TARGET ARTICLES

Seven Myths About Emotional Intelligence

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Inspired by an influx of academic research, the writing of several best-selling trade texts, and frequent media exposure, emotional intelligence (EI) has emerged recently as one of the most high profile of the psychological constructs (Matthews, Zeidner, & Roberts, 2002). The concept has also prospered due to both cultural trends and orientations that stress the previously neglected role of the emotions (with some claiming it constitutes a zeitgeist) and to increasing efforts at standardized assessment of individual differences in EI (Mayer, Salovey & Caruso, 2000a). Common claims suggest that tests for EI are predictive of important educational and occupational criteria, beyond that proportion of variance that general intellectual ability predicts. Thus, the field has increasingly important implications for society, particularly in the impetus to improve emotional functioning in real life. Proponents of EI claim that individuals can enjoy happier and more fulfilled lives if they are aware of both their own emotions and those of other people and able to regulate those emotions effectively. Another reason for the widespread, often uncritical, embracing of the EI construct is the suggestion that EI gives hope for a more utopian, classless society. This vision for the future stands in contrast to research suggesting a preordained “cognitive elite” (Herrnstein & Murray, 1994) because EI is within anyone’s realm to learn and cultivate. Goleman’s (1995) widely read book claims that raising EI is a panacea for all manner of psychological and social problems.

Despite the seeming importance of these claims, scientific investigation of a clearly identified construct of EI is sparse. Many of the current propositions presented in both the populist and specialist literature have little empirical substance (Matthews, Zeidner et al., 2002). Stripped of scientific trappings, it remains plausible that EI is nothing but the latest in a long line of psychological fads. On the other hand, because systematic scientific research is just beginning, EI could indeed mature into a construct that is theoretically meaningful, empirically important, and practically useful. In this article, we examine seven myths about EI, that is, strong, widely believed claims that purportedly give the concept of EI scientific credibility. In each case, we identify weaknesses in evidence and argument that challenge the value of the EI construct. Today’s myth could become tomorrow’s accepted wisdom, or it could be conclusively falsified. For each claim, we also evaluate the likelihood that it will eventually be substantiated by research. This article focuses on what we see as the key shortcomings of current work on EI and the prospects for an eventual science of EI. However, we also acknowledge the intrinsic interest of the subject material and the various research efforts inspired by the concept. Our aim is not to dismiss work on EI out of hand, but to examine where the first wave of research on the construct is meeting barriers to progress, and whether those barriers can be overcome.

Myth 1: Definitions of EI are Conceptually Coherent

Proponents assert EI is a conceptually coherent construct covering a wide array of emotional, social, and
personal competencies (e.g., Bar-On, 2000). However, examination of the literature suggests there is no clear, consensual definition of EI, and the multitude of qualities covered by the concept appears at times overwhelming (Roberts, 2001). Conceptualizations of EI range from an ability for processing information that is applied to emotions, subject to principles governing the intellect (e.g., Mayer, Salovey et al., 2000a), to a complex interaction of qualities of emotions, mood, personality, and social orientation applied in both interpersonal and intrapersonal situations (Bar-On, 2000). Thus, Mayer and Salovey (1997) construed EI as the capacity to reason about emotions. This formulation includes the ability to accurately perceive, appraiser, and express emotions; the ability to access or generate feelings that facilitate thought; the ability to understand emotions and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth. Goleman (1995), on the other hand, defined EI by exclusion—EI represents all those positive qualities that are not IQ. Thus, he proudly pronounced: "There is an old-fashioned word for the body of skills that emotional intelligence represents: character" (p. 34). In contrast, Bar-On (1997) characterized EI as "an array of non-cognitive capabilities, competencies, and skills that influence one's ability to succeed in coping with environmental demands and pressures" (p. 14). Thus, there is little agreement over whether EI represents a cognitive aptitude for processing emotional stimuli, attributes of personality such as integrity and character, or some facility for adapting to challenging situations. The range and scope of definitions that currently exist within the literature make inevitable comparisons between the science of EI and the allegory underlying the Tower of Babel.

Zeidner, Matthews, Roberts, and McCann (2003) reviewed developmental evidence suggesting at least three qualitatively different types of construct that can plausibly labeled EI. First, the child's temperament, influenced by biology and genetics, can affect the social interactions with caregivers and others that shape emotional development. For example, distress-prone children can elicit poorer quality parenting, especially as these children and parents share common genes for personality that can increase the likelihood of mutual frustration or withdrawal from social engagement (e.g., Kochanska & Coy, 2002). Second, emotion regulation depends on culture-bound learned skills that include rules for experiencing appropriate feelings, displaying emotion, and coping with emotional problems (Denham, 1998). Such skills can be both implicit and explicit. Lack of EI can reside in part in faulty learning or in learning that proves to be inappropriate for new situations to which the person is exposed. Third, emotional discourse builds insightful, personalized emotional understanding that provides the person with the capacity for self-evaluation and self-reflection (Saarni, 2000). It is possible that these different elements of emotion regulation are interrelated; temperament can shape skill acquisition, which in turn shapes self-awareness, as articulated in our investment model of emotional competence (Zeidner et al., 2003). However, there is only limited evidence for such a conceptualization, and it could be the case that competence depends on multiple constructs that are only weakly interrelated.

There are also some issues that could be problematic for all these various conceptualizations. First, the causal status of EI as an influence on behavior is often unclear. Within a conventional differential psychology model, the construct should influence or bias behaviors and the outcomes of emotional encounters. However, especially in the writings of Goleman (1995) and Bar-On (1997), the distinction between cause and effect is blurred. For example, Bar-On (1997) referred to happiness and positive mood as components of EI, whereas positive emotions could be better seen as outcomes, dependent on successful resolution of challenging encounters. Second, it is assumed that EI generalizes across qualitatively different kinds of event and challenge (e.g., that a person who is adept at managing anger is also capable of dealing with situations that evoke fear, sexual attraction, or boredom). This assumption appears to conflict with basic emotions theories that propose that each emotion is supported by a distinct neuropsychological system (e.g., Panksepp, 1998) and with the cruder distinction between positive affect and negative affect as independent systems. Remarkably, the generality of EI across emotions has not been tested empirically. An alternative position is that emotional competence is linked to specific emotions or contexts, such as intimate relationships, the workplace, and making use of leisure time. Indeed, EI could be seen as a form of goodness of fit between the person and the social environment (Zeidner, Matthews, & Roberts, 2001). We can function more adaptively when our beliefs about emotion are congruent with the beliefs of others around us, irrespective of whether those beliefs are veridical.

A third issue is that most models of EI assume that it can be assessed via declarative knowledge. That is, individuals can either directly report on those personal qualities that constitute EI or they can describe their evaluations of emotional stimuli and what actions they might take in response to such stimuli. However, studies of skill (e.g., Anderson, 1996) suggest that much expertise is procedural in nature; the person can perform the skill with competence, but has little conscious awareness of the processes that support expertise. Conceivably, emotional expertise could be implicit rather than explicit, requiring measures based on behavioral assessment, such as response times in information-processing tasks or observation of competence in real-life settings. For example, the academic knowledge of
emotions and intelligence, could lead to more general agreement concerning the frames of reference under which the concept of EI might be investigated.

