

1 Emotional Intelligence: A Brief Historical Introduction

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1.1 INTRODUCTION

Since its popularization in the early 1990s, emotional intelligence (EI) has been a high-profile construct in modern day psychology, catching the imagination of the academic and educational community, the commercial world, and the general public, alike. EI is one of those concepts we find it easier to recognize than to define. The quality is apparent in leaders who articulate their followers' vision, in teachers who inspire even the most recalcitrant child, and in those in the caring professions who ease mental suffering. We also recognize emotional stupidity: crass insensitivity, lack of empathy, temper tantrums, and reckless impulsivity.

The seeming visibility of emotional competency also suggests that elevating EI may be a quick fix panacea for manifest problems in personal relations, at work, and during the educational process. Higher EI may be the answer to coping with work stress, passing exams, repairing a failing marriage, and rising above the many other troubles of life. Training EI in the workplace, schools, and mental health clinics then offers a viable and valuable solution to perceived individual, community, national, and global needs. Despite much recent enthusiasm in the media, trade texts, and even psychological handbooks, some caution and skepticism is requisite. Our intuitions about EI may be fallible, and it may be easier to attribute it after the fact than to develop a coherent psychological science of what it means to be emotionally intelligent. Perhaps emotional intelligence is nothing more than a popular fad along the

lines of crystal healing, sexual intelligence, feng shui, and other New Age excesses (Zeidner, Matthews, & Roberts, 2009a).

In this chapter, we provide the historical and cultural framework for the emergence of EI as a high-profile construct. We aim to lay out some of the reasons why there has been so much “buzz” surrounding EI, as well as its place within a cultural zeitgeist that is increasingly accepting and valuing the expression of human emotions. We also set forth a case for developing a rigorous science of EI, touching upon different visions proposed by leading authorities. We conclude this chapter by underscoring contemporary topics of concern in EI research and identifying promising directions for future research.

1.2 THE EMERGENCE OF A HIGH-PROFILE CONSTRUCT

It is important to start with a working definition of EI. For now, we will take this term to refer to a generic competence in perceiving, understanding, and regulation of emotions (both in one’s self and in others). Thus conceived, EI appears important because many people fail to differentiate, understand, or express their emotions effectively in social contexts, or regulate their emotions successfully.

The scholarly interest in EI may be gauged, in part, by the volume of research activity it has stimulated since first making its debut in the psychological literature about a quarter of a century ago (Stough, Saklofske, & Parker, 2009a). There are currently over 2500 scientific publications on EI since the concept gained currency in the early 1990s. Based on data generated by conducting a “Psychlit” search of publications, with the phrase “emotional intelligence” or “EQ” captured in either the publication title or keyword, we plotted the number of publications over the years (see Figure 1.1). The number of publications focusing on EI over this period has increased steadily. This trend attests to the widespread popularity of the concept in academia. Yet, googling EI yields several million “hits” and there is a serious disjuncture between the popular and scientific treatment of EI. This has resulted in the propagation of misconceptions, unfounded claims, and myths concerning the nature and practical value of EI.

1.2.1 Where does the term EI come from?

The term “emotional intelligence” has been attributed to various sources. Thus, literary accounts of Jane Austen’s *Pride and Prejudice* refer to various characters possessing this quality (Van Ghent, 1953, p. 106–107), and the Dutch science fiction author Carl Lans published two novels in the 1960s elaborating the concept, including use of the phrase “Emotional Quotient.”

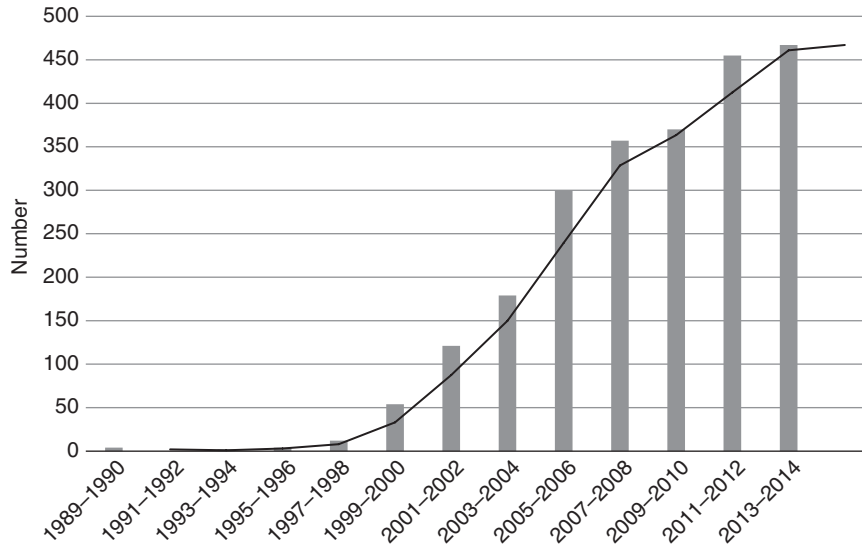


Figure 1.1 Scientific publications on EI over the years

In scientific psychology, the first reference appears to come from the German psychoanalyst Barbara Leuner. Writing in 1966, she suggested that the hallucinogenic drug LSD might help women with low EI, a condition Leuner attributed to early separation from their mothers. Thankfully, perhaps, the use of hallucinogens married with psychotherapy to improve EI has not survived the 1960s. The first author to use the term in an English language source was Wayne Payne (1986), arguing that emotional awareness was an important component to develop in children. The concept was elaborated and popularized in psychological circles by two psychologists, Jack Mayer and Peter Salovey (e.g., 1993).

