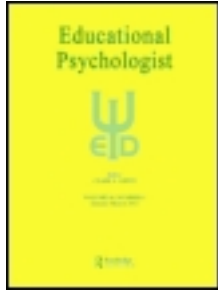


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Emotional Intelligence: What Does the Research Really Indicate?

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In her critique of emotional intelligence (EI) theory and research, Waterhouse (2006) makes several claims. First, she argues that there are “many conflicting constructs of EI,” implying that it cannot be a valid concept given this multiplicity of views. Second, she cites some research and opinion suggesting that “EI has not been differentiated from personality plus IQ.” Third, she states that “the claim that EI determines real-world success has not been validated.” Finally, she proposes that research on brain function proves that there cannot be a “unitary EI.” Based on this critique, she argues that EI competencies should not be taught in the schools. This article addresses each of these criticisms and shows that there now is much more empirical support for EI theory than Waterhouse suggested in her article.

Parts of Waterhouse’s (2006) critique of emotional intelligence (EI) theory seem valid, whereas other aspects are misguided. She seems to mix together popular claims, scientific claims, and claims on Web sites and then dismisses the area without a systematic or thorough review of the actual published scientific literature. For instance, she fails to consider a growing body of research that clearly differentiates EI from either personality or IQ-related measures. Similarly, her discussion of the research on the link between EI and real-world success cites only two studies, one of which is a dissertation. She ignores the many other published studies that demonstrate a link between EI and performance in various work contexts. Finally, in proposing that EI competencies not be taught in schools, Waterhouse overlooks a large body of evaluation research suggesting that not only can those competencies be taught but doing so already has contributed to important social, emotional, and academic gains for children.

EI is a young theory, still at an early stage in development and hypothesis testing. Theory-building proceeds through successive testable claims, resulting in more refined theories that are evidence-based. EI theory is in this hypothesis-testing stage. Therefore, it is important to consider all the evidence.

THE PROBLEM OF CONFLICTING CONSTRUCTS

Waterhouse (2006) is troubled by the fact that there are many conflicting constructs of EI. However, at this early stage of the theory’s development, the generation of several versions of EI theory is a sign of vitality in the field not a weakness. IQ theory has, likewise, had multiple versions—Guilford, Cattell, Wechsler, and Sternberg notable among many others. In fact, after nearly 100 years of research and theory, there still is not a consensus about what IQ is or the best way to measure it. Expecting such a consensus for EI, especially at this stage of the theory’s development, seems to be holding it to a different standard.

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Much of the theoretical work on EI has explored the differences between several major models, and the differences are important. However, there is considerable overlap among the models, and it is in this overlap that one can find at least a provisional definition of the concept that can guide discourse. Specifically, all of the models recognize that EI involves two broad components: awareness and management of one's own emotions and awareness and management of others' emotions. So, for instance, one of the major models includes a dimension labeled "Perception of Emotion," which encompasses both awareness of one's own emotions and awareness of others' emotions (Mayer, Salovey, Caruso, & Sitarenios, 2003). Similarly, this model has a dimension labeled "Management of Emotion," which covers both management of one's own emotions and management of others'. In other models, these two aspects of emotion management are divided into self and other (Goleman, 2001).

There also has been some confusion between the underlying core abilities of EI and the many social and emotional "competencies" that are built on those core abilities. Although more theoretical work is needed to resolve this confusion, Goleman (2001) has proposed a "theory of performance" as a way of clarifying this important distinction.

Waterman, along with other critics, is right in arguing that writers are not always clear about these different distinctions and meanings when they use the term "emotional intelligence." However, although conflicting constructs continue to characterize EI theory, researchers have made progress during the last few years in clearing up some of the most troublesome sources of confusion.

THE RELATION BETWEEN EI, IQ, AND PERSONALITY

Numerous studies have examined the relation between EI and two sets of older constructs: cognitive ability and personality. Although some studies have suggested that EI adds nothing new, the preponderance of published research indicates that EI does in fact represent a set of abilities that are distinct from either IQ or the "Big Five" personality traits (openness to novel experience, conscientiousness, extraversion vs. introversion, agreeableness, and neuroticism).

In considering the "construct validity" issue, it is useful to keep in mind that there are several different models of EI that now are being studied, and each has been measured in a different way. The amount of research support for divergent and incremental validity differs for each of these models and measures. Nevertheless, the weight of the evidence now supports the claim that EI is distinct from IQ, personality, or related constructs (Mayer et al., 2003).

