
AUTHORS' RESPONSES

The Emotional Intelligence Bandwagon: Too Fast To Live, Too Young To Die?

Moshe Zeidner

*Department of Education
Center for Interdisciplinary Research on Emotions
University of Haifa, Israel*

Richard D. Roberts

*Center for New Constructs
Educational Testing Service
Princeton, NJ*

Gerald Matthews

*Department of Psychology
University of Cincinnati*

Overview

As evidenced in the two lead articles, ensuing commentaries, and subsequent rejoinders, emotional intelligence (EI) has emerged as a high profile, yet contentious, issue in modern day psychology (see also Matthews, Zeidner, & Roberts, 2002). From fairly humble beginnings, EI has come into its own as one of the most popular psychological concepts of the last decade. However, for all its charm and youthful energy, EI appears to be living “life in the fast lane” and is moving at blistering pace toward conceptual stardom (Zeidner, Roberts, & Matthews, under preparation). A recent Web search on the term *emotional intelligence* resulted in over 140,000 URLs; a search of various scientific databases (e.g., PsychInfo, Social Sciences Index) resulted in a comparably modest count (i.e., 350–400 hits). The disparity in these numbers illustrates strikingly an imbalance between popular interest and the status of EI in peer-reviewed, psychological research. Aside from various well-documented sociological reasons for popular interest in EI (see Matthews, Zeidner et al., 2002), most people seem intuitively to feel that there are meaningful individual differences in the domain of emotional functioning. As Averill (this issue) so aptly puts it, “it [EI] has an easily recognizable grain of truth.” Another important factor accounting for the widespread popularity of EI, also taken up by Averill, is the frequently observed disjuncture between intellectual and emotional acumen. Thus, from

our own experiences, we can readily call to mind people who are high on cognitive intelligence but quite unremarkable in their social adroitness. This divide helps us to fully appreciate, for example, Renee’s laconic remark in the popular TV show *Ally McBeal*: “Emotionally, you’re an idiot!”

In our target article we sought to separate beliefs about EI that are speculative and mythical from statements and claims that have a firm foundation in empirical science. We thank each of the commentators for acknowledging our contribution in advancing the field by presenting a critical, yet not dismissive, view on the evidence for the construct of EI. We particularly welcome Averill’s (this issue) remarks that the two lead articles in this issue provide a “textbook example” of how the Hegelian dialectic of science should proceed. Accordingly, following the thesis put forth by proponents of EI (beginning in the early 1990s), a skeptical antithesis has been put forth, articulated in our target article. The future, according to this dialectic, forebodes a synthesis between proponents and opponents of EI to advance the field further (assuming the wheels do not come off the bandwagon altogether).

The four distinguished commentators on our article have made various pertinent comments relating to key issues in the domain of EI research and have suggested ways to advance the field and push the domain-specific knowledge about EI beyond its present equivocal status. In this rejoinder, we note from the outset the following as points of general agreement:

1. The need to map out the construct of EI according to a more rigorous conceptual and definitional system.
2. A requirement to develop more sophisticated measurement tools and techniques.
3. The identification of appropriate behavioral criteria for EI.
4. The systematic mapping of the nexus of relations between EI and related criterion variables of interest.
5. The implementation of proper statistical controls for personality and ability measures when considering the empirical status of EI.
6. The application of alternative domains of knowledge to complement criterion validity studies—ranging from literature, creativity, and historical accounts to popular cultural trends.
7. The investigation of whether it is practically useful in applied settings to train higher EI or to measure EI for selection purposes.

Despite some promising research developments related to each of the preceding issues, we also take this opportunity to further highlight various “mythical” beliefs about EI that are not scientifically supported. We aim to reinforce or complement previous points that we have made in four broad areas of EI research: (a) conceptualization, (b) assessment, (c) basic empirical issues, and (d) practical applications. We show how each of the commentators have substantially furthered our case, rendering EI as having a slippery scientific status, which has led to the spread of a number of unfounded myths. In certain other instances, however, moving more toward synthesis than our target article may suggest, we show how concepts surrounding EI may be vindicated by further conceptual refinement or empirical research.

Conceptual Issues

Our target article has drawn attention to the problematic nature of current definitions and conceptualizations of EI and the limited theoretical basis for developing the EI construct. The lack of a consensual definition of EI is highlighted by the major disjunction that exists between *ability* and *mixed* models of EI (e.g., Mayer, Salovey, & Caruso, 2000). The construct also lacks content validity in that, especially within the mixed model approach, the multitude of qualities covered by the concept is overwhelming (Roberts, 2003). Such differing definitions and conceptions have led to considerable confusion in the scientific literature. Acknowledging the tenuous conceptual status of EI, each of the various commentators proposes interesting solutions (i.e., tolerating the coexistence of multiple definitions in semantic space, tapping related domains for in-depth understanding of EI, early foreclosure on a

specific definition or model, etc.). However, as with EI research in general, we see little convergence on a consensual definition; indeed, each new perspective may open further divides.

