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Chapter 1

MEASUREMENT ISSUES IN EMOTIONAL INTELLIGENCE RESEARCH

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INTRODUCTION

Few constructs in psychology proper can boast about having created the broad interest that has been generated by the notion of *Emotional Intelligence* (EI). To demonstrate this point, McCann, Matthews, Zeidner, and Roberts (this volume, Chapter 2) start their chapter by stating that more than 140,000 website addresses that contain the phrase 'emotional intelligence' currently (late 2003) can be accessed on the World Wide Web. In fact, after Daniel Goleman published his popular trade book titled *Emotional Intelligence* in 1995, lay interest in this construct soared in a variety of domains. Recognition of EI among corporate executives, looking for mechanisms to effectively increase employee productivity and success, grew enormously after the popularization of this construct.

As psychologists, we want our ideas to be heard and ultimately applied in ways that improve people's lives. It seems that the extraordinary popularity of EI suggests a remarkable achievement toward that goal of bringing psychology to the people. The work of Goleman, Boyatzis, and others should in fact be commended for this success. Finally, people are *really* paying attention to the work that we produce in our insulated academic communities.

However, in the current scheme of things, the popularization of EI stands somewhat uncomfortably juxtaposed with a less-well-known, but extremely critical, set of academic conceptualizations of EI. This juxtaposition in fact is the root of some concern. With EI, we have a construct that is concurrently championed and criticized. It is seen variously as a panacea for improving work productivity, intimate relationships, education, and health, while concurrently being framed as a nebulous, poorly defined, and overly broad construct by others. The different faces of EI in the landscape of modern psychology are extremely varied. A major goal of the current volume is to provide a forum for the disparate voices that

represent different brands of EI to describe the various models of EI in general, and a forum for addressing how this construct may best be measured, specifically.

THE IMPORTANCE OF MEASUREMENT

With its focus on measurement, the current volume takes a 'proof-is-in-the-putting' stance regarding the utility of different models of EI. As empiricists, we are skeptical of abstract constructs that cannot be observed and measured in reliable and valid ways. To the extent that a construct cannot be measured, the construct becomes empirically useless. Thus, from a measurement perspective, the challenge to EI scholars is to demonstrate that EI measures are indeed reliable and valid. A useful EI measure should have test-retest reliability (it should yield similar scores in the same participants across time). It should exhibit internal reliability (multiple items in the same scale designed to tap the same construct should be positively intercorrelated). Such a measure should have content validity (it should include items that seem to reasonably tap the multiple conceptual facets of the construct). It should also show some sort of convergent validity (a good EI measure should be positively correlated with other good EI measures). Further, such a measure should demonstrate discriminant validity (a measure of EI should be either uncorrelated or only modestly correlated with conceptually distinct measures (e.g., cognitive intelligence)). Similarly, a good EI index should demonstrate incremental validity, or the tendency to account for variability in an important outcome variable beyond variability accounted for by competing predictor variables. Also, from a utilitarian standpoint, a good EI measure should demonstrate criterion validity (scores from that measure should predict (often behavioral) outcomes that are conceptually related to EI). For a broader and more in-depth analysis of psychometric issues applied to EI, see Barchard and Russell (this volume, Chapter 3).

From the psychometric perspective that underlies this volume, a core axiom regarding the quality of any particular conceptualization of EI pertains to the psychometric properties of scales designed to measure that particular conceptualization. Simply, if a scale designed to measure EI demonstrates itself to be reliable and valid, the conceptual EI framework that corresponds to that particular measure is supported as reasonable. This book explores, in great detail (and from a variety of perspectives), issues regarding psychometric qualities of the major indices of EI, including the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer, Salovey, & Caruso, 2002), the Emotional Competence Inventory (ECI; Boyatzis, Goleman, & Rhee, 2000), and the Emotional Quotient Inventory (EQ-i; Bar-On, 1997). In this volume, perspectives on these different measures are presented by (generally) the actual authors of the different measures in addition to other scholars with insights into issues regarding the measurement of EI.

THE CHALLENGE OF 2002

Matthews, Zeidner, and Roberts' (2002) recent analysis of (and comment on) EI serves as a major challenge to EI scholars, much as Mischel's (1968) book on personality challenged the utility of trait measures in general several decades ago. Mischel's argument, often referred to by personality psychologists as the 'challenge of 1968,' called into question the idea of

traits in personality psychology, thereby calling into question the utility of much of the entire discipline of personality psychology. Matthews et al.'s (2002) treatise regarding EI has parallel implications regarding the utility of EI.

