Integrating Emotion and Cognition: The Role of Emotional Intelligence

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The Stoic philosophers of ancient Greece argued that emotions were unreliable and idiosyncratic sources of information (Lloyd, 1978). They emphasized the superiority of reason, cognition, and intelligence (Kerferd, 1978). The presence of an emotional intelligence (EI) would likely have seemed inconceivable to them—an oxymoron. Two millennia later psychologists and philosophers still debate whether emotions are disorganized interruptions of mental activity or whether they contribute to logical thought and intelligent behavior (De Sousa, 1987). For example, Woodworth (1940) viewed emotions as disorganizing interruptions of mental activity, whereas Leeper (1948, p. 17) suggested that emotions “arouse, sustain, and direct activity” and contribute to logical thought and adaptive behavior. It is no wonder that the identification of an EI occurred rather late relative to other sorts of intelligence.

EI is one way to reconceptualize the relation between reason and emotion. It can be viewed as an outgrowth of two areas of psychological research that emerged in the 1970s and 1980s. The first area, termed cognition and affect, examined how emotions interacted with thought (Bower, 1981; Clark & Finke, 1982; Isen, Shalker, Clark, & Karp, 1978; Zajonc, 1980). Isen et al. (1978), for example, proposed the idea of a cognitive loop that connected mood to judgment. Bower (1981) also introduced a spreading activation model of memory demonstrating that happy moods activated happy thoughts and sad moods activated sad thoughts. Furthermore, a large body
of research showed that thought processes could be affected by mood inductions (e.g., Forgas & Moylan, 1987; Mayer & Bremer, 1985; Salovey & Birnbaum, 1989; Singer & Salovey, 1988). By 1987, the field had become prominent enough to warrant the founding of an eponymously named journal, *Cognition and Emotion*.

The second influence on EI pertained to the loosening of the concept of intelligence to include a broad array of mental abilities rather than a monolithic "g" (e.g., Cantor & Kihlstrom, 1987; Gardner, 1983; Sternberg, 1985). Gardner (1983), for example, urged educators and scientists to place a greater emphasis on the search for multiple intelligences. He was primarily interested in helping educators to appreciate students with different learning styles and potentials. Gardner (1983) wrote of an intrapersonal intelligence, which involves, among many other things, a capacity to notice one's own moods and the ability to draw conclusions about one's feelings as a means of understanding and guiding behavior.

EI includes the processes involved in the recognition, use, understanding, and management of one's own and others' emotional states to solve emotion-laden problems and regulate behavior (Mayer & Salovey, 1997; Salovey & Mayer, 1990). The term was introduced to psychology in 1990 through two articles. The first formally defined EI as "the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (Salovey & Mayer, 1990, p. 189). The second presented a demonstration of how the construct could be tested as a mental ability (Mayer, DiPaolo, & Salovey, 1999). Findings from the empirical study provided a first hint that that emotion and cognition can be combined to perform sophisticated information processing.

EI, however, was mostly unknown to laypeople and academicians alike until Goleman (1995) popularized the term. Goleman's book, *Emotional Intelligence*, quickly captured the interest of the media, general public, and investigators. It saw violence as a serious problem plaguing both the nation and the nation's schools; it claimed that scientists had discovered a connection between EI and prosocial behavior; and it claimed that EI was "as powerful and at times more powerful than IQ" in predicting success in life (Goleman, 1995, p. 34). Goleman (1995, 1998) described EI as an array of positive personality attributes, including political awareness, self-confidence, conscientiousness, and achievement motive (pp. 26–28). Goleman's views on EI often went far beyond the evidence available (Davies, Stankov, & Roberts, 1998; Epstein, 1998; Hedlund & Sternberg, 2000; Mayer & Cobb, 2000; Mayer, Salovey, & Caruso, 2000).