However, the concept of *emotional intelligence*, as popularized in the behavioral literature, did not appear out of the blue. Rather, it is firmly rooted in past psychological thinking, research, and practice. The concept has come to prominence against a background of dissatisfaction with conventional theories of intelligence, in particular. Doubts about conventional “IQ” go back to the beginnings of the field in the 20th century. Pioneers of intelligence testing, such as Alfred Binet and David Wechsler, were well aware that general intelligence might not be the only factor important for social functioning (Landy, 2005).

EI was initially conceptualized as a subset of the domain of *social intelligence*. Landy (2006) traces the term social intelligence to the educator John Dewey (1909), whom he quotes as follows: “Ultimate moral motives and forces are nothing more or less than *social intelligence* (italics in the original) – the power of observing and comprehending social situations – and *social power* (italics in the original) – trained capacities of control – at work in the service of social interests and aims” (p. 43). Dewey’s concern was the school curriculum.

IQ: Intelligence quotient

A standard measure of a person’s intellectual ability based on tests of general ability or intelligence.

Subsequently, the learning psychologist Edward L. Thorndike developed a tripartite model including three forms of intelligence: analytic, mechanical, and social intelligence. He described social intelligence as an ability distinct from abstract or academic intelligence, defining it as “the ability to manage and understand men and women, boys and girls, to act wisely in human relations” (1920, p. 228). Thorndike never attempted to develop a test for social intelligence, believing that it should be observed in real-life behavior.

Overall, interest in social intelligence has waxed and waned over the years, with advances being hindered by the absence of reliable and valid measures to research this slippery quality. Researchers sporadically tried to develop and validate standardized tests for social intelligence, with these measures including, for example, tests of the respondent’s ability to recognize emotive gestures and facial expressions, tests for understanding and coping with the behaviors of others – measures that bear more than passing resemblance to some contemporary indicators of EI. These measures showed mixed results (Kihlstrom & Cantor, 2011; Matthews, Zeidner, & Roberts, 2002). Some authors (Gardner, 1983; Goleman, 2001) have recognized that self- and other-related aspects of EI may be distinguished. However, it remains unclear to what extent EI is expressed only through interaction with others.

1.3 EMOTIONAL INTELLIGENCE AND THE CURRENT “EMOTIONAL ZEITGEIST”

There are several sociological and cultural reasons why *emotional intelligence* struck a powerful chord with various professional groups and the general public. Most generally, as several writers (e.g., Mayer, Salovey, & Caruso, 2000a) have noted, Western culture has always seemed conflicted about its attitudes toward emotions, especially strong, passionate emotions. Scherer (2007) drew attention to an Aristotelian model of emotional competence, marked by moderation and temperance in emotion expression and regulation. It may be contrasted with a Galilean “more is better” perspective which Scherer sees as appropriate for emotion perception and appraisal, for which high accuracy may be more important than moderation.

At times the intellect has ruled the passions, as exemplified by the classical virtue of temperance, and the Stoic philosophy that judgment should be unclouded by emotion. Other cultural trends have placed more value on the heart than on the head, including romantic philosophy and the 1960s counterculture. A contemporary “zeitgeist” favors free emotional expression, arising as a counterpoint to technocratic Western society’s increasing emphasis on formal academic qualifications, standardized testing, and reliance on hard statistical data in policy-making. A case in point is enthusiasm for remedies from “alternative medicine,” such as homeopathy, despite the lack of any scientific data supporting their medical effectiveness. Such a zeitgeist is entirely in tune with the

view that “the wisdom of the heart” has been unduly neglected. With such boundaries drawn, authors that denigrate academic ability (e.g., Epstein, 1988) are likely to find a receptive audience. In academic circles, the more emotion-friendly zeitgeist is also expressed by the increasing movement toward a “positive psychology” that explores the sources of happiness, thriving, optimal performance, satisfaction, optimism, and well-being (e.g., Fredrickson & Losasda, 2005; Seligman & Csikzentmihalyi, 2000).

1.4 REASONS FOR THE WIDESPREAD POPULARITY OF EI

Why the buzz surrounding EI? EI represents the convergence of a number of historical and social trends, briefly described below. The first trend relates to changing views about the functional importance and adaptive utility of emotions. The traditional view of emotion in relation to cognition has been that “passion” and “reason” are antithetical and antagonistic. Whereas reason has traditionally been viewed as rational, systematic, and mature, emotions have traditionally been viewed as being chaotic, haphazard, and immature, as well as disruptive to rational thought and decision-making. By contrast the current EI view of emotion in relation to cognition views emotions as adaptive and functional. Emotions support attention, motivation, and memory, helping us to learn, make wise decisions and maintain positive social relationships (Lazarus, 1991).

