *Psicothema*, *18*, 132–138.
- Lopes, P. N., Salovey, P., Côté, S., & Beers, M. (2005). Emotion regulation abilities and the quality of social interaction. *Emotion*, *5*, 113–118.
- Lopes, P. N., Salovey, P., & Straus, R. (2003). Emotional intelligence, personality, and the perceived quality of social relationships. *Personality and Individual Differences*, *35*, 641–658.
- MacLean, P. D. (1973). *A triune concept of the brain and behavior*. Toronto, Ontario, Canada: University of Toronto Press.
- Matarazzo, J. D. (1972). *Wechsler's measurement and appraisal of adult intelligence* (5th ed.). New York: Oxford University Press.
- Matsumoto, D., LeRoux, J., & Wilson-Cohn, C. (2000). A new test to measure emotion recognition ability: Matsumoto and Ekman's Japanese and Caucasian Brief Affect Recognition Test (JACBART). *Journal of Nonverbal Behavior*, *24*, 179–209.
- Matthews, G., Roberts, R. D., & Zeidner, M. (2004). Seven myths about emotional intelligence. *Psychological Inquiry*, *15*, 179–196.
- Matthews, G., Zeidner, M., & Roberts, R. D. (2002). *Emotional intelligence: Science and myth*. Cambridge, MA: MIT Press.
- Matthews, G., Zeidner, M., & Roberts, R. D. (2007). *Emotional intelligence: Knowns and unknowns*. Oxford, England: Oxford University Press.
- Maurer, M., Brackett, M., & Plain, F. (2004). *Emotional literacy in the middle school*. Port Chester, NY: Dude Publishing/National Professional Resources.
- Mayer, J. D. (1999). Emotional intelligence: Popular or scientific psychology? *APA Monitor*, *30*, 50.
- Mayer, J. D. (2003). Structural divisions of personality and the classification of traits. *Review of General Psychology*, *7*, 381–401.
- Mayer, J. D. (2005). A tale of two visions: Can a new view of personality help integrate psychology? *American Psychologist*, *60*, 294–307.
- Mayer, J. D. (2006). A new field guide to emotional intelligence. In J. Ciarrochi, J. P. Forgas, & J. D. Mayer (Eds.), *Emotional intelligence in everyday life* (2nd ed., pp. 3–26). New York: Psychology Press.
- Mayer, J. D. (2007). Personality function and personality change. In J. Ciarrochi & J. D. Mayer (Eds.), *Applying emotional intelligence* (pp. 125–143). New York: Psychology Press.
- Mayer, J. D., Caruso, D. R., & Salovey, P. (1999). Emotional intelligence meets traditional standards for an intelligence. *Intelligence*, *27*, 267–298.
- Mayer, J. D., & Cobb, C. D. (2000). Educational policy on emotional intelligence: Does it make sense? *Educational Psychology Review*, *12*, 163–183.
- Mayer, J. D., DiPaolo, M. T., & Salovey, P. (1990). Perceiving affective content in ambiguous visual stimuli: A component of emotional intelligence. *Journal of Personality Assessment*, *54*, 772–781.
- Mayer, J. D., Panter, A. T., Salovey, P., & Sitareneos, G. (2005). A discrepancy in analyses of the MSCEIT—resolving the mystery and understanding its implications: A reply to Gignac (2005). *Emotion*, *5*, 236–237.
- Mayer, J. D., Perkins, D., Caruso, D. R., & Salovey, P. (2001). Emotional intelligence and giftedness. *Roeper Review*, *23*, 131–137.
- Mayer, J. D., Roberts, R. D., & Barsade, S. G. (2008). Human abilities: Emotional intelligence. *Annual Review of Psychology*, *59*, 507–536.
- Mayer, J. D., & Salovey, P. (1993). The intelligence of emotional intelligence. *Intelligence*, *17*, 433–442.
- Mayer, J. D., & Salovey, P. (1997). What is emotional intelligence? In P. Salovey & D. Sluyter (Eds.), *Emotional development and emotional intelligence: Educational implications* (pp. 3–31). New York: Basic Books.
- Mayer, J. D., Salovey, P., & Caruso, D. R. (2000). Models of emotional intelligence. In R. J. Sternberg (Ed.), *Handbook of intelligence* (pp. 396–420). Cambridge, England: Cambridge University Press.
- Mayer, J. D., Salovey, P., & Caruso, D. R. (2002). *Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) user's manual*. Toronto, Ontario, Canada: Multi-Health Systems.
- Mayer, J. D., Salovey, P., & Caruso, D. R. (2004). Emotional intelligence: Theory, findings, and implications. *Psychological Inquiry*, *60*, 197–215.
- Mayer, J. D., Salovey, P., Caruso, D. R., & Sitareneos, G. (2001). Emotional intelligence as a standard intelligence. *Emotion*, *1*, 232–242.
- Mayer, J. D., Salovey, P., Caruso, D. R., & Sitareneos, G. (2003). Measuring emotional intelligence with the MSCEIT V2.0. *Emotion*, *3*, 97–105.