In the following years, numerous tests were packaged purportedly measuring EI, and educators and human resource professionals began to consult on EI—mostly defining the construct as a set of personality variables related to character and important to achieving success in life. Mayer and Salovey
(1997) clarified their definition of EI as one that is strictly ability-based or competency-based as distinguished from one rooted in a broad array of personality traits (see also Mayer et al., 2000; Salovey, Mayer, & Caruso, 2002). More specifically, they defined EI as the ability to accurately perceive and express emotion, to use emotion to facilitate thought, to understand emotions, and to manage emotions for both emotional and personal growth (Mayer & Salovey, 1997).

Today, the field is filled with both empirical articles and popular books on the topic. As a result, the definitions, claims, and measures of EI have become extremely diverse, making it difficult for the researcher or layperson that encounters the field to decipher what EI actually is. In this chapter, our goal is to introduce researchers to the theory, measurement, and research associated with Mayer and Salovey’s (1997) ability model of EI. In the first section, we define EI and describe a new performance-based test for its measurement, the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer, Salovey, & Caruso, 2002a). We also briefly distinguish ability and popular models of EI. In the second section, we place EI in the context of major areas of psychological functioning and social behavior. We then present recent empirical research on EI, concentrating on its relation to these areas. In the final section, we draw some conclusions and discuss future directions for research on EI.

EMOTIONAL INTELLIGENCE: THEORY AND MEASUREMENT

Competing Models of Emotional Intelligence

There are two general approaches to EI in the literature. They can be characterized as ability models and mixed models (Mayer et al., 2000). Ability models view EI as a standard intelligence and argue that EI meets traditional criteria for an intelligence. Mixed models, which arose mostly after initial popularization of the construct, are so-called because they combine the ability conception of EI with numerous self-reported attributes including optimism, self-awareness, self-esteem, and self-actualization (e.g., Bar-On, 1997; Boyatzis, Goleman, & Rhee, 2000; Goleman, 1995, 1998).

Because mixed-model measures of EI do not directly assess a person’s ability to solve problems pertaining to emotions or intelligence, as psychologists define them, they are unlikely to be highly correlated with ability tests. In fact, a recent study showed that the most popular mixed model and ability measures of EI are only related at $r < .22$ (Brackett & Mayer, 2003). Furthermore, because mixed models pertain to a broad constellation of personality variables, such measures are likely to lack discriminant validity. Indeed,
mixed-model measures are highly correlated (positively) with well-being and positive mood, and highly correlated (negatively) with neuroticism and depression (r's = ± 0.50 to 0.75; Bar-On, 1997, 2000; Brackett & Mayer, 2003). In contrast, ability measures only weakly correlate with Big Five personality factors such as openness (or intellect) and agreeableness (r's < -0.35; Brackett & Mayer, 2003; Brackett, Mayer, & Warner, in press; Lopes, Salovey, & Straus, 2003). Therefore, the ability model of EI makes it possible to analyze the degree to which EI is a distinct mental ability and whether it specifically contributes to healthy behavior.

Measuring Emotional Intelligence With the MSCEIT

Mayer and Salovey's (1997) analysis of emotion-related abilities led them to divide their ability model of EI into four areas or branches of abilities. Elsewhere the theory is explained in more detail (Mayer, Caruso, & Salovey, 1999; Salovey, Bedell, Detweiler, & Mayer, 2000; Salovey, Woolery, & Mayer, 2000). Here, we review its major components. As earlier noted, the four branches of EI concern the ability to: (a) perceive emotions, (b) use emotions to facilitate thought, (c) understand emotions, and (d) manage emotions to foster personal growth and healthy social relations. Whereas the perception, understanding, and management of emotions (Branches 1, 3, and 4) involve reasoning about emotions, and Branch 2 (use of emotions to facilitate thought) involves using emotions to enhance reasoning. The four branches of EI are viewed as forming a hierarchy, increasing in complexity from emotion perception to management. According to the theory, one's overall EI is the combination of the four abilities.

Branch 1, Perception of Emotion, concerns the capacity to perceive and identify correctly the emotional content in faces and pictures. Branch 2 concerns the use of emotion information to facilitate thought. This branch specifically deals with the ability to generate, use, and feel emotions as necessary to communicate feelings, or to employ them in other mental processes. Branch 3 involves understanding emotional information, how emotions combine and progress, and how to reason about emotional meanings. Branch 4 concerns the management of emotions. It specifically pertains to a person's ability to manage and regulate feelings in oneself and others so as to promote personal understanding, growth, and the attainment of personal goals.