A second trend is the broadening view of what it means to be intelligent and competent in modern society. Current conceptions view intelligence as encompassing a wider and more diverse set of mental abilities than traditional IQ, including emotional and social competencies (Gardner, 1983, 1999). Gardner differentiated interpersonal intelligence (understanding the feelings, motivations, and intentions of others) and intrapersonal intelligence (awareness and discrimination of one’s feelings, goals, and intentions). In addition, Sternberg’s tripartite model of intelligence included creativity and practical intelligence in social contexts, along with the more conventional form of analytical ability (Henry, Sternberg, & Grigorenko, 2005).

Third, the pivotal interest in EI may have been driven by a reaction to Herrnstein and Murray’s (1994) bestseller – *The Bell Curve*. This tome offered what appears, to many, a dark vision of IQ as destiny. The authors argued that, because IQ is strongly influenced by genetics and thus relatively stable and unmalleable, society is arranged by strata that are defined by intelligence, with a “cognitive elite” at the top. Murray’s (2012) later book entitled *Coming Apart* argues that the increasing dominance of a globalized knowledge economy is exacerbating these trends and fueling stark class divisions. These books offered little hope for an egalitarian and meritocratic society, suggesting that individuals of low IQ, often coming from the lower social strata of society, have little choice but to accept poor educational prospects, menial jobs, and a relatively unrewarding economic life.

EI, believed to be more malleable and amenable to environmental influences, was viewed as an antidote to this dismal and pessimistic view, offering hope for a more egalitarian and utopian society. Against this backdrop, many critics then argued that consideration needs to be given to alternative life-success factors (Epstein, 1998) and that real life experience and “street smarts” (over “book smarts”) should be venerated.

A fourth source of popularity of EI is the impact of a single book, Daniel Goleman’s (1995) *Emotional Intelligence*. This book was an international bestseller and the stimulus for a feature article in *Time* magazine (Gibbs, 1995). Having obtained a PhD in biological psychology from Harvard University, Daniel Goleman became a journalist at the *New York Times*. After reading a scientific article by Mayer and Salovey, he was inspired to write a book that would become the bestselling popular psychological text ever. Initially calling it “*Emotional Literacy*,” he renamed it *Emotional Intelligence: Why It Can Matter More Than IQ*. Goleman’s (1995) central thesis is that, whereas emotional literacy is responsible for a host of positive social outcomes, including occupational, educational, and personal success, emotional illiteracy is responsible for many social evils including mental illness, crime, and educational failure. Goleman set out a laundry list of desirable qualities, including self-confidence, sensitivity, self-awareness, self-control, empathy, optimism, and social skills. Furthermore, Goleman contended that people at work often fall short of their potential through failing to manage their emotions appropriately. Job satisfaction and productivity are threatened by failure to communicate one’s feelings to others, assert one’s legitimate needs, and unnecessary conflicts with co-workers. Indeed, if Goleman’s (1995) book is to be believed, our civilization is experiencing an emotional decline and fall, reflected in an “age of Melancholy” (p. 240), a “modern epidemic of depression (p. 240), and “poisoning the very experience of childhood” (p. 233). The solution, according to Goleman, is a concerted effort to train EI in schools and the workplace.

Finally, popular interest in EI also stems from a perspective that is cross-fertilized by academic studies (e.g., Mayer & Salovey, 1993). These studies seek to develop sophisticated theories of the psychological and biological concomitants, causes, and antecedents of emotionally intelligent behaviors. They also seek accurate measures of these character traits and behaviors. Further still, rigorous research studies are conducted to understand how EI is related to valued social outcomes and functions.

1.5 SKEPTICS RAIN ON THE EI PARADE

Despite much enthusiasm in the media, trade texts, and even psychological handbooks and papers, critics (Davies, Stankov, & Roberts, 1998; Matthews et al., 2002; Matthews & Zeidner, 2000) believed that caution was requisite. The notion of “emotional intelligence,” they argued, fails to meet the basic test of a true ability, namely, the existence of a veridical (true vs. false) criterion by which to judge

emotional behaviors in specific contexts. Furthermore, we really don't know how to validly assess or even define EI. Also, the incremental effects of EI on real-life outcomes, when controlling for ability and personality, were often negligible. Moreover, empirical outcomes often depend on the type of measure employed, with modest correlations among ability-based and self-report measures.

Matthews et al. (2002) dismissed the more extreme claims made for the importance of EI in the popular literature on the subject. It is simply false to say that studies show that "EQ" is more predictive of real-life success than IQ, for example. They also argued there is little support for Goleman's (1995) position that training EI will serve as a panacea for the problems of the world.

Finally, the past decade has witnessed a series of publications highlighting the dark side of EI (Austin, Farrelly, Black, & Moore, 2007; Zeidner et al., 2009). This line of research has raised the possibility that EI can be a double-edged sword, facilitating not only prosocial behavior, but deviant behavior as well (e.g., personal manipulation and Machiavellianism). In addition, scholars have taken issue with the missing ethic or moral element of EI (Segon & Booth, 2015). Recent data by Nagler, Reiter, Furtner, and Rauthmann, (2014) suggests that some dark personalities may reap benefits from EI skills in manipulating others. Put differently, EI can be associated with emotional manipulation (cf. Austin et al., 2007), and especially so when narcissists and psychopaths (the dark triad, along with Machiavellianism) utilize those skills.