Matthews et al.'s (2002) argument, presented carefully and thoroughly, ultimately paints EI as a construct that is, from their perspective, more 'myth' than 'science.' In making this argument, the authors make the following points:

1. The different models of EI (e.g., Bar-On, 1997; Goleman, 1995; Salovey & Mayer, 1990) vary considerably. This fact calls into question whether the different constructs discussed by these different authors belong under the same umbrella.
2. EI research does not seem appropriately informed by extant scholarship on intelligence.
3. EI research does not seem appropriately informed by extant scholarship on emotion.
4. Some of the conceptualizations of EI are so broad that they render the construct useless.
5. Solid, empirical work speaking to the validity of EI measures is simply in its infancy; thus, empirical findings supporting the utility of different models of EI across multiple domains of functioning are often lacking.
6. It is unclear from available evidence whether EI predicts important outcomes at work or in school.
7. Perhaps most pertinent to the ideas underlying the current volume, Matthews et al. (2002) suggest that all the existing primary measures of EI have problems that call their utility into question.

In the final pages of their treatise, the authors summarize their concerns regarding EI by stating that "... EI appears to be more myth than science ..." (p. 548). This point, critical to be sure, is based on extensive analysis, examination of several claims regarding EI vis-à-vis existing bodies of research in psychology, in addition to a careful, detailed, and thorough examination of how different conceptualizations of EI pertain to existing constructs in psychology. The conclusions drawn are, therefore, conclusions that need to be seriously considered by anyone interested in pursuing scholarly work on EI.

The argument presented by Matthews et al. (2002) is largely empirical in nature. In making their points, they cite myriad specific findings from the EI literature. This highly empirically oriented tack is something that modern academic psychologists can appreciate. Academic psychologists hold certain values close to their hearts. Many of those values pertain to the core ideas of empirical science in general. These ideas are well summarized in the following quote by Elizabeth Loftus (2004):

... (the gift of the study of psychology) is the gift of knowing how to ask the right questions about any claim that someone might try to fob off on you. Ask them: "What is the evidence?" for that claim, but don't stop there. Get more specific: What kind of study was done? What was the dependent variable? Was there a control group? What kinds of statistical tests were used to analyze the data? Has the study been replicated?

We need ask: "What exactly is the evidence?" because some evidence is so flimsy that it's not really evidence at all (p. 7).

In a sense, this highly critical standpoint summarized by Loftus here speaks to more than the critical approach toward data that psychologists encourage in their students. In the current context, this line of reasoning also speaks strongly to the critical approach toward EI that Matthews et al. (2002) clearly endorse in making their argument.

As trait psychologists continued to function in a post-‘Challenge of 1968’ world, EI scholars continue to work in a post-‘Challenge of 2002’ environment. EI still exists in the aftermath of 2002. The current volume serves largely as a dialogue among EI scholars that exists vis-a-vis the Challenge of 2002. As the reader will find, several of the points raised by Matthews et al. (2002) about the work of particular researchers are explicitly addressed by those same researchers in this volume.

CONCEPTUALIZING AND MEASURING EMOTIONAL INTELLIGENCE

EI has been defined in multiple ways. Generally, EI is defined as the ability to effectively deal with emotions. Most definitions of EI include components pertaining to accuracy in recognizing others’ emotions, accuracy in understanding one’s own emotions, and effectiveness in using emotional information.

In light of the heterogeneous nature of existing EI models, researchers often speak of two general kinds of EI frameworks. Mayer, Salovey, and Caruso (2000) organize EI models into ‘ability’ versus ‘mixed’ models. According to this organizational scheme, ability models conceptualize EI as a set of mental abilities (such as actual accuracy in assessing the kinds of emotion expressed by particular faces) while mixed models include both mental abilities and personality traits (such as assertiveness; see Bar-On (this volume, Chapter 6) as components of EI. Petrides and Furnham (2001) use a slightly different scheme; they refer to ‘ability EI’ versus ‘trait EI.’ In this scheme, ability EI corresponds to models such as Mayer et al.’s (2000) that underscore cognitive abilities as crucial in defining EI, whereas trait EI corresponds to models that primarily incorporate traits relevant to individual differences in emotional processes. According to Petrides and Furnham (2001), these kinds of models are so conceptually different that they likely warrant different names. It is in fact confusing to have models that focus on constructs that are conceptually different (as the ability to accurately perceive emotion compared with assertiveness) existing under the same semantic umbrella. In other words, it may be that researchers should ultimately work toward the creation of separate constructs with different names, one corresponding to what we now refer to as ‘ability EI’ and another corresponding to ‘trait EI.’