The four EI abilities were first measured with a test called the Multifactor Emotional Intelligence Test (MEIS; Mayer et al., 1999). This instrument has been improved upon, leading to a shorter and more reliable test, the MSCEIT (Mayer et al., 2002a). The MSCEIT assesses the four-branch model of EI (i.e., perceiving, using, understanding, and regulating emotions) with 141 items that are divided among 8 tasks (see Table 7.1 for a description of the Tasks). The MSCEIT yields seven scores: one for each of the four
<table>
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<th>Area 1: Experiential EI</th>
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<td>Task 1: Faces</td>
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<td>Participants view photographs of faces and identify the emotions in them.</td>
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<td>Participants view photographs of faces and identify the emotions in them.</td>
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<td>How mood enhances thinking, reasoning, and other cognitive processes.</td>
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<td>Which emotions might blend together to form a more complex feeling?</td>
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<td>Task 6: Changes</td>
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<td>How emotions progress and change from one state to another.</td>
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<td>Task 7: Emotion Management</td>
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<td>How effective alternative actions would be in achieving a certain outcome, in emotion-laden situations where individuals must regulate their feelings.</td>
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<td>Task 8: Relationship Management</td>
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<td>Test-takers evaluate how effective different actions would be in achieving an emotion-laden outcome involving other people.</td>
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branches, 2 areas scores, and a total score. The two area scores are termed: Experiential EI, which combines branches 1 and 2, and Strategic EI, which combines branches 3 and 4.

The MSCEIT is an objective test because there are better and worse answers on it, as determined by consensus or expert scoring. Consensus scores reflect the proportion of people in the normative sample (over 5,000 people from various countries) who endorsed each MSCEIT test item. Expert norms were obtained from a sample of 21 members of the International Society Research on Emotions (ISRE) who provided their expert judgment on each of the test's items. Emotional intelligence scores based on the two methods are closely related ($r > .90$; Mayer, Salovey, Caruso, & Sitarenios, 2003).

Mayer et al. (1999) and Mayer, Salovey, Caruso, and Sitarenios, (2001, 2003) assert that the emotional abilities measured by the MSCEIT meet the criteria for an intelligence because: (a) the MSCEIT has a factor structure congruent with the four branches of the theoretical model; (b) the four abilities show unique variance, but are meaningfully related to other mental abilities such as verbal intelligence; (c) EI develops with age and experience, and finally (d) the abilities can be objectively measured.

Concerns about the psychometric properties of earlier EI tests such as the MEIS were raised by Davies et al. (1998) and recently repeated by Roberts, Zeidner, and Matthews (2001). The revised MSCEIT V 2.0, however, is reliable at the full-scale level ($r^{'s} = .90$ to .96), the area level ($r^{'s} = .84$ to .91), and the branch level ($r^{'s} = .74$ to .91; Mayer et al., 2003).

EMOTIONAL INTELLIGENCE FROM A SYSTEMS PERSPECTIVE

EI is best understood in the broader context of an individual's functioning. This means looking at the interaction between EI and other cognitive abilities, emotional and motivational traits, and behavioral criteria. The importance of investigating a mental ability in relation to other areas of psychological functioning is not new (Eysenck, 1979; Sternberg & Runco, 1994; Wechsler, 1958). For example, Eysenck (1979) asserted that nonintellectual attributes (e.g., impulsivity) might interfere with aspects of intelligence such as checking for errors. Thus, viewing a mental ability such as EI within a complete personality system can elucidate how it contributes to diverse psychological processes and behavior.

A number of psychologists have emphasized the need to adopt a systems perspective to organize and understand psychological variables (e.g., Bronfenbrenner, 1979; Csikszentmihalyi, 1999; Lewin, 1936; Magnusson & Stat tin, 1998). It is useful to divide the personality system into its major functional elements, and a variety of divisions have been employed to do this. One recently proposed functional division organizes personality into four broad
areas: (a) a knowledge works, which includes mental models and cognitive capacities that operate on them, (b) an energy lattice, which combines motives and emotions, (c) a role player, that executes social acts, and (d) an executive consciousness (Mayer, 1998, 2001a, 2001b).