Averill (this issue) laments that the *emotional* component is given short shrift in the literature on EI when compared with the *intelligence* component. Averill is particularly vexed by the following conceptual pitfall haunting, in particular, ability models of EI: Whereas they clearly specify and delineate the information processing components central to reasoning about emotions (e.g., emotion perception and expression, understanding affect, assimilating emotions in mental schemata), these models fail to specify the specific emotional content being processed by abstract computational modules. Averill questions the underlying working assumption, namely, that the processing components are of equal relevance across different categories of emotions. Extending this concern, we may question whether any model of EI generalizes across the universe of basic emotions, given evidence differentiating discrete, universal basic emotions (Ekman, 1989). Furthermore, it is too early to dismiss the possibility of the existence of multiple EIs underlying emotions and their manifestations embedded within specific cultural contexts.

Gohm (this issue) claims that the contention that definitions of EI are conceptually coherent could be viewed as a myth only if published in the popular press, but when addressed to scientists reading *Psychological Inquiry*, sounds like a “straw man” position. This claim suggests a misreading of the peer-reviewed literature on EI, in which questionnaire studies are at least as prominent as those using objective or quasiobjective tests. The leading questionnaire developers are quite explicit that they seek to measure an ability that predicts objective behavior (e.g., Bar-On, 2000; Boyatzis, Goleman, & Rhee, 2000). We agree with Gohm that questionnaires are an unpromising means to this end, but we cannot dismiss this approach by arbitrary fiat. Indeed, Gohm’s (2003) own published work has used questionnaire measures, including the Trait Meta-Mood Scale, to relate self-reports of mood management to EI. Furthermore, neither questionnaire nor objective approaches prevail on predictive validity, so far as we can tell from the few studies that have aimed to control personality or cognitive ability (cf. Brackett & Mayer, 2003; Brody, this issue). Consequently, the weakness of correlations between objective (e.g., the Mayer–Salovey–Caruso Emotional Intelligence Test; MSCEIT) and questionnaire (e.g., the Emotional Quotient Inventory; EQ-I; Bar-On, 1997) measures of EI may indicate a significant failing of the field as a whole (i.e., lack of convergent validity).

In fact, there are at least two dimensions of conceptual confusion evident in the scientific literature. First,

there is no agreement on the specific qualities that define EI and no decision rules that would allow us to parse personal qualities as emotionally intelligent or not. Emotional creativity, as discussed by Averill (this issue), is a case in point. If we apply Oatley's (this issue) method of seeking exemplars of outstanding expertise, we see, like Averill and Seneca, that writers and artists with a genius for expressing emotion are often poor at managing interpersonal relationships. Second, there is no agreement on the nature of the EI construct; is it temperament, a set of specific component processes, metacognitions of personal competence, or acquired skills? The Mayer–Salovey–Caruso conception is probably the clearest with respect to specific qualities, but the psychological underpinnings of the four branches remain ambiguous (Matthews, Zeidner & Roberts, in press-a). For example, a person's understanding of the Mona Lisa may be supported by various, qualitatively different processes ranging from hard-wired subcortical circuits for pattern recognition of emotional stimuli that are activated by a smiling face, to use of cultural knowledge about Renaissance Italy, to still more intimate knowledge of Da Vinci's artistic agenda to decode hidden meaning. The specific qualities assessed by the MSCEIT Face Perception Test are conjectural. More disturbingly, in a study of over 100 college freshman, we recently found that this subset of the MSCEIT correlates near zero with a widely used objective measure of facial emotion recognition, the Japanese and Caucasian Brief Affect Recognition Test (in which clearly moderate relations would seem requisite; see MacCann, Matthews, Zeidner, & Roberts, in press-a).

Gohm (this issue) is remarkably blasé concerning the multiplicity of conceptualizations of EI. There is no a priori certainty that EI exists at all, and hunting a single Snark is difficult enough without admitting a whole menagerie of disparate, possibly chimerical creatures to be acceptable prey. Certainly, definitions develop over time, with some imprecision expected of an emergent construct. Even so, we contend that researchers are entitled to expect greater coherence in specification of content and process than currently exists in the EI literature. The comparison with personality traits made by Gohm is illuminating. In fact, contrary to her statement, there is very good consensus on the nature of the major personality traits, such as extraversion (Matthews, Deary, & Whiteman, 2003). In discussing the Five Factor Model, even critics of the trait ap-

proach concur that “a consensus about the major trait dimensions of personality has begun to emerge among contemporary trait psychologists” (Pervin, 2002, p. 29), and “there is no disagreement among us regarding the usefulness of a common conceptual scheme [i.e., the Big Five] that is both parsimonious and comprehensive” (Block, 1995, p. 26).