**Myth 2: Measures of EI Meet Standard Psychometric Criteria**

Since the term EI first appeared, there has been a rapid propagation of measures to assess the construct (for reviews, see Ciaramelli, Chan, Caputi, & Roberts, 2001; Matthews, Zeidner et al., 2002; Roberts, Zeidner, & Matthews, 2001). Not surprisingly, the content of each of these tests tends to vary as a function of the theoretical conceptualization (Mayer, Salovey et al., 2000a, Mayer, Salovey, & Caruso, 2000b), meaning again that there could be little commonality between instruments (Zeidner et al., 2001). Nevertheless, it is possible to classify these measures into two main families of assessment tools: self-report (i.e., typical) and performance-based (i.e., maximal) measures. Self-report measures generally sample a diversity of constructs and hence assume a mixed model of EI (i.e., a combination of both ability and personality traits). A number of problems and serious omissions currently plague the research on EI that employs the self-report methodology (see the following discussion). To combat such problems, Mayer, Caruso, and Salovey (1999) suggested that performance-based measures, akin to those found in the intelligence literature, are requisite for EI to assume the status of a legitimate cognitive

**Table 1. Some Alternative Conceptualizations of EI**

<table>
<thead>
<tr>
<th>Conceptualization</th>
<th>Examples of High EI Qualities</th>
<th>Possible Assessment Techniques</th>
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<tbody>
<tr>
<td>Temperament</td>
<td>A basic tendency to be positive, optimistic, and agreeable</td>
<td>Personality questionnaires</td>
</tr>
<tr>
<td>Character</td>
<td>Self-control, motivation, integrity, and morality</td>
<td>Personality questionnaires? Assessment of moral values may be problematic</td>
</tr>
<tr>
<td>Basic aptitudes for processing emotions</td>
<td>Fast and accurate perception, memory-retrieval, and reasoning</td>
<td>Objective performance on information-processing processing task (e.g., emotion Stroop)</td>
</tr>
<tr>
<td>Adaptiveness</td>
<td>Successful coping with life challenges and demands that elicit emotion</td>
<td>Questionnaire or observation-based assessment of coping resources</td>
</tr>
<tr>
<td>Acquired implicit skills</td>
<td>Accurate unconscious processing of culture-specific events, nonverbal behaviors that support social interaction</td>
<td>Uncertain—Two possibilities are (a) observation/measurement of relevant behaviors, and (b) use of unconscious priming techniques</td>
</tr>
<tr>
<td>Acquired explicit skills</td>
<td>Knowledge of other people’s beliefs about emotion, availability of consciously accessible strategies for emotion regulation</td>
<td>Standardized tests assessing specific beliefs</td>
</tr>
<tr>
<td>Insightful self-awareness</td>
<td>Consciously accessible self-beliefs and metacognitions that support personalized emotion regulation</td>
<td>Uncertain—Some beliefs may be assessed by questionnaires; others may require “clinical” interview</td>
</tr>
<tr>
<td>Good emotional person–environment fit</td>
<td>Congruence of personal knowledge of emotion with the beliefs of the surrounding culture</td>
<td>Uncertain—Cultural environment must be assessed independently from personal attributes</td>
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*Note. EI = emotional intelligence.*
ability. This proposition has resulted in development of the Multi-factor Emotional Intelligence Scale (MEIS) and its successor, the Mayer–Salovey–Caruso Emotional Intelligence Scale (MSCEIT).

Determining whether EI is a measurable quality is central to its development as a scientific construct. In common with many individual difference constructs, much EI research proceeds via an (albeit questionable) operational definition, with the aim of developing a test with acceptable measurement properties. The focus then turns to conducting further empirical research to develop a more articulate theory of the biological and psychological processes that supports the construct assessed by the test. The rich history of psychological assessment has provided a series of psychometric principles for determining what are acceptable measurement properties of psychological tests. Thus, based on internationally acclaimed opinion and research (see e.g., Anastasi & Urbina, 1997), the ideal EI test should minimally satisfy each of the following four standard psychometric criteria.

Content Validity

This criterion deals with conceptualization issues and the decision regarding qualities should be accepted or excluded as components of EI. For example, if a test is to serve as an emotion perception measure, developers need to ensure that test items cover all major aspects of the area and in the correct proportions. Thus, such a test should probably cover the perception of emotions in faces, music, abstract designs, human interaction, and colors (to name but a few that have established literatures surrounding them). Moreover, test developers should not focus exclusively on one type of perception (e.g., happiness) to the exclusion (and detriment) of other basic emotions (e.g., fear, anger, sadness, disgust, surprise, etc.).

Content validity is difficult to ascertain when the candidate psychological test measures an ill-defined trait (Gregory, 1996). Interestingly, one of the primary methods used for ascertaining content validity in the past has been the consensual judgment of experts in the field, such that content validity can actually be quantified (see e.g., Hambleton, 1984; Lawshe, 1975). To date, it is curious that such techniques have not been utilized with the myriad psychological tests supposedly assessing EI that have appeared recently in the psychological literature.

Reliability

For EI to exist as a scientifically meaningful individual difference construct, people must differ reliably across its major dimensions. If a person takes the same test on two occasions, the scores obtained both times should be similar. This is termed test-retest reliability. If performance is inconsistent, then whatever is being measured can be taken to be unstable and of questionable utility. Important also is the extent to which responses people give on items within the same test correlate with other items of the test (i.e., internal consistency reliability).

Self-report measures of EI show satisfactory internal consistency reliability across a variety of cultures, as well as decent levels of test-retest reliability over 1- and 4-month periods (Bar-On, 1997, 2000). The average subtest alpha coefficients range from a low of .69 to a high of .86, with an overall average of internal consistency coefficient of .76 for the seven countries examined in the EQ-i manual (Bar-On, 1997). By contrast, the scoring of performance-based measures of EI have been reported to suffer from a number of problems in relation to reliability. To begin with, some subtests comprising the MEIS (and also, the MSCEIT) fail to exhibit satisfactory levels of internal consistency reliability. Thus, in their psychometric analyses of scores obtained from the MEIS, Mayer, Caruso, and Salovey (2000) demonstrated that reliabilities ranged from a very low .49 to a very high .94 for consensus scores; Ciarrochi, Chan, and Caputi (2000) obtained similar results. Clearly, some of these reliabilities are not in the acceptable range, certainly when intended to be used in applied settings for selection, intervention, and treatment purposes (see Anastasi & Urbina, 1997). For expert scores, the reliabilities obtained by Mayer, Caruso et al. (2000) were even lower, ranging from .35 to .86. Consequently, the accuracy of measurement is a function of the scoring procedure. Given the variation of reliabilities with disparate scoring procedures, more detailed attention needs to be given to investigating the reliability of performance-based measures of EI.

In addition, the reliability of subtests that form the highest branches of the model, and are thus probably the most important components for prediction of real-world social behaviors (e.g., progressions, managing others), are among the poorest in this battery. Recently, however, we have begun to bring various statistical scaling techniques to bear on this issue, such as the Method of Reciprocal Averages (MRA), with promising results (McCann, Roberts, Matthews, & Zeidner, 2004).

Predictive Validity

EI measures should predict important practical outcomes of emotional life—if not, the test is of little use. These outcomes could include how well people deal with stress, how effective they are at maintaining intimate relationships, how respected they are by their
peers, and how well they deal with others in emotional turmoil (Ciarrochi et al., 2001). In organizational psychology, in particular, the extent that a given psychological test satisfies this criterion has, in recent years, become one of the hot topics of that field (see e.g., Schmidt & Hunter, 1998). Applied studies show that the claim typically made in the popular literature that EI is superior to measures of cognitive intelligence in predicting job performance appears to be spurious (Zeidner, Matthews, & Roberts, 2004).

Only a few studies have addressed the predictive validity of EI tests in laboratory settings, so far, with mixed results (for a review, see Matthews, Zeidner et al., 2002). Much of the validation effort has been directed toward criteria relating to personal adjustment (i.e., wellbeing, life satisfaction, absence of psychopathology). The EQ-i (Bar-On, 1997) is quite predictive of such criteria, but validity in this instance could be largely the product of overlap of the EQ-i with the Big Five and related traits such as anxiety, which we address further in the following discussion. The SSRI (Schutte Self-Report Inventory; Schutte et al., 1998) also predicts criteria such as life satisfaction, social support, and low levels of depression and life stress (Ciarrochi, Chan, & Bagar, 2001; Ciarrochi, Deane, & Anderson, 2002; Saklofske, Austin, & Minski, 2003), although it too shares much variance with established personality traits. The last two studies cited found some evidence for discriminant validity of the SSRI with respect to the Big Five (Saklofske et al., 2003) and trait hopelessness (Ciarrochi et al., 2002). However, in all cases, the additional variance in criteria explained was small (< 5%). Questionnaire measures of EI, especially the SSRI, can add modestly to the predictive power of standard personality traits. However, the additional variance explained in criteria relating to personal adjustment is too small to justify the identification of self-report EI as a major individual difference factor akin to general intelligence or the Big Five. The research is also limited by its reliance on self-report criteria. Furnham, Petrides, and Spencer-Bowdage (2002) found that high EI individuals tend to be repressors, who suppress their negative emotions, suggesting a possible bias in self-reports of adjustment.