However, Machiavellianism itself may have a bright side. In a business context, Belschak, Den Hartog, and Kalshoven (2015) point out that those high in the trait may be adaptable and innovative, and organizations may be able to channel these qualities constructively. A **historiometric analysis** (Deluga, 2001) of American presidents drew attention to similarities between characteristics of Machiavellianism and transformational leadership. Presidents meeting criteria for high Machiavellianism, such as Franklin D. Roosevelt, are more highly esteemed by historians than those low on the trait. Key leadership qualities identified by Deluga include projecting strong self-confidence, choreographing emotional displays to elicit strong affective attachment from followers, and influencing others to join effective political coalitions.

Perhaps the most important general conclusion is the importance of avoiding conflation of EI with any particular moral purpose or value, except to the extent that emotional literacy facilitates ethical behavior. Theophrastus in *Characters* noted that "In the proffered services of the busybody there is much of the affectation of kind-heartedness, and little efficient aid." Sometimes, doing good requires a little competence in social manipulation.

Historiometric analysis

Examination of biographical material of prominent people (e.g., Presidents, Supreme Court Justices, Prime Ministers) by employing quantitative assessments; the analysis often strives to verify personality patterns for these individuals analyzed.

1.6 DEVELOPING A SCIENCE OF EI

Popular culture is often vulnerable to fads and enthusiasms that have little relation to reality. In view of the grandiose claims made about the nature and practical applications of EI in the media and in the popular literature by staunch EI supporters,

psychological researchers have taken up arms against this populist and uncritical approach, demanding that mavens in this area adopt a more systematic scientific approach in an effort to understand the nature of the EI construct and its antecedents and outcomes (Matthews et al., 2002; Matthews, Zeidner, & Roberts, 2012a). A science of EI should address several key questions. These include the origins of EI in the brain structures that regulate emotion, reflecting interactions between the individual's DNA, and social environmental factors, such as quality of care in early life. We also need a scientific account of how EI is expressed in everyday life, and the adaptive benefits it may bring. Assuming there are individual differences in EI, we need rigorous measurement models, as well as an understanding of the limits of the construct as expressed in emotional genius and emotional illiteracy. Such a psychological science would also provide a framework for interventions capable of enhancing social, occupational, and educational functioning via enhancement of EI.

Accordingly, Matthews et al. (2002) listed three essential pillars for a scientific treatment of EI, as follows.

1. **Coherent conceptualization and empirically validated theory.** We need a coherent and compelling theory of what it means to be emotionally intelligent, which identifies the key psychological processes involved. Neurobiological theory and research may help us understand the hardware of the brain underpinning emotions. Alternatively, we may look to the cognitive “software” of the mind, in relation to the mental models that people build of their place in the social world around them. Perhaps EI resides in building mental models that promote productive social engagement with others, and mitigate against unrealistic negative cognitions (Zeidner, Matthews, & Shemesh, 2016). Rigorous empirical testing of process-based theory is also needed. Indeed, existing studies call into question some central assumptions of accounts of EI; for example, EI does not always predict accurate perception of emotion (Matthews et al., 2014) or reduced stress response (Matthews et al., 2006).
2. **Scientifically justifiable and valid measurement.** As an essential condition, any new construct must be open to reliable and valid measurement. Without accurate measurement procedures, accounts of EI are little more than verbiage, that is, arm-chair discourse (or better still, cocktail hour conversation) whose validity cannot be determined. Measurement is pivotal because of uncertainties over what “emotional intelligence” actually is. Anyone can write a laundry list of desirable personal qualities (and many have done so). To show, however, that the list of qualities has some unique common element that can be meaningfully labeled “emotional intelligence” is another matter. For the construct of EI to take wing, it must be measured as a distinct personal quality that promotes effective social functioning.

Measurement places the study of EI in the field of *individual differences*, or differential psychology, because it allows the evaluation of individuals as being more or less emotionally intelligent. Standard differential psychology discriminates ability from personality. The latter refers to styles of behavior that differ from one another qualitatively, but are not “correct” or “incorrect.” Thus, an important goal for research is to show how tests for EI fit into this larger scheme of individual differences, thus differentiating EI from personality and conventional intelligence.

3. **Meaningful applications.** In addition, the practical value of EI must be demonstrated, and across diverse fields, including education, organizational psychology, and mental health. In many cases, practical interventions contributed by applied psychologists are based on theory and supported by evidence (e.g., Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). So, it needs to be shown that EI offers something new and augments current practice. Laboratory-based research has tended to focus on measurement issues. The practitioner, of course, focuses on remedial measures against some specific problem, such as children with behavior problems, ineffective leadership at work, or severe depression requiring clinical treatment.

1.7 MODERN CONCEPTIONS AND MODELS OF EI

As mentioned earlier, the concept of EI was popularized in psychological circles by two psychologists, Jack Mayer and Peter Salovey (e.g., 1993). These scholars conducted some of the most seminal research in this area and developed state-of-the-art ability assessments of EI. Yet, both popular and professional notions of EI are shaped by the conflicting currents of thought about the value of emotion held within contemporary Western culture. The EI construct is wide-ranging and it remains unclear what it represents conceptually and what human qualities are central to it (Zeidner, Matthews, & Roberts, 2001). A basic difficulty has been that different psychologists have disparate visions of what a science of EI should look like. Indeed, it may be that different research teams are investigating entirely different personal qualities. Further detailed discussion follows in Chapter 2 but for now we briefly discuss the major fissure in approaches to EI, between ability-based and personality trait models.