- McAdams, D. P., & Pals, J. L. (2006). A new Big Five: Fundamental principles for an integrative science of personality. *American Psychologist*, *61*, 204–217.
- McFall, R. M. (2005). Theory and utility—Key themes in evidence-based assessment: Comment on the special section. *Psychological Assessment*, *17*, 312–325.
- Meehl, P. E. (1973). Why I do not attend case conferences. In P. E. Meehl (Ed.), *Psychodiagnosis: Selected papers* (pp. 225–302). New York: Norton.
- Mesquita, B. (2001). Emotions in collectivist and individualist contexts. *Journal of Personality and Social Psychology*, *80*, 68–74.
- Meyer, G. J., Finn, S. E., Eyde, L. D., Kay, G. G., Moreland, L. K., Dies, R. R., et al. (2001). Psychological testing and psychological assessment: A review of evidence and issues. *American Psychologist*, *56*, 128–165.
- Miller, G. A. (2003). The cognitive revolution: A historical perspective. *Trends in Cognitive Sciences*, *7*, 141–144.
- Murensky, C. L. (2000). The relationships between emotional intelligence, personality, critical thinking ability and organizational leadership performance at upper levels of management. *Dissertation Abstracts International: Section B: The Sciences & Engineering*, *61*(2-B), 1121 (US: University Microfilms International ISSN/ISBN: 0419–4217).
- Murphy, K. R. (Ed.). (2006). *A critique of emotional intelligence: What are the problems and how can they be fixed?* Mahwah, NJ: Erlbaum.
- Murphy, K. R., & Sideman, L. (2006). The fadification of emotional intelligence. In K. R. Murphy (Ed.), *A critique of emotional intelligence: What are the problems and how can they be fixed* (pp. 283–299). Mahwah, NJ: Erlbaum.
- Neisser, U., Boodoo, G., Bouchard, T. J., Boykin, A. W., Brody, N., Ceci, S. J., et al. (1996). Intelligence: Knowns and unknowns. *American Psychologist*, *51*, 77–101.
- Newsome, S., Day, A. L., & Catano, V. M. (2000). Assessing the predictive validity of emotional intelligence. *Personality and Individual Differences*, *29*, 1005–1016.
- Noble, L. M., Douglas, B. C., & Newman, S. P. (1999). What do patients want and do we want to know? A review of patients' requests of psychiatric services. *Acta Psychiatrica Scandinavica*, *100*, 321–327.
- Nowicki, S. J., & Duke, M. P. (1994). Individual differences in the nonverbal communication of affect: The Diagnostic Analysis of Nonverbal Accuracy Scale. *Journal of Nonverbal Behavior*, *19*, 9–35.
- Nowicki, S. J., & Mitchell, J. (1998). Accuracy in identifying affect in child and adult faces and voices and social competence in preschool children. *Genetic, Social, & General Psychology Monographs*, *124*, 39–59.
- Oatley, K. (2004). Emotional intelligence and the intelligence of emotions. *Psychological Inquiry*, *15*, 216–221.
- Oatley, K., & Jenkins, J. M. (1996). *Understanding emotions*. Oxford, England: Blackwell.
- Ortony, A., Clore, G. L., & Collins, A. M. (1988). *The cognitive structure of emotions*. Cambridge, England: Cambridge University Press.
- O'Sullivan, M., & Ekman, P. (2004). Facial expression recognition and emotional intelligence. In G. Geher (Ed.), *Measuring emotional intelligence: Common ground and controversy* (pp. 91–111). Hauppauge, NY: Nova Science.
- Palmer, B. R., Gignac, G., Manocha, R., & Stough, C. (2005). A psychometric evaluation of the Mayer-Salovey-Caruso Emotional Intelligence Test Version 2.0. *Intelligence*, *33*, 285–305.
- Petrides, K. V., & Furnham, A. (2001). Trait emotional intelligence: Psychometric investigation with reference to established trait taxonomies. *European Journal of Personality*, *15*, 425–448.
- Petrides, K. V., & Furnham, A. (2003). Trait emotional intelligence: Behavioural validation in two studies of emotion recognition and reactivity to mood induction. *European Journal of Personality*, *17*, 39–57.
- Ployhart, R. E. (2006). The predictor response process model. In J. A. Weekley & R. E. Ployhart (Eds.), *Situational judgment tests: Theory, measurement, and application* (pp. 83–105). Mahwah, NJ: Erlbaum.
- Resnicow, J. E., Salovey, P., & Repp, B. H. (2004). Is recognition of

- emotion in musical performance an aspect of emotional intelligence? *Music Perception*, 22, 145–158.
- Roberts, R. D., Schulze, R., O'Brien, K., MacCann, C., Reid, J., & Maul, A. (2006). Exploring the validity of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) with established emotions measures. *Emotion*, 6, 663–669.
- Roberts, R. D., Zeidner, M., & Matthews, G. (2001). Does emotional intelligence meet traditional standards for an intelligence? Some new data and conclusions. *Emotion*, 1, 196–231.
- Rode, J. C., Mooney, C. H., Arthaud-day, M. L., Near, J. P., Rubin, R. S., Baldwin, T. T., et al. (in press). An examination of the structural, discriminant, nomological, and incremental predictive validity of the MSCEIT V 2.0. *Intelligence*.