Ability-like tests for EI also predict criteria related to adjustment and adaptation, but correlations are typically more modest than for self-report measures. Studies of the MEIS (e.g., Mayer et al., 1999) suggest that this index of EI correlates significantly with life satisfaction, self-report social skills, and needs and parental warmth; typically correlations are in the range from .15 to .30. Trinidad and Johnson (2002) showed that MEIS scores are depressed in adolescents prone to smoke cigarettes or consume alcohol. Studies are also beginning to establish validity for the MSCEIT. Lopes, Salovey, and Straus (2003) correlated the MSCEIT with a range of self-reported social adjustment measures in a sample of 103 college students. The MSCEIT Managing Emotions subtest correlated significantly (in the range from .22 to .36) with several of these measures, including social skills, positive relations with others, and lack of negative interaction with close friends. Most of the correlations remained significant, though of small magnitude, when the Big Five were controlled. Matthews, Emo, Funke, Zeidner, and Roberts (2003) found that the MSCEIT predicted more positive initial mood, even with the Big Five controlled, but failed to predict reduced stress response to performing various demanding tasks. Thus, as with self-report measures, it is difficult to say if the glass is half full or half empty. Ability tests do add to predictive validity for some criteria, but only modestly. Again, it is a limitation that almost all the criteria used in these studies are based on self-report.

It is also unclear from the validation studies whether the four branches of the MSCEIT index some common overarching ability that supports social adaptation or whether each branch exerts a separate influence. The study by Lopes et al. (2003) suggests that only the Managing Emotions branch was consistently related to better adjustment. Ciarrochi et al. (2002) obtained data suggesting that Emotion Perception could even have some maladaptive effects. “Emotionally perceptive people appear to be more strongly impacted by stress than their less perceptive counterparts, expressing higher levels of depression, hopelessness, and suicidal ideation” (p. 205; i.e., when daily hassles were at a high level). Individuals low in emotion perception (i.e., emotionally unintelligent) can be protected against stress due to suppression of awareness of hassles or of their negative impact.

**Construct Validity**

Construct validation is the process of testing whether a test actually measures some theoretical construct or trait (Anastasi & Urbina, 1997). The demonstration of construct validity rests on a systematic program of research using diverse procedures. For successful evaluation of the construct validity of a test, a variety of evidence from numerous sources should be accumulated that support theoretical understanding of the construct. Pivotal questions include resolving whether the test measures empirically what it claims to measure theoretically and determining the kinds of relations with non-test criteria that the theory predicts exist (Gregory, 1996). For example, tests of EI could be required to pass some of the same empirical tests as a cognitive ability measure (e.g., see Roberts et al., 2001). In addition, one of the most important forms of construct validation involves ascertaining convergent and discriminant validity (Campbell & Fiske, 1959).
test should correlate highly with other variables that
the theory specifies should relate to the underlying
construct. Thus, alternative tests of EI should intercorrelate highly. Conversely, the test should not correlate highly with theoretically unrelated variables and, if it does, the test could be measuring something other than the construct targeted for measurement and it could indeed be redundant with existing measures.

Establishing construct validity is hindered by lack
of theory-based specification of EI. Just as current theo-
ry of cognitive intelligence is informed by studies of
individual differences in information-processing, so
too a theory of EI requires a description of the key cog-
nitive and neural processes that support the
psychometric construct and an account of how individ-
ual differences in processing support real-world adap-
tation (Matthews & Zeidner, 2000). Unfortunately,
current theory refers to general functions more than to
specific processes. For example, accurate emotion per-
ception is an element of most theories (e.g., Mayer,
Salovey et al., 2000a). However, emotion perception is
itself supported by a variety of qualitatively different
types of processing, including (a) subcortical stimulus
analysis (e.g., in the amygdale), (b) learned implicit
processing such as biasing by cultural stereotypes, (c)
use of relevant contextual information, and (d) con-
sciously accessible reflection on emotional meaning.
It is unclear whether individual differences in these
different levels of processing cohere around a common
construct or map in any simple way onto better or
worse adaptation to emotional events.

Given that theory should be process-based, it is cu-
rious that very few published studies of EI have em-
ployed experimental paradigms that assess these
processing routines from objective behavioral mea-
sures such as reaction time, such as the emotional
Stroop task, that measures diversion of attention from
naming the ink color of words onto the emotional
meanings of the words (cf. Matthews, Zeidner & Rob-
study in which, contrary to theory, individuals higher
in EI appeared to be more prone to distraction by the
word content (see also Matthews, Zeidner et al., 2002).
Use of information-processing tasks provide precisely
controlled conditions whereby explanatory models of
EI can be tested, refined, or otherwise developed
(Kyllonen & Roberts, in press).

Thus, despite some genuine progress, especially in
the ability-testing field, neither performance-based nor
self-report approaches to the assessment of EI cur-
rently meet all four of the Anastasi and Urbina (1997)
criteria. In addition, there is a major disjunction be-
tween self-report and performance-based approaches
to EI. A curiosity of the field is the neglect of the con-
vergence of the two types of construct. Bar-On (2000)
cited an unpublished study suggesting a correlation of
only .46 between his questionnaire and the
Mayer-Salovey measure, implying that that the two
constructs are actually rather different. Ciarrochi et al.
(2002) showed that emotion perception as assessed ob-
jectively was unrelated to self-report emotion percep-
tion, measured by the SSR.

Both approaches raise some special problems for
test development, which we address next. The problem
for the questionnaire-based approach is that self-re-
ports of EI may not be distinct from other concepts as-
essed in this fashion, especially an array of
personality constructs. The problem for the per-
formance-based approach is that it requires veridical
scoring of test items, just as cognitive intelligence tests do.
It is to detailed discussion of these two issues, in turn,
that this critique now turns.

Myth 3: Self-Report EI is Distinct
From Existing Personality Constructs

Self-report indexes generally ask a person to en-
dorse a series of descriptive statements, usually on
some form of rating scale. For example, in the Schutte
Self-Report Inventory (Schutte et al., 1998) individu-
als rate themselves from 1 (strongly disagree) to 5
(strongly agree) on 33 statements (e.g., “I know why
my emotions change”). It is worth noting of this meth-
ology that self-perceptions of EI can be inaccurate,
being vulnerable to the range of response sets and so-
cial desirability factors afflicting self-report measures,
as well as deception and impression management. In-
deed, emotional competence cannot be consciously
accessible. For example, questionnaire scales for
empathy in fact fail to predict objective measures of
empathic accuracy (i.e., rating the emotions and per-
sonality characteristics of others; Davis & Kraus,
1997). Ironically, empathic accuracy is better pre-
dicted by conventional intelligence (Lippa & Dietz,
2000). Similarly, self-report and objectively-assessed
emotion perception are uncorrelated (Ciarrochi et al.,
2002). Such problems are, of course, common to all
scales based on self-report, including personality as-
essment. To counteract this criticism in other fields in
which self-reports are used, researchers have devised
a number of procedures, including comparing self-as-
sessed responses to reports provided by a respondent’s
peers (e.g., see Costa & McCrae, 1992). However, val-
ification studies of this type have not been conducted with
respect to the vast majority of self-report measures of
EI, but are urgently needed (see Roberts et al., 2001).

It is also questionable whether items asking stu-
dents to appraise intellectual ability (e.g., “I am an
extremely intelligent student”) would make for a valid
measure of cognitive intelligence. Under the assump-
tion that EI constitutes a traditional form of intelli-
gence, the usefulness of analogous items about one’s
EI seems doubtful. Note that past research has reported
rather modest associations between self-rated and actual ability measures. A meta-analytic review of 55 studies by Mabe and West (1982) yielded a mean correlation (i.e., validity coefficient of self-rating) of .34 between self-evaluations of intelligence and objective intelligence test scores. More recent studies (e.g., see Paulhus, Lysy, & Yik, 1998) concur that the correlations between self-reports of intelligence and mental test performance tend to be rather modest (about \( r = .30 \)). Furthermore, those who are truly lacking in performance skill often make inflated self-assessments of ability (Kruger & Dunning, 1999).