The knowledge works pertains to cognitive or intellectual functions that enable understanding of both the self and the world. Components of knowledge works include mental models (e.g., explanatory style), intellectual abilities (e.g., general intelligence), and cognitive styles (e.g., field-dependence). The energy lattice pertains to motivational and emotional attributes that energize and direct behavior. Components of the energy lattice are motives (e.g., achievement), emotions (e.g., happiness), and emotional styles (e.g., neuroticism vs. emotional stability). The role player pertains to the social functions of personality and is responsible for planning and executing social behavior through social roles (e.g., leadership), social skills (e.g., acting skill), or physical-motor expression (e.g., gracefulness). Finally, the executive consciousness pertains to conscious awareness and self-regulatory functions. It also controls behavior by overseeing other areas of personality functioning. Functions of the executive consciousness include awareness (e.g., absorption), coping strategies (e.g., problem-solving coping), and self-awareness (e.g., self-consciousness).

Mayer and Salovey’s (1997) model of EI described an intelligence that draws on functions from the emotion system (in the energy lattice) and the cognitive knowledge and capacity of the knowledge works. Furthermore, the self-regulatory aspects of the EI model may draw on the executive consciousness portion of personality.

The fact that the EI model draws on features from a number of areas of personality has several implications. For example, cognitive abilities share some common variance. Because both cognitive IQ and EI draw on cognitive abilities, EI is expected to share some variance with general intelligence, while remaining distinct from it (Mayer et al., 2000). Furthermore, EI should be related to other cognitive abilities such as creative and practical intelligence (Stenberg, 1999).

With regard to the energy lattice, components of EI such as emotional regulation may be related to a person’s experience of more positive and less negative emotions. EI could also inform the motivation system by helping people to choose tasks in which they are likely to succeed. The ability to use emotions to facilitate thinking might also help a person to invest time and effort in actions that are most appropriate for current mood states. For example, an emotionally intelligent person could be expected to work on inductive reasoning and creative tasks when in happy moods, and tasks requiring deductive reasoning when in sad moods (Iseen, Daubman, & Nowicki, 1987; Palfai & Salovey, 1993).
EI may also be important for social interactions (i.e., role player functions) because it involves the ability to decode nonverbal and emotional signals and to manage one's own and others' emotions. Therefore, an emotionally intelligent person is predicted to have more harmonious social relationships that include mutual care and understanding and less conflict (see Carrocho, Forgas, & Mayer, 2001; Lopes et al., 2003).

Finally, EI should be related to aspects of the executive consciousness. In particular, the regulation of emotion branch could be expected to correlate negatively with impulsive behavior and positively with healthier life decisions. Therefore, it is expected that EI would negatively correlate with physical fighting, and excessive drug and alcohol consumption.

EMOTIONAL INTELLIGENCE RELATED TO COMPONENTS OF THE PERSONALITY SYSTEMS SET

The framework previously described suggests that EI should be associated with a number of mental abilities, motivational and emotional qualities, and social behavior. In this section, we discuss how EI is both conceptually and empirically related to the four components of the systems set: knowledge works (e.g., verbal intelligence), energy lattice (e.g., well-being), role player (e.g., social relationships), and executive consciousness (e.g., maladaptive behaviors). Note that we do not expect EI to be highly correlated to many areas of psychological functioning, or to explain large amounts of variance in specific behaviors, but to contribute to important predictions above and beyond other abilities and traits. Even moderate associations are considered important when they signal theoretically important links between psychological processes and entail far-reaching consequences for applied purposes (Abelson, 1985; Prentice & Miller, 1992).