- Roseman, I. (1984). Cognitive determinants of emotions: A structural theory. In P. Shaver (Ed.), *Review of personality and social psychology: Vol. 5. Emotions, relationships, and health* (pp. 11–36). Beverly Hills, CA: Sage.
- Rosete, D. (2007). *Does emotional intelligence play an important role in leadership effectiveness?* Unpublished doctoral dissertation, University of Wollongong, Wollongong, New South Wales, Australia.
- Rosete, D., & Ciarrochi, J. (2005). Emotional intelligence and its relationship to workplace performance of leadership effectiveness. *Leadership & Organization Development Journal*, 26, 388–399.
- Rubin, M. M. (1999). *Emotional intelligence and its role in mitigating aggression: A correlational study of the relationship between emotional intelligence and aggression in urban adolescents*. Unpublished doctoral dissertation, Immaculata College, Immaculata, Pennsylvania.
- Salovey, P., & Grewal, D. (2005). The science of emotional intelligence. *Current Directions in Psychological Science*, 14, 281–285.
- Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition, and Personality*, 9, 185–211.
- Saucier, G., & Goldberg, L. R. (1998). What is beyond the Big Five? *Journal of Personality*, 66, 495–524.
- Scherer, K. R. (1993). Studying the emotion-antecedent appraisal process: An expert system approach. *Cognition and Emotion*, 7, 325–355.
- Schneider, T. R., Lyons, J. B., & Williams, M. (2005). Emotional intelligence and autonomic self-perception: Emotional abilities are related to visceral acuity. *Personality and Individual Differences*, 39, 853–861.
- Solman, A., & Croucher, M. (1981). Why robots will have emotions. In P. J. Hayes (Ed.), *Proceedings of the Seventh International Joint Conference on Artificial Intelligence* (Vol. 1, pp. 197–202). San Francisco: Morgan Kaufmann.
- Smith, C. A., & Ellsworth, P. C. (1985). Patterns of cognitive appraisal in emotion. *Journal of Personality and Social Psychology*, 48, 813–838.
- Smith, G. T. (2005). On construct validity: Issues of method and measurement. *Psychological Assessment*, 17, 396–408.
- Solomon, R. C. (2000). The philosophy of emotions. In M. Lewis & J. M. Haviland-Jones (Eds.), *Handbook of emotions* (pp. 3–15). New York: Guilford Press.
- Sternberg, R. J. (1985). Human intelligence: The model is the message. *Science*, 230, 1111–1118.
- Strongman, K. T. (1996). *The psychology of emotion: Theories of emotion in perspective* (4th ed.). Oxford, England: Wiley.
- TenHouten, W. D., Hoppe, J. E., Bogen, J. E., & Walter, D. O. (1985). Alexithymia and the split brain: IV. Gottschalk-Gleser content analysis, an overview. *Psychotherapy and Psychosomatics*, 44, 113–121.
- Tett, R. P., Fox, K. E., & Wang, A. (2005). Development and validation of a self-report measure of emotional intelligence as a multidimensional trait domain. *Personality and Social Psychology Bulletin*, 31, 859–888.
- Thompson, L., & Fine, G. A. (1999). Socially shared cognition, affect, and behavior: A review and integration. *Personality and Social Psychology Review*, 3, 278–302.
- Thorndike, E. L. (1920). Intelligence and its uses. *Harper's Magazine*, 140, 227–235.
- Thorndike, E. L., & Stein, S. (1937). An evaluation of the attempts to measure social intelligence. *Psychological Bulletin*, 34, 275–285.
- Trinidad, D. R., & Johnson, C. A. (2002). The association between emotional intelligence and early adolescent tobacco and alcohol use. *Personality and Individual Differences*, 32, 95–105.
- Walker, R. E., & Foley, J. M. (1973). Social intelligence: Its history and measurement. *Psychological Reports*, 33, 839–864.
- Watkin, C. (2000). Developing emotional intelligence. *International Journal of Selection and Assessment*, 8, 89–92.
- Wechsler, D. (1943). Non-intellective factors in general intelligence. *Journal of Abnormal and Social Psychology*, 38, 101–103.
- Wechsler, D. (1997). *WAIS III: Wechsler Adult Intelligence Scale* (3rd ed.). San Antonio, TX: The Psychological Corporation.
- Wilson, M. E., Brackett, M. A., DeRosier, M. E., & Rivers, S. E. (2007). *Emotional literacy in the classroom: Kindergarten, first grade, second grade*. Cary, NC: SELmedia.
- Young, P. T. (1943). *Emotion in man and animal: Its nature and relation to attitude and motive*. New York: Wiley.
- Zeidner, M., Matthews, G., & Roberts, R. D. (2001). Slow down, you move too fast: Emotional intelligence remains an “elusive” intelligence. *Emotion*, 1, 265–275.
- Zeidner, M., Roberts, R. D., & Matthews, G. (2004). The emotional intelligence bandwagon: Too fast to live, too young to die? *Psychological Inquiry*, 15, 239–248.