Moreover, tests of EI that assess general dispositions (e.g., assertiveness, optimism, impulse control) are tapping dimensions of individual differences that relate to established personality constructs rather than to contemporary notions of what constitutes intelligence (Davies, Stankov, & Roberts, 1998; Matthews, Zeidner et al., 2002; Roberts et al., 2001). Notwithstanding, empirical data pointing to the substantial relation between EI and existing personality measures have, curiously, actually been used in support of the validity and conceptual soundness of EI (e.g., Bar-On, 2000). Bar-On’s (1997) own data shows a correlation of \(-.85\) between the EQ-i and the Derogatis (1973) Symptom Checklist-90, and Newsome, Day, and Catano (2000) found that EQ-i was correlated at \(-.77\) with trait anxiety. A recent study by Dawda and Hart (2000) revealed average correlations approaching \(.50\) between measures of the Big Five personality factors (i.e., neuroticism, extraversion, openness, agreeableness, and conscientiousness) and Bar-On’s EQ-i measure. Petrides and Furnham (2001) obtained similar results; in their study, the multiple correlation for EQ-i predicted from all five factors was \(.84\) (K. Petrides, personal communication, July 2, 2001).

These data suggest that the EQ-i is little more than a proxy measure of a composite of Big Five personality constructs, weighted most strongly toward low neuroticism. As previously discussed, two studies (Ciavrochi et al., 2002; Saklofske et al., 2003) suggest discriminant validity for the SSRI with respect to personality measures, but the same incremental validity in prediction could probably be achieved by use of established midlevel or primary traits such as self-esteem, optimism–pessimism, or empathy. Petrides and Furnham (2001) supposed that self-report EI constitutes a lower order primary personality trait placed one level below the Big Five in a multistratum model, but its distinctiveness from other, related primary traits is unclear.

There is still a further problem with self-report measures of EI that can constitute a definitive criticism to the claim that they are assessing anything in common with general intelligence. A recent Dutch study evaluated the relation between Bar-On’s EQ-i and the General Adult Mental Ability scale, a measure of fluid intelligence (Derksen, Kramer, & Katzko, 2002). Results indicated that the correlations between the EQ-i and the General Adult Mental Ability scale were very low, both for the total sample as well as the sexes separately. These findings indicate that the two tests are psychometrically independent—that the EQ-i is measuring something other than an “intelligence”. Newsome et al. (2000) also found that the EQ-i failed to predict both cognitive ability and academic achievement in a sample of 160 Canadian college students. Subsequently, we have found near zero correlation between the Schutte Self-Report Inventory and a number (and range) of measures of fluid and crystallized intelligence (see Garcia, Roberts, Rouse, Zeidner, & Matthews, 2004). Thus, questionnaire measures tend to be deficient in both convergent and divergent validity—theyir correlations with other intelligence factors are too low (failure of convergent validity) and their correlations with personality factors are too high (failure of divergent validity).

**Myth 4: Ability Tests for EI Meet Criteria for a Cognitive Intelligence**

A commonly held belief is that EI meets the criteria required for a traditional, cognitive intelligence test. Proponents of EI claim that available data support the notion that EI meets conceptual, psychometric, and developmental criteria needed before EI can be considered to constitute a legitimate scientific domain and thus a legitimate form of intelligence (Mayer & Salovey, 1997; Mayer, Caruso, & Salovey, 1999; Mayer, Salovey, Caruso, & Sitarenios, 2001).

The most important criterion is that the intelligence in question is capable of being operationalized as a set of abilities (in this case, emotion-related abilities) that have clearly defined performance components. Thus, EI should be capable of reflecting cognitive performance rather than nonintellective attainments or preferred ways of behaving (Mayer et al., 1999). It must therefore be possible to categorize answers to stimuli assessing various facets of feelings as correct or incorrect (Mayer & Salovey, 1997).

As a rule, intelligence test items are based on some formal, rule-bound system that indicates unequivocally whether an answer is correct. Various formal systems are used depending on item content, such as mathematics (numerical tests), logic (reasoning tests), geometry (spatial tests), and the semantics of language (verbal tests). There is generally a clear rationale for justifying the correctness of an answer, and it is rare for well-informed people to dispute the correct answer to an item. By contrast, the emotionally intelligent response to a real-life problem is often unclear or depends on the exact circumstances. Thus, the question
remains as to how to score an emotional ability test item as being emotionally intelligent.

Performance-based measures of EI employ three methods of scoring that have been used previously, particularly in measuring creative, social, and practical intelligence: expert scoring, target judgment, and group consensus. However, all of these methods have problematic aspects for the instantiation of EI. Thus, expert judgment occurs when an expert (or team of experts) decides the best answer to each question. However, no criteria exist for deciding who is an expert in the domain of the emotions. To choose the expert according to the EI test scores (of which experts judge the tests) is also less than satisfactory as the designation of high EI because it is circular. The target scoring method, on the other hand, involves the creator of the stimuli determining the correct answer. Problems with this method are in the target not being able to accurately express the emotion that they are feeling or perhaps becoming prosocial when making their reports.

The third method, consensus scoring, allocates a score to each option according to the percentage of people choosing that option. This method effectively scores an option as indexing greater or lesser levels of EI rather than scoring simply as right or wrong. Consensus scoring *sui generis* excludes identification of difficult items on which, say, only the 10% most able individuals pick the correct answer, and the consensus answer is incorrect. Thus, consensus scoring is likely to lead to special problems at the top end of the scale, especially in distinguishing the “emotional genius” from the normally functioning, emotionally competent person. If a test item asks about an especially difficult emotional encounter, by definition, only a relatively small percentage of exceptionally gifted persons will answer correctly, meaning that the consensus answer will certainly be incorrect. Statistically, consensually scored tests tend to have high levels of kurtosis and negative skew, and thus statistical analysis assuming multivariate normality cannot be validly applied to them, although use of the MRA technique can address some of these issues (MacCann et al., 2004). Another difficulty with consensus scoring, prevalent in performance-based measures of EI, is that people are living in increasingly multicultural societies with a variety of social norms, so normative values to be applied vary from setting to setting. Consequently, the MEIS and MSCEIT can be more effective in screening for “emotional stupidity” rather than discriminating levels of EI at the upper end of the range. Reliabilities for this scoring method have differed dramatically for different studies (Matthews, Zeidner et al., 2002). Thus, the veridical criterion against which responses can be scored as correct or incorrect, needed for defining intelligence, has not yet been satisfied by EI.

Empirically, Mayer, Salovey, Caruso, and Sitarenios (2003) found a high level of agreement between expert and consensus scoring of the MSCEIT, correcting the poor convergence of these forms of scoring reported for the MEIS (Roberts et al., 2001). This finding is a significant advance in reliability, but it does not necessarily show validity because there are various interpretations of expert–consensus convergence. First, experts can make their judgments on the basis of general cultural beliefs rather than special expertise. Second, both expert and consensus beliefs could reflect conformity and goodness of fit rather than ability per se (Zeidner et al., 2001). The person who shares the consensual cultural beliefs about emotion is likely to fit in better with society than the person whose beliefs are atypical. Experts could indeed rate the beliefs and behaviors that are normative for Western culture as being more “intelligent” than those that are more deviant. However, because it is the match between person and cultural environment that is critical, conformity with cultural values should not be seen as an intelligence.