KNOWLEDGE WORKS

Traditional Intelligence

Because most IQ tests rely on vocabulary and basic reading comprehension skills there should be a relation between EI, in particular, understanding of emotions, with traditional intelligence. Furthermore, because IQ partly reflects self-regulatory and executive function capacities such as the ability to sustain attention (Lynam, Moffitt, & Southamer-Loebel, 1993), we expect the management of emotion branch to correlate with traditional measures of intelligence. For example, unregulated anxiety can undermine focus and concentration, inhibiting smooth performance in challenging intellectual or
physical activities (Baumeister & Tice, 1990; Csikszentmihalyi, 1992), including performance on IQ tests.

Recent empirical work suggests that EI is modestly associated with traditional intelligence and academic achievement. In two large-sample studies with students at the University of New Hampshire, Brackett and colleagues found low but significant associations between MSCEIT scores and measures of academic ability and achievement, as assessed by verbal SAT scores, high school rank, and college grades (r's < .35; Brackett & Mayer, 2003; Brackett et al., in press). In another study, the understanding emotions subscale of the MSCEIT, which taps into knowledge of emotional vocabulary, correlated the highest with both verbal ability—as measured through the WAIS-III (Wechsler, 1997) vocabulary subtest and verbal SAT scores (Lopes et al., 2003). Finally, David (2002) found significant correlations between all four branches of the MSCEIT and the Wonderlic Personnel Test (WPT; Wonderlic, 1998). The highest correlation was with the understanding of emotions branch. Additional findings between the MSCEIT and measures of general intelligence can be found in the test manual (Mayer et al., 2002b). Note that correlations between EI and intelligence measures based on college student samples may be somewhat attenuated due to restriction of range on IQ.

Practical Intelligence

Practical intelligence (Sternberg, 1999) helps one to implement solutions effectively, drawing on previous experience and tacit knowledge. Sternberg's view of practical intelligence encompasses social and emotional skills, and emphasizes the notion of common sense. Common sense embodies all the tacit knowledge or procedural know-how that is often not explicitly taught, nor easily verbalized (Sternberg et al., 2000). To assess practical intelligence, Sternberg and colleagues have developed tests that ask people to rate the effectiveness of different strategies for dealing with situations likely to arise in everyday life. There is evidence that measures of practical intelligence predict academic achievement and supervisor ratings of work performance over and above traditional measures of intelligence (Grigorenko & Sternberg, 2001; Sternberg et al., 2003).

We expect emotional and practical abilities to be somewhat associated, insofar as emotional abilities reflect attunement to social norms and expectations, and thus reflect common sense, as well. However, we have only just started to investigate the relationship between emotional and practical intelligence. In a preliminary study with 70 college students, modest correlations (r's = .23) were found between the understanding and managing of emotions branches on the MSCEIT and the College Students' Tacit Knowledge Inventory (CSTKI; Grigorenko, Gil, Jarvin, & Sternberg, 2002). Further research
is needed to replicate these findings and better understand the relationship between the two realms of ability.

Creativity

Although no investigator has directly correlated ability measures of EI with measures of creativity, emotions are intimately involved in the creative process, and research on creativity and affect suggests that EI abilities should be related to creativity (Csikszentmihalyi, 1996; Domino, 1989; Shaw & Runco, 1994). Perception of emotion in colors, for instance, has been linked to creativity in studies by Dailey, Martindale, and Borkum (1997). People with high scores on the Remote Associates Test, an index of creative ability, were better able to discriminate emotions in colors than less creative individuals.

Another way EI may influence creativity is that creative individuals appear to plan and direct their behavior in ways that optimize their performance (Csikszentmihalyi, 1996). Two EI abilities, the use of emotion to facilitate thinking and management of emotions, may aid in directing behavior to enhance creativity. For example, people who are aware of the influence of mood on their thinking may capitalize on emotional ups and downs so as to enhance their creativity. Positive moods were found to facilitate inductive and creative thinking, while negative moods may facilitate attention to detail and deductive reasoning (Isen et al., 1987; Palfai & Salovey, 1993).