1.7.1 *Ability models*

Salovey and Mayer (Mayer, Salovey, & Caruso, 2000a) defined EI as an ability resembling other standard intelligences. That is, high EI persons are objectively superior to those of lower EI in performing certain activities associated with emotions. Indeed, in their four-branch model, Mayer et al. differentiate four essential components of EI: identifying emotions, assimilating emotions into thought, understanding emotions, and managing the emotions of one's self and others. This ability model is relatively narrow in scope; much of what Goleman (1995) describes as EI is not relevant to the Mayer, Salovey and Caruso (2000b) conception.

Abilities are best measured through objective tests akin to IQ tests. Mayer and colleagues have published two widely used tests for EI, the Multifactor Emotional Intelligence Scale (MEIS), and its successor, the Mayer-Salovey-Caruso Emotional

Intelligence Test (MSCEIT). These tasks present the respondent with problems that can be scored on the basis of consensus or expert opinion (for further information, please see Chapter 4). One problem with these measures is that it is hard to write test items relating to emotional functioning that can be objectively scored. The correct way to handle an aggressive co-worker or comfort an upset family member may depend on circumstances and the particular individuals concerned.

Besides the four-branch model, other ability-based definitions are possible. For example, Scherer (2007) cites competencies in appraisal (accurate perceptions of emotive events) and communication (effective listening and speech) as possible bases for EI. There is also research concerned specifically with accurate perception of emotions, a faculty that is relatively straightforward to measure using objective techniques (e.g., Davies et al. 1998; Roberts, Schulze, Zeidner, & Matthews, 2005; Roberts et al., 2006).

1.7.2 Trait emotional intelligence

Traditionally, differential psychology makes a sharp distinction between ability as maximal performance and personality as typical behavior. However, there may be personality traits that relate directly to effectiveness of emotional functioning (e.g., assertiveness, empathy). Trait EI represents an overarching personality factor that represents the person's emotional self-confidence (Petridis, Furnham, & Mavroveli, 2007). Like conventional personality traits, trait EI represents a qualitative style of behavior and experience that is adaptive in some contexts but not in others. As with other aspects of personality, EI may then be assessed via questionnaire, assuming that people have sufficient insight into their own emotions and real-life functioning for self-reports to be valid (e.g., Schutte et al., 1998). A focal research challenge is then to integrate trait EI and its facets into standard personality research. Does work on trait EI add new facets to existing personality models? Or does it just describe existing traits from a different perspective?

1.8 APPLIED RESEARCH

EI has been utilized in myriad applied contexts including education, work, and mental health. Programs for social and emotional learning (SEL; Zins, Payton, Weissberg, & O'Brien, 2007) aim to educate children in emotional competence, to improve their well-being, to make them more responsible citizens, and to enhance classroom learning. There is indeed evidence for the effectiveness of such programs (Durlak et al., 2011). However, training programs for social skills existed long before the notion of EI. Thus, it seems reasonable to ask whether research on EI has really added anything to such programs, or whether it is just a convenient banner under which to raise awareness of the issues. EI research has been applied to relatively new areas, such as its role in faculty–doctoral relations (O'Meara, Knudsen, & Jones, 2013) and Higher Education more generally (see Chapter 8).

There is also a growing interest in EI at work, in terms of improving both worker well-being and company productivity. As in education, these applications rest in part on truisms, for example, that it is important that employees are able to work constructively with others. It is difficult to argue against the notion that it is useful to train skills such as teamwork, conflict resolution, and leadership. However, as with education, it is unclear how much “added value” attaches to EI. A recent meta-analysis of studies using self-report questionnaire EI assessments in the occupational context found that they had zero predictive validity for job performance once overlap with personality and cognitive ability was controlled (Joseph, Jin, Newman, & O’Boyle, 2015). Indeed, there appears to be a backlash against the idea that EI is the panacea for all organizational problems (e.g., Landy, 2005). For example, emotional intelligence has been labeled as one of the big 10 misses of Industrial and Organizational Psychology over the last decade (see Murphy, 2006a, 2006b). For further discussion on EI and the workplace, please see Chapter 9.

A final area of application is in promoting mental health and well-being. Clinical psychology has for many years recognized that unrealistic beliefs about oneself contribute to emotional dysfunction. Perhaps a closer focus on how people understand and regulate their emotional state will bring therapeutic benefits. EI is of most obvious relevance to emotional disorders, but may also play a role in conditions associated with impulse control such as problem gambling and substance abuse. Lack of EI may also be a feature of disorders associated with social impairments and disconnection, including schizophrenia, autism, and related developmental disorders. The autistic child appears to be unable to understand other people or form emotional connections with them, leading to social withdrawal and abnormality. Again, a science of EI may provide important clinical benefits (Vachon & Bagby, 2007).

1.9 A HARD LOOK AT CURRENT EI RESEARCH AND NEEDED DIRECTIONS FOR FUTURE RESEARCH

Research on EI has come a long way since the concept surfaced and was popularized in the early 1990s. Great strides have been made with respect to uncovering the ways to best conceptualize, measure, and apply EI in various social and applied contexts. The EI construct has been found to be useful in a wide array of areas, including organizational and occupational contexts, schools, and health care settings. Given the many research achievements and the popular appeal of the EI construct, in the following sections we pause to reflect on the current status of EI research and by doing so also identify areas of research needed to further advance the field.