There are further criteria for deciding whether a construct conforms to standards for an intelligence (Mayer et al., 1999). In general, studies of the MEIS and MSCEIT do meet criteria corresponding to convergent and divergent validity. Mayer et al. (1999) showed that the MEIS correlated with verbal intelligence, although the test used (the Army Alpha) is seldom employed in contemporary investigations of cognitive ability. Roberts et al. (2001) confirmed, in a large-scale study, involving U.S. Air Force recruits given the MEIS and the Armed Services Vocational Aptitude Battery (ASVAB), that there are moderate correlations between general intelligence and all four branches of EI. By contrast, Ciarrochi et al. (2000) found near zero correlations between general EI (measured by total MEIS scores) and the Ravens Standard Progressive Matrices (RSPM), in a relatively small sample. The MEIS can relate more to crystallized intelligence (measured by the ASVAB) than to fluid intelligence, measured by the Ravens Standard Progressive Matrices. The MEIS and MSCEIT also show good divergent validity from personality measures. Correlations with high agreeableness, low neuroticism, and high conscientiousness are those most frequently reported (e.g., Lopes et al., 2003; Roberts et al., 2001), but correlation magnitudes are typically less than .3.

Mayer et al. (1999) also described a developmental criterion for EI to qualify as a form of intelligence that scores should increase with age. They reported that differences in mean EI scores observed for adolescents and adults serve as evidence supporting the developmental criterion. Note, however, that this study was based on a cross-sectional design and thus allowed interpretation only in terms of age group differences—not developmental—differences. However, contrary, to what has been claimed by EI researchers, it
is a misconception that intelligence increases developmentally. Studies of cognitive aging show that some classes of broad cognitive abilities (e.g., Gf; Fluid Intelligence) decline (see e.g., Carroll, 1993; Horn & Hofer, 1992), whereas others (e.g., Gc; Crystallized Intelligence) improve. Following this logic, it is plausible to suggest that different components of EI could have different developmental trajectories and that each could be examined in a carefully designed cross-sequential longitudinal study (see Schaie, 2001). In any event, the developmental criterion espoused by Mayer et al. is in need of reformulation.

In sum, although the Mayer–Salovey–Caruso group have made significant progress in developing a psychometrically acceptable test, it is premature to conclude that it meets traditional criteria for an intelligence test. Although their most recent test, the MSCEIT, shows good scoring reliability across different methods, it is still uncertain whether the latent construct is truly an intelligence. A related issue is that the construct still cannot be located within a hierarchical, multistratum model of the kind developed for conventional ability (Carroll, 1993) and personality (Costa & McCrae, 1992) factors. A satisfactory account of EI would (a) locate EI as a higher-order construct defined by lower-level primary abilities, and (b) describe how the structure of EI aligns with ability and personality constructs. Currently, the sampling of EI constructs is too limited to support a multistratum model. The apparent general factor can simply be a localized cluster of constructs related to a primary ability factor (Davies, Stankov, & Roberts, 1998), or even to an emotional conformity factor outside the ability domain.

**Myth 5: EI Relates to Emotion as IQ Relates to Cognition**

In this section and the next, we turn to theoretical issues. As previously noted, a good theory requires both a description of individual differences in processing components supporting EI, as well as an account of the adaptive significance of these individual differences. Thus, for a performance-based test of EI (such as the MSCEIT) to rank order individuals on some continuum of emotional adaptiveness, two logically distinct steps in construct validation are necessary. First, the score must be linked to individual differences in processing. These differences can variously refer to basic parameters of cognitive architecture, to learned skills for the processing of information, or to the availability of discrete items of culture-bound knowledge. Second, it must be shown that the processing characteristics of high EI do actually confer some actual advantage in real world emotional encounters. This outcome is requisite for the test to have demonstrable predictive validity and practical application. The rather limited predictive validity of current measures of EI is mirrored by a lack of evidence that the construct is linked to distinct sets of processes and adaptive outcomes (Matthews & Zeidner, 2000). However, two myths are pervasive in the literature. The first, addressed in this section, is the belief that EI rank orders persons in terms of emotional processing just as IQ rank orders persons in terms of cognitive processing. The second myth, addressed in the next section, is that the emotional processing characteristics of the high EI person confer some generalized advantage in social functioning that generalizes across many situations and contexts.

The majority of researchers in the area of EI assert the presence of both rational and emotional minds (cf. Epstein, 1998; Izard, 2001). These commentators argue that there exists a dichotomy between emotional and rational systems, with nonrational phenomenon, such as emotions, supporting a competency distinct from reason and intellect. Hence, just as conventional intelligence (IQ) is the general factor for individual differences in the rational system, EI is the general factor for the emotional system. Similarly, Goleman (1995) suggested an antagonism between passion and reason such that the higher reasoning faculties supported by the cerebral cortex can be hijacked by more primitive subcortical brain systems. Goleman further proposed that emotion and cognition can also operate synergistically in decision making. According to Bechara, Tranel, and Damasio (2000), damage to frontal cortex areas associated with emotion also impairs the ability to make good life decisions, implying that emotion is essential to rationality. If cognitive and emotion systems are discordant, emotions can be a destructive force overriding sound judgment; if the two systems are in harmony, being in touch with our emotional side facilitates practical decision making.

We take issue with this two-systems approach on both theoretical and empirical grounds. In making a distinction between cognitive and emotional processing systems, several problems arise. Much of the argument for a separate emotional system is based on a misconception of cognitive models (Lazarus, 1991). Proponents of the two-systems approach (e.g., Zajonc, 1984) have criticized cognitive theories of emotion (e.g., Lazarus, 1991) because they treat emotion as cold, rational, and bloodless. Goleman (1995) drew a parallel with the Star Trek characters of Spock and Data, who are condemned to puzzle over human emotions intellectually without ever experiencing them. However, it is a fallacy to suppose that cognition is necessarily conscious and deliberative. In an important commentary, Clore and Ortony (2000) pointed out that unconscious processing typically follows the same computational principles as conscious processing. Furthermore, both conscious and unconscious processing can be associative rather than de-
liberative, in that processing can operate through fast retrieval from memory of schematic information associated with the stimulus. In either case, processing is controlled by the extraction of personal meaning from stimuli, a cognitive operation. If, as Lazarus (1991) suggested, analysis personal meaning controls emotion, we cannot fractionate cognition from emotion as separate systems. Doubtless there are various, qualitatively distinct processing modules that contribute to extraction of meaning and generating of emotion (Scherer, 2001), but there is no basis for describing some modules as cognitive and some as noncognitive.

Similar difficulties apply to the view that there are separate brain systems for cognition and emotion (e.g., Bechara et al., 2000), such that the competence of emotional response, and hence EI, can be directly attributed to specific brain systems (particularly the amygdala and areas of frontal cortex). First, purely neurological accounts of emotion neglect the distinction between “hardware" and “software" levels of explanation (Matthews, 1997) and are unlikely to lead to understanding individual differences in EI. However, the use of connectionist, “neural net" models and other cognitive neuroscience approaches is highly promising. Second, the link between emotion and behavior in humans is loose. There is no simple isomorphism between emotion and response: Studies of emotion and information-processing demonstrate the finely tuned cognitive control of behavior (Matthews, Zeidner et al., 2002). Third, biological accounts tend to neglect cognitive control of outputs from the brain systems identified with emotion. No doubt, lower level brain systems such as the amygdala provide signals that are coded symbolically and processed by higher level, language-based cognition, but, equally the outputs of cognition feed downwards to influence lower level emotional functioning (e.g., Rolls, 1999).

The separation of emotion and cognition is also challenged by various lines of empirical research: Emotion is intimately related to appraisal (Scherer, 2001), to perceptions of control and ability to cope (Lazarus, 1991) and to discrepancies between actual and preferred self-status (Carver & Scheier, 1998). Recent studies of self-regulation in challenging performance environments show that change in affect is closely linked to change in cognition and motivation. Matthews, Campbell et al. (2002) identified from psychometric and experimental evidence a distress state syndrome that binds together negative mood and cognitions of low confidence and lack of control. Much of the variance in these cognitive-affective-motivational state changes is predictable from measures of situational appraisal and coping (Matthews, Derryberry, & Siegle, 2000). In social settings, anger, hostile appraisal of others, and confrontational action tendencies can be simultaneously produced by goal frustration. Intelligence in dealing with such situations would be distributed across affect, cognition, and motivation. Emotional and cognitive maladaptation are also closely linked at the clinical level. Goleman (1995) attributed panic attacks to "emotional hijacking," such that the emotional limbic system usurps control from the cognitive cortex. In fact, panic attacks have a pronounced cognitive element; often panic is caused by misattribution of somatic symptoms, such as interpreting increased heart rate as a sign of imminent cardiac arrest (Clark, 1997).