The ability to experience synesthesia, which involves associating feelings and other sensations (one task on the MSCEIT’s use of emotions branch), has also been linked to creativity (e.g., Dailey et al., 1997; Domino, 1989). For example, Domino (1989) showed that people who report frequent experiences of synesthesia score higher on personality traits (i.e., Adjective Checklist for Creativity; Domino, 1970), attributes of perceptual style (i.e., preference for complexity; Barron, 1953), and divergent thinking. Finally, the ability to access one’s emotions and use them in thinking has been described as the basis of metaphor generation (Lubart & Getz, 1998). The ability to generate metaphors may facilitate the creative process by suggesting analogies or unique ways to redefine problems (Lubart & Getz, 1998).

Following a different line of research, Averill (Averill, 1999; Averill & Thomas-Knowles, 1991) wrote about emotional creativity as the ability to experience emotions that are novel, authentic to self, and adaptive. Emotional intelligence is likely to be related to emotional creativity as cognitive intelligence is related to cognitive creativity. These two constructs are thought to be related because both EI and emotional creativity are defined as abilities, reflect individual differences, and rely on the understanding and regulation of emotional experience.
ENERGY LATTICE

Psychological Well-Being

Several studies have linked EI to psychological well-being as measured by Ryff's (1989) scales. The scales tap into autonomy, mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. Brackett and Mayer (2003) reported significant correlations between MSCEIT total scores and five out of the six dimensions (all but autonomy). The highest correlations were found with personal growth and positive relations with others ($r$'s = .36, .27, respectively). In another study, Brackett (2001) reported a small, but significant correlation between EI and Diener's (1984) satisfaction with life scale ($r = .12$).

Depression and Anxiety

EI also appears to be related to less depressive symptoms and anxiety. Head (2002), for instance, found significant correlations between the managing emotions subscale of the MSCEIT and measures of depression ($r = -.33$), assessed with the Beck Depression Inventory, and trait anxiety ($r = -.29$), measured by the State-Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970). There is also a rich literature, which suggests individual differences in emotional regulation among children are associated with adaptation in all domains of life (Caspì, 1998, 2000; Eisenberg, Fabes, Guthrie, & Reiser, 2000; Kagan, 1998).

ROLE PLAYER

Evidence has accumulated on the importance of EI abilities for prosocial behavior. Studies with children, using a variety of assessment tools, have linked many EI abilities (e.g., reading emotions in faces, understanding emotional vocabulary, and regulation of emotions) to social competence and adaptation using peer, parent, and teacher ratings (for reviews see Eisenberg et al., 2000; Halberstadt, Denham, & Dunsmore, 2001; Saarni, 1999). In a preliminary study, schoolchildren scoring higher on the MEIS were rated by their peers as less aggressive, and by their teachers as more prosocial, than students scoring lower on EI (Rubin, 1999).

There is also evidence that EI is associated with adults’ quality of social relationships. In several studies with college students, EI was associated with various indicators of positive social relations ($r$’s in the .40 range), even after personality and traditional intelligence were statistically controlled. For example, Lopes et al. (2003) reported a correlation between the managing emo-
tions subscale of the MSCEIT and global self-perceived quality of interpersonal relationships (Ryff, 1989). The MSCEIT was also associated with more supportive relationships with parents and less antagonistic and conflictive relationships with a close friend, as assessed by Forman and Buhrmester’s (1985) Network of Relationships Inventory. Another study looked at college students’ interactions on a 10-week group project at the University of Toronto. Students with high scores on the managing emotions subscale of the MSCEIT were more satisfied with other group members, with the quality of the communication within the group, and with the social support they received from their peers (Côté, Lopes, & Salovey, 2002). Students with higher EI were also exhibited high visionary leadership as rated by their peers (r’s in the .30 range).

A study with German college students examined the relationship between EI and the self-perceived quality of daily social interactions. Participants reported all social interactions that lasted 10 minutes or longer, every day, for 2 weeks (Lopes, Brackett, Schütz, Sellin, Nezlek, & Salovey, in press). Results showed that individuals with high scores on the managing emotions subscale of the MSCEIT tended to be more satisfied with their daily interactions with people of the opposite sex (r’s in the .3 to .4 range). They also perceived themselves to be more successful at impression management in daily social interactions.