1.10 CONCEPTUALIZATION

It is troubling that after a quarter of century of research and debate on the definition of EI, there is still little consensus about what EI measures, with definitions and critical components of the construct varying considerably from one researcher or practitioner to another. However, progress is being made on two fronts. First, we have argued that “EI” refers to multiple constructs that may be only loosely interrelated (Matthews, Roberts & Zeidner, 2004). Psychometric models are catching up to this reality through better differentiation of constructs. For example, the trait EI model of Petrides et al. (2007; Andrei, Smith, Surcinelli, Baldaro, & Saklofske, 2016) discriminates four broad factors of EI, namely, emotionality, sociability, self-control and well-being, which differ in their degree of overlap with existing personality dimensions. MacCann, Joseph, Newman, and Roberts (2014) examined the status of EI within the structure of human cognitive abilities and found that a hierarchical solution, with cognitive g at the highest level and EI representing a second-stratum factor that loads onto g , shows a good fit to the data. Ability EI is thus a group factor of cognitive ability, akin to factors such as fluid intelligence and visual processing, marking the expression of intelligence in the emotion domain. Psychometric contributions have also been enhanced by improved methodologies such as use of **item response theory** (Allen et al., 2015), and attention to the problem of faking, which may be acute for self-report scales (Day & Carroll, 2008; Tett, Freund, Christiansen, Fox, & Coaster, 2012).

Second, process-based theoretical accounts of EI are advancing. Fiori (2009) differentiated between *conscious* and *automatic* processing of emotions as a potential source of variability in emotionally intelligent behavior. As noted by Fiori, research in the EI field relies on a conception of EI as referring uniquely to the domain of consciousness, although EI may also be expressed in automatic, unconscious behaviors, such as non-verbal behaviors that facilitate social relationships. Another model of interest (Mikolajczak, 2009) comprises the following three levels: emotion knowledge, emotion abilities, and emotional dispositions. One aspect of EI is then the translation of knowledge and abilities into practice.

Item response theory (IRT)

A modern measurement theory based on the concept that the probability that a test item will be answered correctly is a function of an underlying trait or ability (a latent trait). For example, the higher a student is on a latent trait of intelligence, the higher the probability she will score correctly on an intelligence test item.

1.11 RESEARCH AND ASSESSMENT

Most studies in the EI literature have been correlational and cross-sectional in method, with a relatively small number of studies employing true experimental designs with proper controls and statistically controlling for ability and personality. This may account for the fact that the bulk of scientific papers on EI have been published mainly in second- and third-tier journals.

In order to demonstrate incremental validity and assure EI measures predict above and beyond personality and intelligence, it would seem advantageous to include measures of personality, ability, and social desirability in multivariate

analyses. Furthermore, researchers should strive to organize their studies to have enough subjects and statistical power. Also, in studies where predictors and criterion measures are from the same source (e.g., self-report/self-report) results are likely to show relations due to shared measurement error rather than, necessarily, true associations. Researchers should try to avoid contamination of their measures with criterion outcomes, especially in cross-sectional studies (Matthews, Zeidner, & Roberts, 2012a). Beyond these general methodological recommendations, there are several areas and topics that seem promising for future research.

1.11.1 Ability tests for EI

Until recently the most widespread and basically only standardized test to measure EI as ability was the MSCEIT, so that research was at risk of “mono-method bias.” Fortunately, there are now available valid alternative measures of EI as ability. Two of them are in the form of situational judgment tests that require participants to read short scenarios and understand how the person described would feel (*Situational Test of Emotion Understanding*, or STEU; McCann & Roberts, 2008) or identify how the person should behave in order to effectively manage emotions (*Situational Test of Emotion Management*, or STEM; McCann & Roberts, 2008). Correct answers are scored with respect to theories of emotions (STEU) or according to the answers provided by a pool of emotion experts (STEM).

Beyond the new ability tests to measure emotion understanding and management, emotion recognition can be assessed with the *Geneva Emotion Recognition Test* (GERT; Schlegel, Grandjean, & Scherer, 2014), which measures the ability to recognize emotions in others through short videos of actors expressing a wide range of emotions. In addition, a slew of new instruments based on different assessment approaches are being evaluated, including: information processing measures (**inspection time**, **implicit association test**, **emotional Stroop test**), perceptual tests (emotion recognition tasks), and measurement paradigms from the **conditional reasoning** paradigm to **affective forecasting** fields. There is also scope for research using simulation environments or virtual reality to examine people’s real-time behaviors after various mood inductions and interactions that mimic real-life encounters.

1.11.2 Outcomes of emotional intelligence

Doubts may linger over whether EI really has a major impact on real-life adaptive outcomes, once personality traits and cognitive abilities are controlled (Matthews et al., 2004). Researchers have made progress in developing a cumulative database on correlates of EI via a slew of meta-analytic studies, relating both trait and ability EI to a variety of correlates and criterion outcomes. These include health (Martins, Ramalho & Morin, 2010), leadership (Harms & Credé, 2010), alcohol engagement (Peterson, Malouff, & Thorsteinsson, 2011), and job performance (Joseph, Jin, Newman, & O’Boyle, 2015; Van Rooy & Viswesvaran, 2004). Also, a number of meta-analyses

Inspection time

The minimum amount of time it takes a participant to make simple visual discriminations in a discrimination learning procedure (e.g., the time taken to discriminate which of two lines presented are longer).