Thus, both emotion and self-referent cognition can be expressions of a common self-regulative function, albeit a function supported by multiple processing modules. EI, if it exists, could then be a quality of this broader executive system, influencing both emotion and cognition (and motivation). We have rejected the picture of a nonrational passionate brain pitted against a rational brain for control of behavior, but cognitive neuroscience studies of emotion will likely play an essential role in mapping the cognitive architecture that supports self-regulation. By contrast, models drawn directly from animal research will likely prove to be inadequate. If the functional role of the self-regulative executive is to interrupt the fixed, innate patterns of response characteristic of animal emotion (Panksepp, 1998), then emotional self-regulation could be a uniquely human quality. As we discuss further in the next section, it is unclear that individual differences in self-regulation can be reduced to a single dimension of efficacy. However, investigating such self-regulative processes will be informative, whereas basing theory on an artificial separation between emotion and cognition is unlikely to be productive.

**Myth 6: EI Predicts Adaptive Coping**

In the previous section, we examined processing-level concomitants of EI. Here, we address adaptive issues. Proponents of EI claim that successful coping with stressful encounters is central to the construct (Bar-On, 2000; Goleman, 1995), and the EQ-i relates to self-reported preference for use of task-focused rather than emotion-focused strategies (Bar-On, 1997). Unfortunately, as argued by Matthews and Zeidner (2000), there does not appear to be a single EI process that controls adaptive success, analogous to the speed of processing factor that is sometimes (controversially) said to control general intelligence. Success or failure in coping has many sources, related to qualitatively different mental processes and structures. Consequently, it is unlikely that EI resides exclusively in any single psychological mechanism.

Emotional competence has been linked to adaptation in line with Darwin’s view of emotions as adaptive functions. However, advancing from a characteristic adap-
tive function at the species level to account for individual differences is by no means a straightforward step. Indeed, EI may not map onto adaptation in any simple fashion. For example, it is difficult to categorize coping processes in terms of adaptive outcome (Matthews & Zeidner, 2000; Zeidner & Saklofske, 1996). There is a weak tendency for problem-focused coping to be more effective than emotion-focused (or avoidance) coping but the link between choice of coping and outcome is often weak, content dependent. Similarly, an adaptive analysis of personality traits linked to EI suggests that these traits are linked to patterns of costs and benefits (Matthews, 1999; Matthews, Zeidner et al., 2002). Thus, it seems that individual differences cohere around multiple, largely independent, adaptive choices. For example, agreeableness could be linked to choices between competitive or cooperative goals, and extraversion–introversion could be linked to preferences for levels of social challenge. The individual’s disposition will determine which social environments will prove supportive of their efforts at adaptation and which environments fail to provide opportunities for the individual to exercise their adaptive skills (Matthews, 1999; Matthews, Zeidner et al., 2002).

The problem with defining EI in terms of adaptation is that emotional or interpersonal situations could be too broad and ill-defined to constitute a coherent adaptive challenge. Individual differences in the extent to which emotions support or obstruct the pursuit of personal goals can vary across the different challenges of human life. Thus, someone adapted to handling a particular situation may not be equipped to manage other types of social demands. Strategies that work in one context may fail in another, and, often, the strategy produces a complex mixture of outcomes operating over different time scales (Zeidner & Saklofske, 1996). Adaptive outcome is a multivariate quantity that can only be reduced to a construct having positive (or negative) valence at the cost of a gross oversimplification.

Moreover, there is no current model of EI that engages two critical aspects of stress reactions. First, stress outcomes are often more qualitative than quantitative. Typically, encounters can provoke a pattern of costs and benefits rather than an unequivocally positive or negative outcome. Adaptation is a multifaceted construct that may be construed differently depending on the particular situation and the criteria used for assessment of outcome. Second, there is no single master process for stress regulation, and, hence, for EI. Instead, the stress process is distributed across a diversity of functionally distinct cognitive processes (Matthews & Zeidner, 2000). These include both processes for mood regulation, operating metacognitively on representations or codes for the person’s appraisals of their own mood, and wider appraisal and coping processes, that may be directed toward external events and interpersonal cognitions. It is unclear from the work of Mayer and Salovey, for example, whether EI is restricted to being a property of the former or whether EI also embraces processes with a more indirect influence on emotion.

Future research would greatly benefit from empirical research on the relation between EI and coping in general and between EI and coping under various environmental conditions. Furthermore, many of the mediating factors purported to serve as causal links in the EI-coping relation (e.g., social support, emotion disclosure, et cetera), require empirical validation. In short, systematic examination of the purported causal role of various mediating factors in the EI-coping relation is sorely needed.

Myth 7: EI is Critical for Real World Success

The critical nature of EI in applied settings such as educational and occupational psychology is frequently reported, both in the populist literature and in the mass media. It is claimed, often on the basis of limited evidence, that EI competencies are vital for the successful negotiation of demands, constraints, and opportunities necessary to succeed in such contexts. However, the question remains as to whether the concept of EI gives those working within such fields new ways of dealing with practical problems. It is equally feasible, however, that the practical utility of EI is redundant due to its broad and often vague conceptualization. A fairly small number of empirical studies have been conducted both in the laboratory, using criteria related to wellbeing and problem behaviors, for example, and in applied settings, such as the workplace.

EI in the Workplace

In recent years the use of EI measures has become common practice in many organizations in the Western world, due primarily to the realization that EI skills appear a vital component of any organization’s management philosophy (and subsequent success). It has been claimed that EI validly predicts successful workplace behavior at a level exceeding that of intelligence (see Cooper & Sawaf, 1997; Goleman, 1998; Haygroup, 2000; Weissinger, 1998). In a Times article, which helped popularize EI, Gibbs (1995) wrote, “In the corporate world … IQ gets you hired but EQ gets you promoted” (p. 59). However, there is no empirical data supporting a causal link between EI and any of its supposed, positive effects.

Success and productivity in the workplace is claimed to be attributed to a number of facets. These include influencing one’s ability to cope with environ-
mental demands (Bar-On, 1997) and the communication of ideas and intentions in interesting and assertive ways that lead to comfortable occupational environments (Goleman, 1998). Furthermore, it has been claimed that those high in EI are particularly adept at designing projects that involve infusing products with feelings and aesthetics (Mayer & Salovey, 1997).

There is reason to be extremely skeptical of EI prov-
ing itself more useful than intelligence tests in the area of personnel selection. In a recent review, Dulewicz and Higgs (2000) noted that whereas the concept of EI is purportedly based on extensive research evidence, the organizational applications of EI “tend to be based on derivative arguments and largely anecdotal descriptions” (p. 341). Barrett et al.’s (2001) review concurred that much of the existing evidence bearing on the role of EI in occupational success is anecdotal, impressionistic, or collected by consulting companies and not published in the peer-reviewed literature. Whereas proprietary data collected in organizational settings may be the surface of a rich and deep research tradition, it is nevertheless of uncertain validity and inaccessible to independent scrutiny. Indeed, many claims seeming, on face value, to present supporting scientific evidence, fail to do so (Mayer, Salovey, et al., 1999). Equally frustrating, much of the evidence presented in popular books or academic book chapters to support this edifice is based on unpublished or in-house research. Further still, it appears proxy measures of EI are often used in such studies. These tend to focus on emotion-related affective and motivational variables (e.g., attributions, impulse control, or emotional adjustment) rather than the components thought to underlie EI. When a study is submitted for publication in a peer-review journal, although the process is imperfect, it does provide some quality control for the methods and results and conclusions (Cherniss, 2001). Carefully controlled, large multivariate designs are clearly required, with due diligence paid to the selection of both the criteria and the variables with which EI must be shown to have meaningful incremental validity.