Indeed, the following thought experiment is illuminating. Imagine that trait psychologists assumed the existence of a single construct of personality (let us call it PQ for personality quotient), so that one researcher pronounced that extraverted qualities were the key to PQ, whereas another researcher argued in favor of emotionality. The Babel that would result is obvious. Our concern is that research on EI is hobbled by similar confusions, exacerbated by poor discrimination from existing constructs. Indeed, conceptual overlaps with the Five Factor Model (McCrae, 2000; Matthews, Zeidner et al., 2002) imply that we have at least five expressions of EI that can be directly tied to the Five Factor Model (see Table 1). We cannot blithely assume that it will all come right in the end. To find the elusive EI, we need a targeted search guided by an explicit conceptualization of either a single or multiple dimension(s) of competence. We strongly advocate separate research efforts directed to each possible conceptualization listed in our original target article (and possibly others). Once we have better measures of well-defined constructs, we can begin to ask whether they possess a structure (e.g., a positive manifold) that would support the existence of an overarching EI (or EIs).

Oatley (this issue) warns us against a premature definitional narrowing of the field (while at the same time, paradoxically, embracing a particular definition and conception of EI)! He takes us to task for placing too much emphasis on definitional issues rather than devoting more energy to clarifying the EI *concept*. Perforce he is also sanguine about the peaceful coexistence of various alternative definitions of EI in semantic space, certainly at this early stage of conceptual development. He sees the essence of emotionally intelligent behavior as the proper exercise of perceived control in solving problems in specific social contexts. To enrich our understanding of the EI concept, Oatley also suggests that we draw on novel domains (e.g., literature, history, music, plastic arts, theatre, and cinema) and learn from the paradigmatic examples or experts in these fields (e.g., authors of imaginative novels, playwrights, poets, and historical figures).

Table 1. Core Attributes of EI Allocated Across the Five-Factor Model of Personality

	Extraversion	Emotional Stability	Conscientiousness	Agreeableness	Openness
Aspect of EI	Social skills	Tolerance of stress	Self-control	Empathy	Creativity
	Social confidence	Effective coping	Organizational citizenship	Interpersonal sensitivity	Artistic sensitivity
	Optimism	Lack of pessimism	Hard-working	Caring for others	

Note. EI = emotional intelligence.

Whereas these idiographic sources may offer considerable insight into emotional phenomena, resonating to the emotional experiences of generations of people over the ages, they cannot and should not replace nomothetic empirical research. It is the latter that enables us to generate replicable lawful relations that generalize across time and context and thereby help transform a concept into a scientific construct.¹

In defense of EI, one should bear in mind that, after over a century of research there still remains controversy over the precise meaning of intelligence. However, there appears to be less implicit agreement among researchers on the content domains of EI than was the case for intelligence tests, even during the early days of testing (see Roberts, Markham, Matthews, & Zeidner, in press). In part, at least, the full promise of EI measures (and ensuing research) depends on resolving issues surrounding content validity; an important undertaking that needs to be addressed for the field to progress. It is currently an open question whether future research will arrive at a more solid operational definition of EI. If not, EI will come to be seen as a woolly prescientific term that may be replaced by a variety of more precisely specified constructs.

Assessment Issues

In our target article, we identified myths relating to assessment: that measures of EI meet standard psychometric criteria, that self-report EI is distinct from existing personality constructs, and that ability tests meet criteria for a standard intelligence. Serious concerns are raised by the lack of convergence between alternate measures of EI, by the high degree of overlap of EI with the Big Five personality traits, and by difficulties in veridical scoring of ability tests (see Matthews, Zeidner et al., 2002; Matthews, Zeidner, & Roberts, in press-b).

¹Furthermore, a clear and coherent definitional system is essential in establishing the EI concept as a viable scientific construct. According to the tenets of facet theory, it is precisely the definitional system (i.e., specification of the basic content and response facets of EI) that specifies the universe of discourse of the concept. The specification of a rigorous mapping sentence for EI would help illuminate the concept's key dimensions, its critical attributes, and help in differentiating EI from related constructs in the same semantic domain. In fact, a *concept* reaches the status of a *construct* if it meets three basic criteria: (a) the concept is accorded a formal definition, (b) an operational procedure can be specified for measuring the concept, and (c) it is embedded in a nomological network of related constructs (Kerlinger, 1973). Thus, we believe that a major effort should be devoted to settling on a coherent definition of EI, and it may be premature to attempt to measure EI without first reaching some form of scientific consensus on what we mean by EI, as well as the mapping of domain elements and the issue of dimensionality.