For instance, Palmer, Donaldson, and Stough (2002) found that a subscale of the Trait Meta Mood Scale measuring "clarity" of emotional perception predicted variance in life satisfaction above and beyond positive and negative affect. In another

study, Palmer, Gardner, and Stough (2003) found only small correlations between scores on the Swinburne University Emotional Intelligence Test (SUEIT) and three of the five major domains of personality—neuroticism, extraversion, and openness. The SUEIT measures how people "typically think, feel, and act with emotions at work" (p. 2). Thus, this study suggests that at least this measure of EI does differentiate between EI and personality.

Brackett and Mayer (2003) demonstrated incremental validity for another measure of EI. They found that after personality and verbal SAT scores were controlled, lower scores on the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) still predicted social deviance and lower scores on the EQ-i predicted higher alcohol consumption. (The MSCEIT is an ability-based test designed to measure how well one perceives emotions, integrates emotions to facilitate thought, understands emotions, and regulates emotions. The EQ-i is a self-report measure with four subscales labeled Intrapersonal, Interpersonal, Adaptability, and Stress Management.) Similar results have emerged from several other studies of the MSCEIT (Daus & Ashkanasy, 2005; Lopes, Salovey, Côté, & Beers, 2005; Lopes, Salovey, & Straus, 2003).

Law, Wong, and Song (2004), in a study published in the highly selective, peer-reviewed *Journal of Applied Psychology*, offer further evidence for the unique contributions of EI. The authors found in one study that self-report measures of EI and personality together predicted life satisfaction better than did the personality measures alone. In a second study, using both a student and worker sample, they found that, after controlling for the Big Five personality dimensions, others' ratings of EI explained additional variance in students' life satisfaction and feelings of powerlessness and better predicted workers' job performance ratings, respectively. These results further support the idea that EI is a construct related to, but separate from, personality.

Another study suggested that EI represents a set of abilities distinct from either personality traits or mental ability. Rosete and Ciarrochi (2005) had a group of executives complete the MSCEIT, a personality measure (the 16PF5), and a measure of cognitive ability (the Wechsler Abbreviated Scale of Intelligence). Then they asked each executive's subordinates and direct manager to assess his or her leadership effectiveness. Regression analyses indicated that EI not only predicted leadership effectiveness but also explained variance not accounted for by either personality or IQ.

Van Rooy, Viswesvaran, and Pluta (2005) conducted a meta-analysis that provides further support for the claim that EI is distinct from either IQ or personality. Their analysis was based on 58 studies of the EI construct, involving more than 8,000 research participants. They found that some self-report measures of EI did correlate highly with personality measures. However, ability-based measures of EI, such as the MSCEIT, did not correlate highly with either personality or cognitive ability. The overall correlation with personality was .13, and the correlation with cognitive ability was .34.

Thus, when all of the research that has been done on this issue is examined together, the evidence suggests that EI is distinct from both IQ and traditional aspects of personality.

THE RELATION BETWEEN EI AND REAL-WORLD SUCCESS

Waterhouse (2006) claims that the contribution of EI to real-world success has not been shown. However, there now is considerable evidence supporting a link between EI and a variety of outcomes in a range of settings. Much of this research has focused on the workplace.

We already have described the study by Rosete and Ciarrochi (2005), which found a significant relation between EI and leadership effectiveness in a group of executives. Another recent study suggests that this is not an isolated finding. In the first published meta-analytic study related to EI, Van Rooy and Viswesvaran (2004) examined the power EI has to predict performance outcomes across an array of domains by looking at 69 independent studies. They found a correlation between EI and performance of .23, and the predictive validity of EI held relatively constant across the different performance domains, from workplace to academic.

Other studies have looked at the relation between EI and general workplace performance in various specific settings and occupational groups. For instance, a study of more than 300 managers at Johnson & Johnson (Cavallo & Brienza, 2004) used the Emotional Competence Inventory (ECI), a multirater assessment instrument that asks those who work with the individual to rate him or her on a variety of competencies related to EI. The results showed that superior performers scored higher in all four EI clusters (Self-Awareness, Self-Management, Social Awareness, and Relationship Management) based on both superior and subordinate ratings. Of the 20 emotional competencies measured, superiors rated high-performing leaders stronger in 17, and subordinates rated high-performing leaders stronger in 14. Peers found high-performing leaders to be stronger in 9 of the 20 emotional competencies.