A recent review by Zeidner et al. (2004) failed to identify empirical studies that clearly demonstrate that EI meaningfully predicts job success above (and beyond) that predicted by ability and personality measures (see Newsome et al., 2000). For example, Slaski and Cartwright (2002) found that EQ-i score was very modestly related to performance \( r = .22 \) in a study of supermarket managers, but no attempt was made to control for the personality traits that are known to be confounded with the EQ-i. Furthermore, performance as assessed as from ratings of behaviors made by immediate line managers, ratings, which may have been biased by the high EQ rate possessing more likeable personality characteristics. In one of the first studies using a ability measure, Janovics and Christiansen (2001), using an incidental sample of 176 undergraduates (70% women), found that EI (as assessed by the MSCEIT) was modestly correlated with job performance \( r = .22 \) as assessed by supervisors’ ratings of employees on items evaluating professional work duties. Interestingly, job performance correlated significantly with only two of the four branches of this test: Perception \( r = .14 \) and Understanding \( r = .30 \). This result is curious because these higher order factors are the least cognitive of the four-branch model of EI. Nevertheless, when added to a regression equation using cognitive ability and the Big-Five factor of Conscientiousness, as covariates, a general EI score from the MSCEIT added 3% to the incremental variance of the job performance criterion.

The publishers of the Bar-On test have asserted that it is a better predictor of job success than IQ, referring to a few (as yet unpublished) studies in support of this claim. For example, Bar-On (1997) cited a study conducted on a sample of 81 chronically unemployed individuals. These individuals had unusually low EQ-i scores, with the lowest scores on Assertiveness, Reality Testing, and Happiness. Similarly, Bar-On found that individuals from the Young President’s Organization (i.e., whose membership is dependent on individuals reaching top leadership positions in expanding companies) obtained scores on the EQ-i (on virtually all subscales) exceeding the average by significant amounts. According to Bar-On, this group’s success was dependent on an ability to be very independent and to assert their individuality while being able to withstand various stressors occurring within the job. The direction of causality in each of these instances raises some concerns. In particular, low EI scores among the unemployed are likely to be a consequence (rather than a cause) of being chronically unemployed. Similarly, those performing well in their job are likely to report high levels of emotional stability.

This argument notwithstanding, Bar-On (2000) reported that in a survey of nearly 100,000 employees in 36 countries, social responsibility surfaced as one of the most important factors determining effectiveness at work. However, according to Barrett et al. (2001), the latter study is little else but a typical name-catching exercise, whereby the authors claim that social responsibility is important for success and because their test supposedly measures social responsibility, it is valid for predicting success. Bar-On, however, did not cite any predictive or concurrent studies in this chapter to support his claims. In the EQ-i Technical Manual, Bar-On (1997) asserted that the data “indicate a strong connection between EQ-i scores and job ‘performance,’ based on a self-rating scale tapping a worker’s sense of competence” (p. 140). This assertion is based on a study of 324 workers from the United States and Canada, who performed the EQ-i and a (self-reported) Sense of Competence Questionnaire. The correlation between the tests, although high \( r = .51 \), needs to be
qualified by the fact that both measures are based on self-reports, presumably having considerable overlap with the Big Five personality constructs, especially neuroticism, which predicts low self-efficacy. Notably, no objective measure of job performance criteria, which could have elucidated the veracity of this claim, was collected.

**Educational and Social Settings**

Educators have embraced EI because the school setting provides one of the most important contexts for learning emotional competencies and skills. In turn, models of EI raise the possibility of using such emotional skills as tools for tackling social problems such as violence, drug addiction, and social alienation. As such, there is a rising consensus among educators and psychologists that the emotional learning of children be given greater consideration (and even be promoted) in schools (Elias et al., 1997). The interpersonal relationships that children establish with their teachers and peers in school influence fundamental social attitudes, beliefs, and values and influence contextual knowledge. Some commentators even believe EI provides the medium by which educational reform will finally reach its full potential across all levels of schooling (e.g., Ormsbee, 2000).

A possible reason for the upsurge in interest in social and emotional learning is the claim that emotional competencies are of prime importance for academic success. Extending this argument, it has been claimed that knowledge about ourselves and others—and the capacity to use this knowledge to solve problems adaptively—is an essential foundation for academic learning (Cohen, 1999). Proponents of the EI construct (in particular, see Aronson, 2000; Goleman, 1995) have made strong assertions as to the predictive utility of EI in the academic contexts. Little evidence, however, is provided in support of such assertions nor has there been evidence to suggest the demonstration “that emotional intelligence (EQ) and academic intelligence are separate qualities, and that emotional intelligence is a better predictor of success in school” (Aronson, 2000, p. 102).

Thus, at present, such claims remain largely unsubstantiated. Teaching EI in schools, according to Goleman (1995), remedies what he perceives as a social crisis and the disintegration of civility. It is assumed that people can learn to become more emotionally intelligent through systematic training and education, so those low in EI competencies can improve their abilities to better recognize feelings, express, and regulate them.

A broad spectrum of social and emotional learning programs, implemented mainly in the United States, designed to teach socio-emotional competencies in the school are now available, including social skills training, cognitive-behavioral modification, self-management, and multimodal programs (Topping, Holmes, & Brenner, 2000). Current interest in emotional learning was largely spurred by Goleman (1995) and later reinforced by Elias et al.’s (1997) book *Promoting Social and Emotional Learning*. The Nueva School in Hillsborough, California, was the first to start an emotional literacy program, and New Haven, Connecticut, was the first city to implement such a program in public schools district-wide. Once established, the concept of EI has proven itself a catalyst to the thinking and planning of educators and policy makers. Thus, well over 700 school districts across the United States have expressed interest in implementing the emotional literacy approach (Goleman, 1995). The Collaborative for Social and Emotional Learning at the University of Illinois reported that more than 150 different emotional literacy programs are being used today by thousands of American schools. Programs seeking to inculcate emotional and social competencies go under a variety of names, such as life-skills training, self-science, education for care, social awareness, social problem solving, social competency, and resolving conflicts creatively.

Although it is plausible that school-based programs for EI are beneficial, no convincing evidence (to date) shows dramatic changes in adaptation. In part, this outcome appears the result of methodological deficiencies conducted in studies thus far (see Zeidner, Roberts, & Matthews, 2002). Our review of the intervention literature suggests that there are relatively few programs that fit the bill as EI intervention programs. Indeed, when examining programs touted as EI intervention programs, one is surprised and puzzled by how sparse the emotional content of these programs actually is. Often, in cases in which elements of EI have appeared in the goal statement of the program, measures of the key components of EI were not used in the assessment of mediator or outcome variables. Furthermore, among those emotional literacy programs that have been assessed, most suffer from serious methodological flaws (inadequate controls, threats to internal validity, poor measures, assessment of short-term impact alone, etc.). Although an increasing number of programs are being evaluated formally, many still have not been subjected to systematic empirical scrutiny. It has also not been demonstrated that interventions focusing on the core constructs of EI, such as emotional awareness, are more successful than those based on other principles, such as behavior modification.

One possible reason for this sad state of affairs is that most current programs were not designed initially as EI intervention programs, but for other purposes (social skills or anger control programs, health education, drug abuse prevention or delinquency prevention programs). There is a plethora of programs seeking to inculcate emotional and social competencies (life skills training, self-science, education for care, social awareness, social problem solving, social competency,
and resolving conflicts creatively) that predates the notion of EI. Proponents of EI intervention have vested these existing programs with a minimal dosage of EI content and have enthusiastically embraced them as their own. At present, there is little research showing whether programs touted as EI interventions are actually effective in enhancing the kinds of skills included in current models of EI. Thus, putting aside claims that EI skills can be cultivated and improved in the classrooms, the contributions of the numerous existing programs touted as EI interventions are modest. Where evaluation is possible, outcomes tend to be mixed or moderate (see Topping et al., 2000).