There is also evidence that EI is related to peer perceptions of social and emotional competencies. Lopes et al. (in press) asked college students to rate themselves and nominate up to eight peers living in their residential college on a questionnaire pertaining to social and emotional competencies. Students who scored higher on the managing emotions branch of the MSCEIT not only reported higher self-perceived social competence, but were also more favorably viewed by their residential college classmates.

It is worth mentioning that the relations between EI and the various criteria in the previous four studies remained significant after controlling for the Big Five personality traits (and traditional analytic intelligence as well, in two of the studies). It is also noteworthy that the managing emotions branch was more strongly associated with the criteria than the other branches of EI. This may be due, in part, to the fact that managing emotions is a higher-order ability that draws upon the other three EI abilities. Managing emotions may also influence social interactions by facilitating other social skills and through emotional contagion.

Finally, Brackett et al. (in press) measured the quality of interpersonal relationships by asking people to report the number of times that they engaged in both positive and negative behaviors with best friends, significant others, and parents. Positive relations were assessed with factor-based life space scales (self-reported behaviors) that had questions pertaining to having long conversations with friends and displaying affection with a significant other.
Negative interactions were assessed with scales that had questions pertaining to behaviors such as getting screamed at by a parent or drinking alcohol heavily with a friend. Results of the study showed that EI was associated with more positive interactions and fewer negative interactions, although the latter effect was only significant for men.

EXECUTIVE CONSCIOUSNESS

Flow Experiences

Flow entails a state of balance in consciousness between psychological resources and task demands, enjoyment of the activity at hand, lack of self-preoccupation, and a sense of personal growth. EI may contribute to flow experiences because of the crucial role of emotional regulation and attention in flow (Csikszentmihalyi, 1992). Entering the flow state entails a delicate emotional equilibrium: avoiding both anxiety, usually associated with excessive challenge for one's level of skill, and boredom, associated with insufficient challenge.

Maladaptive Behaviors

The ability to manage emotions and their expression is vital for coping with life's challenges. The excessive use of recreational drugs and alcohol, as well as the involvement in high risk and violent behavior are likely to reflect deficits in EI. EI theory posits that a person's ability to accurately perceive, use, understand, and regulate emotions may help to prevent involvement in potentially harmful behaviors.

In an initial study, Formica (1998) reported a negative correlation ($r = -.37$) between a measure of destructive behavior (e.g., drug and alcohol use, selling drugs, engaging in acts of mischief—destruction) and the MEIS, an earlier measure of EI. Brackett et al. (in press) extended Formica's findings using the new MSCEIT and more extensive behavioral criteria. College students' self-reported use of illegal drugs (e.g., number of times smoked marijuana, used cocaine, or both), alcohol consumption (e.g., most amount of beer drank in one evening, number of times fallen asleep because of intoxication), and violent-mischief behavior (number of fights in the last month, number of times arrested in the last year) all correlated negatively with the MSCEIT ($r's = -.28$ to $-.45$). The previous findings remained significant after controlling for the Big Five and verbal SAT scores. The correlations in Brackett et al.'s study were only significant for males, however.
This may be due, in part, to restricted ranges in scores on some of the outcome variables for females.

FUTURE DIRECTIONS AND SUMMARY

In this chapter, we discussed how emotional, motivational, and cognitive processes are related to intelligent behavior from the perspective of EI theory and research. We provided evidence that EI can be reliably measured, that it shows discriminant validity in relation to other cognitive abilities and personality traits, and that it has incremental validity in predicting outcomes that are important for the individual and for society. Evidence thus far suggests that individual differences in EI are associated (positively) with the quality of social interactions, healthy behavior, and psychological well-being in late adolescence and early adulthood. EI is also associated (negatively) with depressive symptoms and maladaptive behavior such as drug use and violence. These findings lend support to a broader view of intelligence—one that goes beyond verbal IQ and looks at other abilities that have important implications for people's lives.