Two other studies looked at EI and performance in military environments (Bar-On, Handley, & Fund, 2005). One study was conducted in the U.S. Air Force to see if EI assessment could help predict performance in military recruiters. The study measured EI using the EQ-i, and performance ratings were based on individual productivity. Another study looked at EI, as measured by the EQ-i, and performance, as measured by peer nomination, criterion group membership, and commander evaluations in the Israeli Defense Forces. Both studies found that high performers (military recruiters and combat soldiers) had significantly higher scores on the EI measures than low performers. The EQ-i predicted combat soldiers' performance even a full year after the test was taken.

In educational settings, EI has been linked to the performance of principals. One study (Stone, Parker, & Wood,

2005) looked at 464 principals and vice principals in Ontario. EI was measured with the EQ-i, and performance was measured by a 20+-item leadership questionnaire completed by the person's superior and up to three subordinates. The authors compared the top 20% to the bottom 20% in performance. They found that the above-average leaders scored significantly higher than the below-average leaders on total EI and all four dimensions of EI.

Although many of the studies have measured job effectiveness using supervisor ratings, a few have used more objective measures. One of the most compelling studies involved 100 managers of Beefeater restaurants in the United Kingdom. Langhorn found that managers' scores on the EQ-i predicted annual profit increase ($R = .47$) as well as guest satisfaction ($R = .50$; cited in Bar-On, 2004). Another study involved 92 college principals in the United Kingdom (Boyatzis & Sala, 2004). The school's retention rate was correlated with two aspects of EI measured by the ECI: Self-Awareness and Social Awareness.

Two other studies found a relation between EI and objective performance outcomes. In the first, Luskin, Aberman, and DeLorenzo (2005) studied changes in financial service advisors after emotional competence training. Not only did stress levels decrease and reported positive emotional states increase but the total amount of revenue generated by the financial advisors also increased each year for 2 years after the training. In the second study, Bachman, Stein, Campbell, and Sitarenios (2000) found that account officers with most success in reaching their earnings goals ("cash goal attainment") for the preceding months had higher levels of EI.

Although most of the studies mentioned previously used the EQ-i and ECI as measures, studies using the MSCEIT also have found a relation between EI and workplace success. Lopes et al. (2004), in a study of analysts and clerical employees, found that higher scores on the MSCEIT predicted greater merit increases, higher company rank, better peer and supervisor ratings of interpersonal facilitation, stress tolerance, and leadership potential. Most of these relations held once the Big Five personality factors and cognitive ability, as well as other variables, were controlled for. In another study, Lopes et al. (2005) also controlled for personality traits and demographic differences and still found a significant relation between management students' MSCEIT scores and the quality of their proposed goals and ideas in a group project. In addition, in yet one other study using the MSCEIT, Leban (2003) found that project managers who scored higher on EI led the most successful projects.

Critics of EI theory have rightly complained that many of the studies that are cited to support the link between EI and performance have not been published in peer-reviewed journals. However, 5 of the 12 studies cited previously have been published in peer-reviewed sources, and the amount of research appearing in such sources has grown steadily in the last 5 years. Thus, although there is still much to be learned about the relation between EI and work-related

outcomes, the evidence in favor of such a relation continues to accumulate.

EI VERSUS IQ: WHICH IS MORE IMPORTANT?

Critics of EI theory often refer to common misreadings of Goleman's position concerning the relative importance of EI for success and happiness in life. They focus particularly on his purported claims that EI is more important than IQ for effective performance in the workplace. In a new introduction to the 10th anniversary edition of *Emotional Intelligence*, Goleman (2005) clarified ambiguities in his earlier writings that encouraged two widespread conclusions that he did not intend: the claim that EI accounts for 80% of life success and that it outperforms IQ in predicting academic achievement. He took neither of those positions. Goleman (2001) wrote:

My belief is that if a longitudinal study were done, IQ would be a much stronger predictor than EI of which jobs or professions people can enter. Because IQ stands as a proxy for the cognitive complexity a person can process, it should predict what technical expertise that person can master. Technical expertise, in turn, represents the major set of threshold competencies that determine whether a person can get and keep a job in a given field. IQ, then, plays a sorting function in determining what jobs people can hold. However, having enough cognitive intelligence to hold a given job does not by itself predict whether one will be a star performer or rise to management or leadership positions in one's field. (p. 22)

Goleman (2005) clarified:

IQ washes out when it comes to predicting who, among a talented pool of candidates *within* an intellectually demanding profession will become the strongest leader. In part this is because of the floor effect: everyone at the top echelons of a given profession, or at the top levels of a large organization, has already been sifted for intellect and expertise. At those lofty levels a high IQ becomes a threshold ability, one needed just to get into and stay in the game. (pp. xiv–xv)