Conclusions

There are major conceptual, psychometric, and applied problems and issues to be overcome before EI can be considered a genuine, scientifically validated construct with real life practical significance. Whereas Goleman’s (1995, 1998) vision has been widely disseminated, much of the empirical research in the area is more sober in its conclusions. Many of the central tenets of the psychology of EI are inadequately supported by empirical evidence and, in certain instances, existing ability and personality research suggests that the claims made are either false or highly overstated. We have identified seven myths (i.e., pervasive beliefs about EI that are not currently substantiated by evidence). Table 2 summarizes the status of each myth, and the prospects for substantiating each proposition.

On the basis of our review, we evaluate the likelihood of future research obtaining supportive evidence as good (existing research suggests that future research has a high probability of supporting the proposition), fair (informative research is possible, but its eventual outcome is highly uncertain), and poor (existing research strongly mitigates against the proposition, and does not suggest productive new lines of research).

Sometimes myths are entirely false, but sometimes they contain a kernel of truth. In the case of EI, there are some grounds for optimism that ability-based tests will in time prove to be reliable and valid, supporting real-world applications. The Mayer–Salovey–Caruso team has made real progress in developing a reliable scale with some predictive validity. However, in the authors’ view, we are still in the dark about what the scale really measures: a true ability, a set of acquired and primarily declarative skills, or culture-bound person–environment fit. There are also significant conceptual, psychometric, and theoretical issues to be resolved before ability tests may be said to meet the Anastasi and Urbina (1997) criteria for psychometric adequacy. Thus, we are a long way from being able to use ability tests as aids for decision making about individuals in occupational, educational, and clinical fields of application.

The benefits of EI appear to reside mainly in raising awareness of emotional issues and motivating educators and managers to take emotional issues seriously. There is a growing realization that psychological processes considered to be purely cognitive or intellectual in fact depend on a synergy between cognition and emotion, supported by various different modes of cognition (Clare & Ortony, 2000; Zeidner & Matthews, 2000). Consequently, it is increasingly seen as legitimate to develop programs for improving emotional skills in the classroom and workplace. Whether these programs are actually fostering EI competencies, various useful skills are most likely learnt during participation in these programs (e.g., conflict management, taking perspective of others, verbal communication skills, assertiveness training, etc.). Currently, EI mostly serves a cheerleading function, helping to whip up support for potentially useful (though seldom substantiated) interventions focused on a heterogeneous collection of emotional, cognitive, and behavioral skills.

The challenge for proponents of EI is to investigate whether the various existing lines of research can be tied together inside an overarching model of EI that adds something new to current differential psychology. Alternatively, EI may be no more than a vague umbrella term for a variety of different abilities, personality traits, and items of acquired knowledge that do not cohere psychologically or psychometrically. A science of EI requires three pillars: reliable and valid measurement, process-based theory, and practical application (Matthews, Zeidner et al., 2002). Pivotal to this enterprise would appear the development of reliable and valid tests of EI that can be accurately placed within a wider psychometric model of individual differences, encompassing both ability and personality. Such a model is necessary to show that tests of EI measure some new quality distinct from existing dimensions of individual differences. Equally important is the development of an explanatory model of EI that specifies the neural and cognitive processes underpinning the construct and their adaptive significance. As with measurement, a theoretical account of EI must differentiate the processing basis for emotional competence from those processes that are known to support existing personality, emotional, and intelligence dimensions. In addition, the value of practical applications directed explicitly at improving EI hinges on a demonstration that they are distinct from existing techniques that are more fully understood. Although there are a number of misconceptions relating to the conceptualization, measurement, and applications of EI, it is important not to quash potentially informative research in its early stages. However, the problems that have been demonstrated in this paper highlight the need to take a skeptical line (in the sense of
Table 2. A Summary of Seven Myths Concerning EI

<table>
<thead>
<tr>
<th>Myth</th>
<th>Status</th>
<th>Prospects for Future Progress</th>
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<tbody>
<tr>
<td>1. Definitions of EI are conceptually coherent.</td>
<td>Several different and conflicting definitions, with varying degrees of internal coherence.</td>
<td>Fair. Current work does not adequately address the possible roles of implicit skills and person–environment fit. Progress requires better consensus among researchers on what EI is and is not, with greater reference to theories of emotion and intelligence. A barrier is that some researchers may be reluctant to abandon cherished but incorrect assumptions about the nature of EI.</td>
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<tr>
<td>2. Measures of EI meet standard psychometric criteria.</td>
<td>Some progress has been made. Test reliabilities are often good. Conceptual problems lead to questionable content validity. Predictive and construct validities are also limited, despite some promising beginnings. Lack of convergence between self-report and ability-based tests is a major issue.</td>
<td>Good. The normal processes of test development may suffice to improve reliability and predictive validity. Problems of content and construct validity are more difficult, owing to the uncertain conceptual and theoretical bases for EI. However, following historical precedent in ability testing, development of good operational measures and a psychometrically sound multitrait model may lead to theoretical progress.</td>
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<tr>
<td>3. Self-report EI is distinct from existing personality constructs.</td>
<td>A severe problem, with considerable overlap with both the Big Five, and narrower “midlevel” constructs such as empathy, self-esteem, and optimism.</td>
<td>Poor. The lack of discriminant validity from personality severely limits the utility of self-report. Evidence that self-reported emotional competence fails to predict objective measures is also discouraging. At best, questionnaire scales may add further primary or midlevel personality traits that add somewhat to current personality models.</td>
</tr>
<tr>
<td>4. Ability tests for EI meet criteria for a cognitive intelligence.</td>
<td>It is still unclear whether ability tests measure intelligence: the difficulties in establishing veridical criteria for scoring are serious.</td>
<td>Fair. It may or may not transpire that current tests measure a true ability. Essential future work includes validating test scores against behavioral indexes of competence and investigating further the universe of emotional competencies to identify a set of primary abilities that may jointly support a higher order factor.</td>
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<tr>
<td>5. EI relates to emotion as IQ relates to cognition.</td>
<td>The notion of separate cognitive and emotional systems that each has its own ‘intelligence’ is conceptually confusing, and conflicts with much theory of emotion and self-regulation.</td>
<td>Poor. Models of self-regulation and executive function that integrate cognitive, emotional and motivational functioning appear to be more likely to explain empirical data, although linking such models to the various different psychometric abilities remains a considerable challenge, even within the intellectual domain.</td>
</tr>
<tr>
<td>6. EI predicts adaptive coping.</td>
<td>EI tests may correlate with coping scales and outcome measures, sometimes. However, it is simplistic to suppose such findings support a single continuum of individual differences in adaptation.</td>
<td>Good. As with other personal qualities that relate to the stress process, normal research should be informative about which outcomes and processes may be influenced by the various components of EI. However, such research is likely to provide a much more complex and nuanced picture of the personal advantages (and, possibly, disadvantages) of the qualities currently described as EI.</td>
</tr>
<tr>
<td>7. EI is critical for real world success.</td>
<td>So far, applied studies provide little basis for supposing that either EI is strongly predictive of outcomes in real-world settings or that interventions to increase EI will be cost-effective.</td>
<td>Fair. At present, progress in the field appears too limited to offer much to the practitioner, given the availability of much better validated personality and ability measures. In the longer term, we expect tests for emotional skills and knowledge to have greater utility, although it is unclear whether such tests will resemble those in current use. It is also moot whether it will ever be preferable for interventions to target generalized EI, as opposed to more specific, context-bound skills.</td>
</tr>
</tbody>
</table>

Note. EI = emotional intelligence.
questioning rather than dismissive) in future studies. It is to be hoped that recommendations made throughout this article may also encourage a more balanced, scientifically viable approach to studying individual differences in components falling under the broad banner of EI. In any case, studies of EI may be productive even if the construct proves to be elusive; false beliefs may stimulate valuable research (Navon, 1984). At a cultural level, science benefits from both consensus and controversy. For example, the suspect science and politics advanced by The Bell Curve (Herrnstein & Murray, 1994) spurred the American Psychological Association to issue a more balanced report on intelligence (APA Public Affairs Office, 1997). In turn, this report drew attention to findings incompatible with the view that "IQ is destiny." Similarly, the self-correcting nature of science will, in our view, lead to a deeper understanding of individual differences in emotion regulation.

Note

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References


TARGET ARTICLE: SEVEN MYTHS


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