Implicit association test

A measure of the unconscious attitudes people have towards a particular category of objects or people. Implicit attitudes are assessed from a series of computer-presented categorization tasks that test the strength of association between words representing contrasting categories (e.g., young, old) and words representing attitudes (e.g., good, bad). The example might reveal implicit age prejudice.

Emotional Stroop test

Individuals are asked to rapidly name the color in which a series of emotionally laden words (e.g., terrorist, ISIS, explosion) are printed (e.g., blue, red, green, etc.). The degree to which participants are subject to interference by the emotional valence of the printed words is a measure of their selective attention and interference by the anxiety evoked by the emotional words.

Conditional reasoning

Reasoning that typically takes the form: "If X, then Y". For example, "If Gerry is a male, then he is not pregnant."

Affective forecasting

The process of predicting one's own future emotional states (e.g., happy, distressed, bored), particularly in face of some event or outcome one faces.

showed that *trait* EI related to educational outcomes (Perera & DiGiacomo, 2013) and romantic relationship satisfaction (Malouff, Schutte & Thorsteinsson, 2014). As a rule, trait EI has been found to be more strongly related to outcomes than ability EI (Martins et al., 2010; Harms & Credé, 2010; Van Rooy & Viswesvaran, 2004).

Most meta-analyses ignore the problem of confounding EI with other constructs; overlap with personality may account for much of the criterion validity of self-report or trait EI measures (Zeidner, Matthews, and Roberts, 2012). Recently, a meta-analysis of trait EI measures (Andrei, Siegling, Aloe, Baldaro, & Petrides, 2016) demonstrated that with other measures controlled, trait EI adds on average around 6% to the outcome variance explained, suggesting a moderate but real contribution of EI to understanding individual differences in outcomes. It may be troubling that one of the factors identified as contributing to incremental validity is the well-being component of the trait EI model. Well-being is an outcome variable, and its inclusion in trait EI assessments contributes to criterion contamination (Zeidner et al., 2012).

In addition, recent research has begun to probe both the moderating and mediating effects of EI (Kong, 2014). For example, Liu, Peng, and Wong (2014) demonstrated the moderating role of ability-based EI in the association between career maturity and job attainment. Some studies showed that trait EI can act as a buffer protecting individuals from the negative effects of stress (Extremera, Durán, & Rey, 2007; Mikolajczak, Roy, Luminet, Fillee, & De Timary, 2007). Schutte and Malouff (2011) examined the mediating role of trait EI between mindfulness and well-being. Also, research has identified a number of both moderating (Zeidner & Aharoni-David, 2015) and mediating (Zeidner & Matthews, 2016) variables in the association between EI and adaptive outcomes. Key theoretical issues are the extent to which EI is socially infused – or even a variant of social intelligence - as opposed to an individual characteristic divorced from any social context. The role of social support as a mediator of EI effects on well-being might suggest the former possibility (Zeidner & Matthews, 2016), as does evidence linking ability EI to objective social skills (Rivers Brackett, Salovey, & Mayer, 2007). On the other hand, Zeidner, Kloda and Matthews (2013) found that in married couples high EI conferred greater personal marital satisfaction but had no impact on the partner's satisfaction. EI appeared to be a quality that was linked to self-perceptions only.

1.11.3 Genetic and neurobiological underpinnings

Research over the past decade or so has attempted to shed light on the neurobiological underpinnings of EI. Recent research on the functional neurobiology of EI suggests that both frontal and temporal lobes support emotionally intelligent reasoning (Reis et al., 2007). Neuroscientists have researched areas of the frontal lobes of the brain that seem to control the infusion of emotion into decision-making. Damage to these areas causes emotionally unintelligent behaviors such as violent mood swings, reckless impulsivity, and poor decision-making, although Antonakis and Dietz (2010) caution that cognitive ability may be impacted as much as EI. There is considerable scope for further research on the neuroscience of EI through studies of brain lesions and psychophysiological assessment of normally functioning individuals as well as molecular and behavior genetic studies (e.g., Baugman et al, 2011; Koven & Demers, 2014; Raz, Dan, Arad, & Zysberg, 2013; Vernon, Petrides, Bratko, & Schermer, 2008).

1.11.4 Cultural and contextual factors

One unsettled issue relates to the *de-contextualization* of EI. Can we ever really separate emotional competence from the contexts and situations to which it applies? For example, a test of how quickly the person recognizes standard emotion expressions may not capture the real-life richness and context-dependence of our understanding of facial emotions. Culture may be perceived as a particular instance of context. A display of emotion that is acceptable in one culture (a warm hug, a kiss on the lips, or slap on the back) may be deeply offensive in another. Research on EI has tended to shy away from cross-cultural analyses, but it is likely that emotionally intelligent behavior is culturally dependent. At the extreme we might wonder whether EI refers not to any basic, universal human ability but to the extent of the person's learning of their culture's rules for handling emotion. At present, most EI measures were developed with a Western audience in mind and may not be sensitive to cultural differences in the feeling, expression, use, and management of emotions (Matthews, Zeidner & Roberts, 2012b). As with other cross-cultural research, it may be important to distinguish universal, "etic," EI constructs from "emic" constructs that are only meaningful and valid within a specific culture.