Oatley (this issue) raises the concern that the teams authoring the two lead papers have become too focused on measurement issues, equating the concept of EI with its measurement. In fact, there are two issues here. The first is what type of truth is sought concerning EI. We agree with Oatley that coherence truth and personal truth are important, but it is not clear that these truths are properly a part of science, although there is a tradition of idiographic personality research that points toward some possible approaches to investigating EI at an individual level. In addition, truths can dissociate. Classical psychoanalysis possesses coherence—and has generated numerous textbooks—and to this day informs personal truth, at least among psychoanalysts and their clients. However, it has failed as a path toward scientific truth (one may comment similarly on religious beliefs). Furthermore, personal truth, and, we suspect, coherence truth are highly sensitive to cultural values. Oatley cites examples of the stoic virtues but part of the zeitgeist for current interest in EI is the neoromanticism that values emotional expression above self-control (Matthews, Zeidner et al., 2002; Mayer, Salovey, & Caruso, 2000). Fashions in emotion are important in their own right as an object of study and feed into the social aspects of emotion described by Averill (this issue). However, we cannot look to cultural trends to define what is, and what is not, intelligent.

Our concern is with EI as a nomothetic construct. If we wish to investigate EI as an attribute of all people, measurement is the primary key to a *science* of EI. In fact, the history of science amply shows that scientific progress advances hand in hand with the development of appropriate measurement procedures to operationalize, and hence to define, nascent constructs. Without precise astronomical measurements of the movements of the planets, and definitions of force, mass, momentum and the like, there would be no Newtonian physics. In fact, Newton's attempts to understand mathematical laws, in terms of the Cartesian theory of his day, have been discarded (Lakatos, 1978). If EI can not be measured reliably and validly—and this thorny issue appears to be its Achilles heel contemporaneously—it can not be placed in a nexus of lawful relations (its nomological network) and thus will be slow at achieving the status of a true scientific construct. In fact, given the problematic status of EI measurement, it is currently difficult to advance credible propositions about individual differences in EI. Consider, in particular, that the direction and magnitude of several important group differences (e.g., men vs. women, ethnic vs. majority, gifted vs. nongifted) are measure dependent, with different profiles evidenced as a function of differing measurement techniques (see e.g., Matthews, Zeidner et al., 2002; Roberts, Zeidner, & Matthews, 2001; Zeidner, Shani-Zinovich, Matthews, & Roberts, 2004).

The second issue raised by Oatley (this issue) is the importance of looking at *expertise* rather than focusing on measurement. Thus, if one wants to understand how to become more emotionally intelligent, one would observe leaders or high emotionally intelligent individuals, interview them about their propositional or procedural knowledge, take think-aloud accounts of how they reason about emotionally loaded contexts, and use this to build models of what they know and how they use their knowledge in forms that can help people improve their emotional skills. We endorse this as a powerful technique, although we note that there may be difficulties in deciding who is genuinely an expert. For example, charismatic leaders of religious cults may exert powerful control over their followers' emotions while also showing severe maladaptation to life in general. More important, we see investigations of expertise and measurement as complementary rather than exclusive. We can have more confidence in expertise that can be predicted from an independent test than in expertise that is self-proclaimed or dependent on the subjective value judgments of others. Conversely, we can have more confidence in measurement devices if they successfully discriminate experts from novices. Indeed, such studies make a powerful contribution to the nomological network of ability constructs. Our understanding of cognitive intelligence is informed by studies showing which types of expertise it predicts (various types of academic and occupational expertise), and which types it does not (the skills of the "idiot savant," some forms of tacit knowledge).

Gohm (this issue) suggests that it is time to move beyond debates about EI meets traditional standards for intelligence (see Mayer, Salovey, Caruso, & Sitarenios, 2001; Roberts et al., 2001; Zeidner, Matthews, & Roberts, 2001). This is a curious suggestion. As Brody (this issue) articulately discusses, abilities have special defining properties, and we cannot understand a construct without knowing whether it meets these criteria. In addition—curious and curiouser—Gohm also suggests that it is up to critics to show that suggested scoring procedures are incorrect. We disagree. There are sufficient reasoned grounds for questioning the validity of both expert and consensus scoring that the onus must always be on the test developer to demonstrate that scoring is valid. Experts in psychology do not have an unblemished track record, and, historically, their prescriptions for curing mental illness, raising children, and managing the ills of society have often been found to be fallible. Evidence that would justify the practical use of EI measures as intelligence tests is essential as part of the construct validation of this fledgling concept and can not simply be ignored for sake of expediency, or because the evidence is slow or difficult to come by.