Research on EI is still in its early stage and many questions have yet to be investigated. Now that important concerns about the reliability and factor structure of ability measures have been addressed (Mayer et al., 2003), it is time for researchers to seek a deeper understanding of EI. In particular, it is important to examine how EI develops, its covariance with other mental abilities and traits, and its criterion and predictive validity with respect to important life outcomes at home, school, and work.

In the area of cognitive functioning, it is possible that IQ is the single best predictor of work performance when we look at people of all levels of intelligence (Herrenstein & Murray, 1994; Schmidt & Hunter, 1998). However, if we look at a pool of candidates of fairly high IQ, it may well be that EI abilities, rather than IQ, make the difference between a top professional and a mediocre one. The relationship between EI and creative abilities still has to be investigated. Several hypotheses regarding the relation between creativity and intelligence (Sternberg, 1999) may also be applied to EI and emotional creativity. For example, is emotional creativity just a correlate of EI or is it an additional factor of EI?

There is reason to believe that EI will correlate with motivation. Specifically, a person's ability to use emotions to facilitate thought might help trigger behaviors in which the person has the highest likelihood of success. For example, experimental research employing mood induction would be necessary to assess whether individuals higher on EI are better able to direct their behavior into productive tasks. If this were the case, EI may be related to higher frequencies of flow experiences and in turn contribute to a person's
happiness (Csikszentmihalyi, 1990). Given the preliminary evidence of the negative relation between EI and depression, we might also wonder whether lower EI is a risk factor for mental illness.

Now that we know that EI correlates with positive social relationships (e.g., Brackett et al., in press; Lopes et al., 2003, in press), it would be important to understand the processes through which EI operates in interpersonal relationships, and the social contexts or situations in which specific emotional abilities are likely to play an important role. For example, how does EI relate to marital satisfaction? Future research might assess the congruence between the kinds of abilities involved in EI and the abilities required to successfully negotiate marital ups and downs (Fitness, 2001).

Emotionally intelligent people can manage their emotions more effectively and, consequently, they should be able to cope better with life’s challenges. Thus, research is needed to understand whether emotionally intelligent people select the most appropriate coping strategies for different types of situations. For example, when faced with a negative life event that cannot be changed (e.g., loss of a loved one), will emotionally intelligent people recognize the importance of using emotion-oriented coping strategies and successfully regulate their emotions?

Finally, research on how EI develops and the extent to which it is biologically based or learned is in urgent need of investigation. To the extent that EI is learned, Gottman, Katz, and Hooven (1997) suggested that EI may be influenced by parental behaviors that he calls emotion coaching and emotion dismissing. Indeed, recent research suggests an association between young adults retrospective self-reports of parental emotion dismissing and lower EI (Kroell, 2002).

To what extent can EI be taught? The authors of this chapter differ in their beliefs regarding the extent to which intelligence in general, and EI in particular, is relatively fixed or malleable. It is unlikely that superficial training programs can boost EI substantially because emotional skills reflect a lifetime of learning. However, if traditional schooling increases cognitive abilities (Gustafson, 2001), it is possible that educational programs focusing on social and emotional abilities might stimulate EI. In fact, there is evidence that school-based programs of social and emotional learning produce beneficial outcomes in terms of adaptation to school and school learning (e.g., Hawkins, Catalano, Kosterman, Abbott, & Hill, 1999; Kusché & Greenberg, 2001). It is worth mentioning, however, that a recent review of EI intervention programs cautions that most programs to date are not specifically designed to improve components of ability EI and lack both internal and external validity (Zeidner, Roberts, & Matthews, 2002). One possible reason for this is that most existing programs were not originally designed as EI intervention programs, but as preventative tools against the problems of drug abuse and delinquency facing many schools.
CONCLUSION

In spite of the claims of popular authors, we do not believe that EI will prove to be twice as important as cognitive intelligence in predicting "success" in life (Goleman, 1998, p. 31). We do, however, expect EI to be an important predictor of significant outcomes. The research presented here suggests that EI, defined and measured as a mental ability, is likely to take its place alongside other salient psychological variables as an important correlate of adaptation and performance at school, home, and the workplace.

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7. EMOTIONAL INTELLIGENCE