Because of the floor effect for IQ, Goleman proposes that EI abilities, rather than IQ or technical skills, will better discriminate those who will be most capable in top positions. EI matters greatly in selecting, promoting, and developing leaders. One methodology for identifying such discriminating abilities is competence modeling (Spencer & Spencer, 1993), a technique well known in organizational psychology and one used routinely by major corporations, as well as by the Office of Personnel Management for the entire U.S. Civil Service, to identify the best candidates for high-level jobs and for promotion. The multitude of competence models generated independently by organizations themselves suggest that, for top leadership positions, the most critical com-

petencies draw heavily on EI; IQ itself (or surrogates such as technical proficiency) drop out as predictors of excellence in high-level jobs, although they matter more for excellence in lower level positions (Goleman, Boyatzis, & McKee, 2002).

Questions about the relative contribution of EI and IQ arose from a considerable body of previous research suggesting that IQ accounts for a relatively small amount of the variance in important life outcomes. Waterhouse (2006) questions the validity of this research, pointing to one study that she says is not credible because it was not based on a single study but rather a "review judgment" of the authors. Apparently she is not aware of several meta-analyses that consistently show that IQ and other tests of cognitive ability account for no more than about 25% of the variance in outcomes. Often, that figure is considerably less.

One of the most recent of these studies looked at the relation between cognitive intelligence and leadership effectiveness. The authors concluded that "the relationship between intelligence and leadership is considerably lower than previously thought," with a corrected correlation coefficient of only .27 (Judge et al., 2004, p. 542). In other words, cognitive intelligence accounted for less than 8% of the variability in leadership effectiveness.

NEURAL DIFFERENTIATION OF COGNITIVE AND EMOTIONAL FUNCTIONS

As noted previously, the components of the major models of EI can be ranged along two broad dimensions: awareness and management of one's own emotions and awareness and management of the emotions of others. The first dimension includes self-regulation abilities, the second social skills. Contrary to the claims made by Waterhouse (2006), the neural substrates for these two dimensions of EI set them apart from the neocortical systems that underlie general intelligence as assessed by IQ. Largely citing the work of Richard Davidson on affective neuroscience, Goleman (2001) reviewed the neurophysiology of EI that marks a clear distinction from that of IQ.

Waterhouse (2006) claims that, because emotion and cognition ordinarily orchestrate in mental life, there is no unique underlying neural system for emotional and social abilities. This view fails to comprehend that discrete neural systems can be interactive and still serve distinct functions. Thus, although prefrontal cortical areas subserve the cognitive functions measured by IQ tests, subcortical systems are more crucial for emotional and social functions such as empathy.

The independence of the cognitive and social/emotional systems can be seen in two informative cases: patients with selective brain lesions and those with Asperger's syndrome. Neurological patients with lesions to the ventromedial prefrontal cortex, the amygdala, and insular regions (although not those with lesions outside these areas) display normal levels of cognitive function as assessed by IQ tests,

while having impairments in social judgments and decision making (Bar-On, Tranel, Denburg, & Bechara, 2003). Patients with Asperger's syndrome display normal or superior intelligence on IQ measures (one won the Field Prize, the most prestigious award in mathematics), despite gross deficits in EI abilities such as empathy, reading facial expressions, and "mindsight"—that is, taking other's perspectives (Baron-Cohen, 1995).

For instance, what may seem like obvious social facts to most people baffle not just those with autism but those with any of a range of clinical disorders that damage key parts of the social circuitry, such as a common brain trauma from auto accidents. These brain deficits undermine a person's ability for accurate mindsight, and so they lack an accurate sense of what others think, feel, or intend (McDonald & Flanagan, 2004).

Related research reveals that the face area coordinates with a distributed network including the amygdala, medial prefrontal cortices, and the superior temporal gyrus, which together interpret for us how to read and react during social interactions. This network performs the critical task of recognizing people and reading their emotions, as well as understanding relationships. Paradoxically, people with deficits in these neural circuits can sometimes have outstanding abilities in other areas (Schultz, 2003).

Another brain basis of autism appears to be in the fusiform, which MRI and other studies find smaller in autistic people than in others. This deficit may lead to difficulties in learning the normal links between social perception and reactions—possibly at the most basic level, failing to attend to the appropriate stimuli. The lack of coordinating attention with another person leads autistic children to miss the most fundamental social and emotional cues, compromising their very ability to share feelings—let alone empathize—with someone else. Comparing differences between the normal and autistic brain, Baron-Cohen (1999) argues, highlights the circuitry that underlies a good part of the social components of EI itself. Such research also demonstrates in a compelling way that there are different neural centers for cognitive and emotional functioning.