We endorse Brody's (this issue) observation that items on ability-based EI tests (such as the MSCEIT) are fundamentally different from those assessing cognitive ability (in which there is typically a clearly justified correct answer for each item). According to psychometric theorizing, for an item to be considered a true ability item it must be capable of being mapped onto a veridical (rather than sentimental) criterion using some mapping rule, be it logical, semantic, empirical, or normative (Guttman & Levy, 1991). This seems not to be the case for the vast majority of items comprising the MSCEIT, or its predecessor, the Multifactor Emotional Intelligence Scale (MEIS). Although the use of a greater expert pool in developing the MSCEIT is to be applauded, it does not circumvent this important criticism. At present, there is no definitive, universally accepted body of knowledge about emotional competence that can be used for veridical scoring, in part because of the context- and culture-dependent nature of competence (Zeidner et al., 2001).

Indeed, each of the two principal scoring methods, expert and consensus scoring, adopted by Mayer, Caruso, & Salovey (1999; also see Mayer, Salovey, et al., 2001) has problems. The commentators add to the critique we present in our target article. As noted by Averill (this issue) and Brody (this issue), the problems in using experts to pick the right answers are that experts are fallible (academics may, according to the consensus of their students, spouses, or children, be highly deficient in this respect!), that academic psychologists may possess declarative but not procedural knowledge of emotion, and that some items may simply not have a correct answer in that the best response may depend on circumstances. There are also doubts about the culture-fairness of expert judgments.² The obvious problem with the second, consensus-based scoring method is that the consensus may not in fact be correct; beliefs about emotion may be affected, for example, by culturally defined stereotypes (Zeidner et al., 2001). Brody and Averill note that a logical difficulty with consensus scoring is that it leaves little scope for the itemetric analyses that are a central element of intelligence test development, such as Guttman scaling and its derivatives. Consensus scoring *sui generis* excludes identification of extremely difficult items on which, say, only the 10% most able individuals pick the correct answer, and the consensus answer is incorrect. Distinctions between emo-

²Curiously enough, Moshe Zeidner, one of the authors on this paper, was among the 20 or so experts who were consulted in developing the expert scoring scheme for the MSCEIT. If one asked his wife, children, or students, how he would rate on EI in true-to-life situations, the answer may well be, in the spirit of Renee's assessment in *Ally McBeal's* TV show: "Emotionally, he is anything but intelligent!"

tional genius and the normal functioning person are rendered difficult if not impossible. As a result, consensually scored ability measures of EI may be more effective in screening for “emotional stupidity” than in discriminating levels of EI at the upper end of the range.³ We concur with the position advanced by both Brody and Averill claiming that current ability-based measures (e.g., MSCEIT) often assess *explicit*, declarative beliefs about emotion, which can be expressed verbally, in contrast to much emotional and social knowledge, which is *implicit* and procedural (Wells & Matthews, 1994). Either (or both) processes may contribute to EI, but their roles are poorly differentiated in the theorizing of Mayer, Salovey, and colleagues.

Gohm (this issue) points out that our criticism was unjustly targeted at the first performance-based measure (i.e., MEIS), whereas current judgment should instead rest on the newer, revised instrument (i.e., MSCEIT; purportedly the best available ability-based test of EI). However, a review of the psychometric data available for the MSCEIT shows that it may be less desirable and valid than the older version on a number of counts.⁴ Given the reduced number of items on the subtests assessing each of the four branches of the MSCEIT, subscale reliabilities generally do not fare better than the MEIS (see MacCann, Matthews, Zeidner, & Roberts, in press-b). The factor structure of the MSCEIT is difficult to assess because there are only two marker tests for each of the branches, and structural invariance has yet to be determined with re-

spect to disparate gender, age, ethnic, or national groups.

Our target article highlights failures of convergent validity, for example, the MSCEIT appears to share less than 5% of its variance with questionnaire-based assessments of EI (e.g., Brackett & Mayer, 2003). Gohm (this issue) responds that because humans are notoriously poor at evaluating their own ability, the fact that self-report measures of EI do not predict ability-based EI does not necessarily discredit the construct. In fact, this argument would be quite tenable if self-report measures were in fact designed to assess *self-perceptions* of the EI construct. However, the truth of the matter is that self-report measures, such as the EQ-i, are commonly touted as valid measures of the EI construct—not self-perceptions of the construct, and there is a petite difference between these two meanings. Gohm also argues that, because what is to be considered an emotionally intelligent response to real-life contexts is often unclear, we need to accept less precision in our measurement of EI than we would like, and this does not preclude important clinical predictive validity. However, lack of precision of measurement produces not just poor test reliability, but also limits the correlation between predictor and criterion (Nunnally, 1978): Gohm’s prescription condemns us to a half-baked science of artificially low, hard-to-replicate validity coefficients. Furthermore, high levels of reliability are particularly important for assessments of the individual, such as those performed in education and clinical practice.