1.11.5 Development of EI

There is considerable theoretical interest in the developmental trajectory of EI over the years, from childhood to adolescence and beyond. In particular, different factors may constrain development according to the child's stage of emotional development, including temperament, verbal ability, and self-regulatory skills (Zeidner, Matthews, Roberts, & MacCann, 2003). Most studies of EI are either cross-sectional, or follow young adults over very limited time spans. However, longer-duration studies are starting to appear; for example, Keefer, Holden, and Parker (2013) assessed the invariance of EI measures over time, tracking EI over six years (ages 10/11 to 16/17). The changes in mean levels as a function of time followed a complex nonlinear pattern. Further studies of this kind are much to be encouraged. For further discussion on the development of EI please see Chapters 5, 6, and 7.

Etic

An approach to the study of culture that interprets behaviors and social practices in terms of concepts held to be universal and cross-culturally generalizable.

Emic

An approach to the study of culture that interprets behaviors in terms of the system of symbols and meanings particular to a given cultural context.

1.12 APPLICATIONS AND INTERVENTIONS

A prevalent branch of EI research has centered on evaluating the effectiveness of the EI construct in various occupational, educational, and clinical arenas (see Zeidner et al., 2009, for a review). In these applied areas, as for basic EI research, the central issue is to show that EI has "added value" over other constructs in understanding the person's functioning. Thus far, evidence for added value is mixed (Zeidner et al., 2009) but the advances in research discussed in previous sections should clarify applied contributions.

Assessment of EI may be of value from a diagnostic standpoint, e.g., in personnel selection and in clinical evaluation. However, given its claim to be a malleable ability (Goleman, 1995), the utility of interventions to boost EI is critical for demonstrating its applied worth. There are now a number of well-validated intervention programs that are designed to improve emotional functioning, especially in the educational context. For example, a meta-analysis by Durlak et al. (2011) encompassing children and youth in 213 SEL programs showed solid gains in relevant skills. These included: enhanced personal and social skills, decreased antisocial behavior and aggression, fewer discipline problems and school suspensions, and significantly better attendance records and higher grade point average. These programs typically do not aim to enhance EI in a global sense; indeed, their targeting toward specific issues or skills may contribute to success.

There are also promising results from a limited number of studies in other domains including work, sports, and mental health (Schutte, Malouff, & Thorsteinsson, 2013). However, various methodological issues remain, especially in the occupational context: confusing conceptualizations of EI, lack of a proper control or comparison group, use of invalid or unknown EI measures, applying training programs that are not exclusively focused on EI or focus on a limited number of EI dimension, including non-EI related competencies to the training, and failure to provide specific information about program activities, and lack of rigorous evaluation of program impact (Nelis, Quoidbach, Mikolajczak, & Hansenne, 2009; Zeidner, Roberts, & Matthews, 2008). Clear distinction of aptitudes, competencies and skills may be necessary to realize the potential of EI research for guiding interventions.

1.13 CONCLUDING COMMENTS

At present, we have quite good “maps” of personality and ability already, but it is unclear where EI should be placed within this existing sphere. Like early explorers in search of new continents, researchers on EI are at risk of several distinct errors:

1. EI may be entirely mythical, like Atlantis.
2. EI may exist, but be of relatively minor importance – a small island rather than a major landmass.
3. What is labeled as EI may in fact be known and charted terrain --- like marking Ireland as Atlantis on the map.
4. Different researchers may attach the name EI to many different constructs; rather as historians have variously identified Atlantis with Santorini, the Azores, the Bahamas, and numerous other islands.

Alternatively, it may be that EI truly represents a large swathe of new psychological terrain, and its exploration will add much to our understanding of individual differences in emotion. Another, more subtle, possibility, is that work on EI will discover

little new terrain, but will add importantly to our understanding of existing constructs, like mapping the universe with radio waves rather than visible light.

We have seen how scientific conceptions of EI differ from one another, sometimes radically. These uncertainties in definition carry over into difficulties in measurement. Tests for EI may not measure any true ability at all. Alternatively, they may simply repackage existing personality and ability scales, or they may measure some trivial competence that is weakly related (or worse still unrelated) to real life. Careful scientific research is needed to discern whether emotional abilities, competencies, and personality traits may lie beyond our current charts of human intelligences and dispositions. Without such a scientific effort, we can have no clear notion of how people differ in their regulation of emotion. Nor can we hope to help practitioners in workplaces, schools, and psychiatric clinics. We must also reject extreme claims: There is little support for Goleman's (1995) position that training EI will serve as a panacea for the problems of the world (Matthews et al., 2002).

At the same time, it is important to evaluate what new knowledge studies of EI may add to our understanding of emotional competence. One vision is that of Mayer et al. (2000a, 2000b), a vision perhaps shared by other researchers that are relatively optimistic about the scientific status and impact of EI (e.g., Jordan, Ashkanasy, & Ascough, 2007). In their conception, EI meets criteria for a standard intelligence; it represents a true ability with far-reaching implications for real life. They argue that their test assesses a major quality of the person, distinct from standard personality and intelligence measures.