THE CONTRIBUTION OF SCHOOL-BASED EI RESEARCH TO EFFECTIVE EDUCATIONAL PRACTICE

Waterhouse (2006) has questioned whether the current state of research and theory justifies the teaching of EI in schools. We contend that there is a strong and growing base documenting the positive effects of school-based EI programming on students' healthy development and academic performance.

Unfortunately, many school-based prevention initiatives in the past have been ineffective because they were short-term, fragmented efforts insufficiently linked to the academic mission of schools (Greenberg et al., 2003). Concerned about this trend, a group of researchers and practitio-

ners involved in a diverse range of youth-development efforts attended a meeting hosted by the Fetzer Institute in 1994, at which the term "social and emotional learning (SEL)" was first introduced. SEL is defined as the process of acquiring a set of social and emotional skills—self-awareness, self-management, social awareness, relationship skills, and responsible decision making—within the context of a safe, supportive environment that encourages social, emotional, and cognitive development and provides opportunities for practicing social-emotional skills (Collaborative for Academic, Social, and Emotional Learning, 2005; Consortium on the School-based Promotion of Social Competence, 2004). SEL promotes the coordination of school-based programming that integrates risk-reduction strategies with the enhancement of protective mechanisms to decrease problem behaviors and provide the foundations for healthy development and school success (Elias et al., 1997).

Several research syntheses and meta-analyses of school-based prevention programming that emphasizes the core components of SEL demonstrate the effectiveness of addressing social and emotional variables to enhance positive youth development and mental health, reduce substance use and antisocial behavior, and improve educational outcomes (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2002; Durlak & Weissberg, 2005; Greenberg et al., 2003). Common features of effective programming identified in these studies are building students' social and emotional skills and promoting greater bonding of students to school through fostering positive learning environments characterized by caring, trusting relationships.

Zins, Weissberg, Wang, and Walberg (2004) reviewed the research findings on how SEL programming improves school attitudes, behaviors, and academic performance. Findings consistently emphasize the roles of both social and emotional competence and school climate in improving students' school success. They demonstrate that student self-awareness and confidence motivate them to try harder and that improved motivation, goal-setting, stress management, organizational skills, and problem solving enable them to overcome obstacles to improve their performance. Moreover, caring relationships between students and teachers and partnerships between teachers and families promote greater student commitment to, engagement in, and connection to school.

A recent meta-analysis (Durlak & Weissberg, 2005) encompassing 379 school-based prevention and youth-development interventions, targeting children between 5 and 18 years of age, that promote one or more SEL competencies reported that these interventions produced a range of positive benefits for participants. These included enhanced personal and social competencies, decreased antisocial behavior and aggression, and fewer serious discipline problems and school suspensions. They also indicated that students who participated in SEL programs compared to nonprogram peers liked school more, had significantly better attendance records, had

higher grade point averages, and ranked at least 10 percentile points higher on academic achievement tests.

An increasing number of schools emphasize the importance of enhancing students' social and emotional competence to promote their success and well-being. For example, Foster et al. (2005) found that 59% of U.S. schools reported having directed resources toward and implemented curriculum-based programs to enhance the social and emotional functioning of their students. Some states even have passed legislation requiring school districts to incorporate social and emotional development into their educational programs and to ensure that all students meet social and emotional learning standards that have been integrated into their state learning standards. For example, based on the Children's Mental Health Act of 2003 (Public Law 93-0495), Illinois students must now meet learning standards directed toward achievement of the following three educational goals by the time they graduate from high school: (a) develop self-awareness and self-management skills to achieve school and life success; (b) use social-awareness and interpersonal skills to establish and maintain positive relationships; and (c) demonstrate decision-making skills and responsible behaviors in personal, school, and community contexts. It is clear that educators and policymakers recognize the need to address children's social and emotional development as an important part of education.

Given the widespread interest in and importance of promoting children's social-emotional competence, we agree with Waterhouse (2006) that it is critical for research to establish evidence-based strategies that educators can effectively implement. However, there already is a mounting research literature demonstrating the positive impact on children's healthy development and school success of EI programming that fosters social and emotional learning. This evidence should be included in future reviews of the field if we are to inform future educational policy and practice with the best evidence-based research.

In conclusion, Waterhouse (2006) concedes that "future research may shed new light on these theories" and suggests an attitude of openness in light of new evidence. We propose that the time has already come when solid data suggest the importance of EI theory and practice for educational psychology.

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