³In a somewhat related vein, Averill (this issue) underscores another major weakness of consensus scoring (i.e., that it tends to devalue unusual and exceptional emotional responses that are highly weighted in test of creativity and ability). Thus, consensus scoring leaves little room for emotional creativity, in which respondents with novel, different from the norm, unusual, or rare responses should be given higher scores, rather than the opposite. In our own research, we have also noted that consensually scored tests result in very high levels of kurtosis and negative skew, such that statistical analysis assuming multivariate normality cannot be validly applied to scores based on these measures (MacCann, Roberts, Matthews, & Zeidner, 2004). Further research may focus on improving the validity of expert judgments, which do not suffer from these statistical difficulties.

⁴That said, the correlation between MSCEIT consensus and expert scores of $r = 0.98$ for a general EI composite that Mayer, Salovey, et al. (2001) mention is impressive, and a significant advance in establishing validity. Nevertheless, such a result leaves open significant unresolved questions. Are the experts in this latest study still predominantly White, Western, well-educated men (as was the case for the expert weights comprising the MEIS)? Given a relatively large pool of experts, perhaps their views primarily reflect cultural consensus rather than special expertise. Also, what is the level of inter rater agreement? Furthermore, little information is available concerning the relation between the MSCEIT and older versions of the MEIS. These shortcomings of the recent versions of the MSCEIT are particularly noticeable in the context of other standardized, psychological tests that are operational, in which such issues are contemporaneously given detailed treatment in test manuals and other forms of supporting documentation.

Research Issues

Research on EI and Coping With Stress

The transactional theory of emotion (Lazarus, 1991, 1999) provides an account of emotion and its behavioral consequences in terms of the personal meaning of events and high-level appraisal and coping processes. This level of analysis is appropriate for understanding EI as an index of individual differences in adaptation (or adaptability) to emotional demands. In particular, the emotionally intelligent person should cope more adaptively, particularly with his or her emotions than the low emotionally intelligent person, perhaps in part due to superior abilities to appraise emotions of self and others (cf. Salovey, Bedell, Detweiler, & Mayer, 1999). Unfortunately, the existing research literature does not support the notion of a continuum of adaptive competence in that there are no good criteria for rating the outcomes of events in terms of overall adaptive success or failure (Matthews & Zeidner, 2000), and empirical studies have suggested particular coping strategies are only weakly related to outcomes

(Zeidner & Saklofske, 1996). More generally, it is central to the transactional approach that emotions must be understood within the specific context in which they occur. Although the concept is superficially appealing, we cannot identify EI with emotional adaptability.

Both Oatley (this issue) and Gohm (this issue) join us in our plea for additional research designed to uncover the relations among various facets of EI and aspects of coping (i.e., problem-focused vs. emotion-focused coping). At present, however, very little empirical research has been conducted on these issues. We have recently obtained small but significant correlations, $r_s < .2$, between low EI as defined by the MSCEIT and use of emotion-focused and avoidant coping during performance of cognitive tasks (Matthews, Emo, Funke, Zeidner, & Roberts, 2002). The correlation with emotion focus, but not the correlation with avoidance, was mediated by neurotic personality. Salovey et al. (1999) summarized past research regarding some potential intervening variables (e.g., social support, disclosure, rumination), but presented little hard data bearing directly on the relation between coping and EI or mediating variables. Indeed, considerable work remains in mapping out the nexus of relations among various components of EI and various aspects of coping. Furthermore, research would most profitably be directed not toward global coping effectiveness, but toward a more fine-grained understanding of adaptational processes that may be closer to the EI constructs than to standard personality and ability measures. Such processes may well relate to styles of adaptation rather than to more or less successful adaptation (Matthews, Zeidner et al., 2002).

Oatley (this issue) argues that standard self-report coping measures are far from generating the most useful source of knowledge about coping under adversity. Instead, Oatley champions the use of literary, historical, or live figures and examples (e.g., the stoic philosopher Epictetus; the prisoner of war, Admiral James Stockdale). These figures personify the successful rallying to life's challenges and weathering of life's storms. Although we can certainly profit from the writings of those who have suffered in life, unique events such as coping with torture or eviction from their homes constitute an inextricable blend of accidental and essential features related to coping; it is doubtful if these case studies or unique events could serve as a basis for deducing lawful and generalizable relations or could help in uncovering the mechanisms underlying the EI-coping interface, which is the very stuff of science.

Furthermore, the messages that Oatley (this issue) takes from studies of individual life experiences may also be read from standard, nomothetic stress research. Joanna Field's (1934/1952) experiences correspond to findings that both minor hassles and persistent worry may significantly disturb mental equilibrium (Kohn,

1996; Wells & Matthews, 1994). Flow may be no more than the end-point of a continuum of task engagement, a state that may be operationally defined and measured as a complex of energetic mood, attentional focus, and intrinsic task motivation (Matthews et al., 2002). We agree with Oatley that such studies are enlightening in themselves, but they may be still more informative if the experiences of individuals are placed within a dimensional framework, such as the Matthews et al. (2002) three-factor model of subjective states. Mayer, Perkins, Caruso, and Salovey (2001) reported interesting case studies of how emotionally gifted children talk about their emotions. Importantly, their use of the MSCEIT to assess giftedness places the idiographic case material within a nomothetic framework.

One or Two Processing Systems?

EI is commonly viewed as the integration of rational and emotional processing systems (Ben-Ze'ev, 2000), a view placing rational and emotional modes of reasoning in direct opposition to one another (Goleman, 1995; Izard, 2001). Thus, of fundamental relevance to EI theory and research is the question of whether there are indeed two discrete forms of information processing or reasoning (i.e., emotional and cognitive, relating to people and objects, respectively). Elsewhere (Matthews, Zeidner et al., 2002), we have identified weaknesses of the theoretical stance positing separate emotional and cognitive systems. In brief, the idea of separate emotional and cognitive systems is based on a misunderstanding of cognitive psychology, presuming that cognition is necessarily slow, deliberative, and logical. In fact, cognition may operate through rapid, associative, and parallel—but still meaning-based—processing, operating through retrieval of schematic information from memory (see Clore & Ortony, 2000). Thus, we have found difficulties with the prevalent assumption in research on EI that IQ and “EQ” map onto separate cognitive and emotional systems. Averill's (this issue) point that we may be observing two different modes of functioning of the same underlying system is especially well-taken.

We concur with Gohm's (this issue) view that emotional and cognitive processes are interactive in a complex way and that the measurement of EI does not depend on settling the issue of separate or unitary cognitive versus emotional systems. However, to say that emotion and cognition interact is to state the obvious. We cannot progress further with theoretical understanding of constructs labeled as EI without addressing such issues. Zeidner, Matthews, Roberts, and MacCann (2003) presented a developmental account of individual differences in self-regulation that differentiates levels of emotional competence. First, competence reflects temperamental qualities such as

emotional stability and capacity for effortful control. Such competencies are contextualized in that their relation to outcome success varies across situations. Emotional stability facilitates productive interactions with caregivers, but may also promote exposure to hazardous situations, for example. Second, children may differ in their acquisition of rules for appropriate feeling, emotion display, and coping. Third, older children acquire insightful understanding of the self as a social being with a particular sociocultural context. These different types of competence may indeed support different constructs. Self-report EI may reflect temperament, ability tests may assess specific acquired skills, and self-awareness may be treated best idiographically rather than nomothetically.

Applications

EI research has prospered, in part, because it is claimed to predict important educational and occupational criteria above and beyond those predicted by personality and general intellectual ability. Unfortunately, however, the ratio of hyperbole to hard evidence is rather high. Currently, interest in promoting emotional competence in real-world settings exceeds the contribution to psychological science made by EI. In occupational psychology, inflated claims that the predictive validity of EQ exceeds that of IQ have not been substantiated by data. Indeed, there is little evidence that current tests predict any objective index of work performance with ability and personality controlled (Zeidner, Matthews, & Roberts, in press). Future research may benefit from validation research suggested by commentators, such as diary time/experience sampling (Oatley, this issue) and behavior samples in true-to-life situations (Gohm, this issue).

Brody's (this issue) caustic review of the evidence presented for the predictive validity of the MSCEIT reveals some of the key weaknesses in this body of literature (see also Matthews, Zeidner et al., 2002). These include wide reliance on unpublished studies or studies appearing in nonpeer-reviewed journals, lack of proper controls for personality and ability in assessing the relation between predictor and criterion, use of self-report assessment of success on the job or other nonobjective external criteria, and accounting for trivial amounts of variance in the criterion measure. Brody contends that much of the evidence is highly selective, incomplete, and contradictory, with researchers simply presenting the statistic most suitable in supporting their case for the predictive validity of current measures (e.g., subtests, total score). Brody concludes rather pessimistically "there is not a single study reported that indicates that EI has nontrivial incremental validity for a socially important outcome variable after controlling for intelligence and personality."

Gohm (this issue) suggests that much of the poor evidence for EI and real-life success is based on self-report data, leaving hope for the predictive validity of ability-based measures. A recent meta-analysis (Van Rooy & Viswesvaran, 2002) showing very modest predictive validity for EI measures was based mostly on self-report measures, but the few studies based on the MSCEIT do not fare much better. As Brody (this issue) discusses, the recent work of Brackett and Mayer (2003) suggests only weak predictive validity for this instrument. Indeed, these authors found no evidence for greater predictive validity for the MSCEIT compared with questionnaire measures. Future research on both types of instrument may isolate aspects of behavior that are more strongly predictable from EI. For the present, though, by contrast with the impressive predictive validity of general intelligence to which Brody alludes, there is little evidence that suggests an essential role of tests of EI in real-world selection and assessment applications.

Conclusion

Our initial review identified seven myths surrounding EI, but further pitfalls and shortcomings were identified in the commentaries and this response. The bandwagon may indeed be rolling toward a painful collision with reality. Nevertheless, it is important not to squash potentially informative research in its early stages and the mythology of EI may actually serve in the added capacity of a soupstone. For those not familiar with the term, a soupstone is an idea that is falsely believed to be an essential ingredient of valid psychological theory but nevertheless stimulates research in the area under consideration (cf. Navon, 1984). As also suggested by Averill (this issue), one of the major virtues of EI has been to stir interest in the emotional domain and to put emotional competencies on the agenda of psychologists. Indeed, EI has already served to reorient the study of human emotions in a more positive, functional direction by motivating policy makers in business, management, politics, and education to take emotional issues seriously. We do not actually need the concept to understand individual differences in emotional function, but both Goleman's (1995) book and scientific studies (see e.g., Bar-On & Parker, 2000) have increased interest in this important area of psychology, education, and management.

We endorse the view that there may be various new constructs, beyond standard personality and intelligence, which could usefully be identified. However, such constructs may be heterogeneous in nature, and much of what is of interest may not in fact be properly described as *intelligence* at all. We have recently identified at least four different types of construct that ap-

Table 2. *Multiple Types of Construct That May Contribute to Emotional Competence*

Construct	Possible Current Measure	Key Processes	Adaptive Significance	Developmental Influences
Temperament	Scales for Big Five EQ-i (Bar-On, 1997)	Neural and cognitive processes controlling arousal, attention, and reinforcement sensitivity	Mixed: Most temperamental factors confer a mixture of costs and benefits	Genetics and early learning
Information processing	JACBART, emotional Stroop	Specific processing modules	Uncertain: Is speed of processing necessarily adaptive?	Genetics and early learning
Emotional self-confidence	Subcomponents of self-report measures of EI	Self-concept and self-regulation	Predominantly but not exclusively positive: presumed similar to self-esteem	Learning and socialization: For example, mastery experiences, modeling, direct reinforcement (in emotive contexts)
Emotional knowledge and skills	MSCEIT	Multiple acquired procedural and declarative skills	Adaptive within context for learning: may be irrelevant or counterproductive in other contexts	Learning, socialization, and training of specific skills and knowledge

Notes. EQ-i = Emotional Quotient Inventory; EI = emotional intelligence; MSCEIT = Mayer–Salovey–Caruso Emotional Intelligence Test. JACBART = Japanese and Caucasian Brief Affect Recognition Test.

pear to be measured, to varying degrees, in current EI research: temperament (overlapping with personality), information-processing components, emotional self-confidence, and acquired cultural-bound skills and knowledge (see Table 2; also Matthews et al., in press-b). It is precisely because of this heterogeneity that we need clear conceptualization and definition. The confusion caused by the current free-for-all in test development will continue until researchers become more adept at communicating what exactly it is that they want to measure.

However, in the absence of definitive research findings, we cannot be sure that the myths delineated in our target article are entirely false. At the least, most of the myths or sweeping claims made by proponents that we have identified in our two articles are inadequately supported by empirical evidence, and there are solid indications from existing ability and personality research that some of the claims made are either false or highly overstated. It is surprising that exaggerated and very possibly false statements can command such widespread public acceptance. Here, we must point to the deficiencies of the scientific studies conducted to date (while recognizing that these deficiencies are in large measure due to the preliminary nature of the research). As described throughout, there are major conceptual, psychometric, and applied problems to be overcome before EI may be considered a genuine, scientifically validated construct. It is our hope that commentaries of the current type provide a catalyst for scientific progress, if not necessarily in the area of EI, certainly as part of a soupstone it has sought to flavor. As EI grows up from its flashy adolescence, it may need to trade in the bandwagon for some more modest but better engineered form of transportation.

Notes

The ideas expressed in this manuscript are those of the authors and not necessarily of the Educational Testing Service.

Moshe Zeidner, Center for the Interdisciplinary Research on Emotions, University of Haifa, Mt. Carmel, 31905, Israel. E-mail: zeidner@research.haifa.ac.il

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