As noted prior, an important theme that emerges regarding the question of what EI actually is pertains to the fact that EI researchers do not agree on one definition of EI. Further, there is currently much controversy over what EI is and how the construct should be measured. Goleman’s (1995) model, which clearly serves as the version of EI that is most well known outside academic circles, defines EI as a collection of specific social and emotional competencies. This model has been addressed, in fact, by academic researchers such as Boyatzis and Sala (this volume, Chapter 7). In a model that similarly includes traits as basic components of EI, Bar-On, Tranel, Denburg, and Bechara (2003) define EI as “an array of emotional and social abilities, competencies, and skills that enable individuals to cope with daily demands and be more effective in their personal and social life” (p. 1). The primary

ability-based model of EI defines the construct as a set of abilities that pertain to the understanding of emotions in the self and in others (Mayer, Salovey, & Caruso, 2000a).

Despite all the differences in the various conceptualizations of EI, there are some common themes that underlie each version of EI. It is generally agreed upon that EI is an ability or competency, or set of abilities or competencies, and that individuals differ in terms of their level of emotional intelligence. Additionally, there is consensus among researchers that EI develops with age. However, the factors that most strongly influence its development (e.g., genetics, experiences, parenting) are largely in question and are differentially emphasized by different EI proponents (Matthews et al., 2002). It is also widely agreed upon that emotional intelligence is important in both interpersonal and intrapersonal contexts.

As a result of the lack of agreement on a single definition and conceptualization of EI, indices of EI tend to vary from one another accordingly. Simply, trait EI measures tend to be structured in ways that are consistent with how psychologists measure traits; ability EI measures, on the other hand, are designed to allow for an assessment of the *correctness* of participants' scores.

Trait EI has been defined as "a cluster of personality characteristics or non-cognitive abilities related to life success" (Barchard & Russell, this volume, Chapter 3). Trait EI is usually measured with a self-report type of instrument (Matthews et al., 2002) and taps different dimensions of both emotional and social competencies. Although generally less time-consuming to complete than Ability EI measures, self-report measures are potentially susceptible to response biases. Bar-On's (1997) model of trait EI (which he refers to as "emotional and social intelligence" (Bar-On, 2000)) is defined as "a cross-section of inter-related emotional and social competencies that determine how effectively we understand and express ourselves, understand others and relate with them, and cope with daily demands and pressures" (Bar-on, 2003, this volume, Chapter 6). Bar-On's EQ-i includes self-report items that tap five broad EI competencies: (1) Intrapersonal, (2) Interpersonal, (3) Stress Management, (4) Adaptability, and (5) General Mood (Bar-On 1997). Further, this scale includes 15 total subscales measuring more specific constructs that underlie these broad competencies. The EQ-i is an extremely widely used instrument; it has been administered to more than one million people and has been validated on samples of thousands of individuals. In the current volume, Bar-On makes a strong case for the convergent, discriminant, factorial, and predictive validity of the EQ-i. He further argues that the 'ability' versus 'mixed' model dichotomy that has been painted of disparate EI models is a poorly conceived dichotomy that does not hold up to empirical test.

Goleman's (1998) model, espoused and addressed by Boyatzis and Sala (this volume) includes four EI clusters: (1) Personal Competence, (2) Social Competence, (3) Self-Management, and (4) Social Skills. As with Bar-On's model, this model includes specific constructs (referred to as *competencies*) that correspond to these broader clusters. The Emotional Competence Inventory (ECI), described by Boyatzis et al. (2000) and by Boyatzis and Sala, (this volume, Chapter 7), is structured similarly to the EQ-i in that it includes several self-report items designed to tap these different competencies. In the current volume, Boyatzis and Sala define EI as "a set of competencies, or abilities to recognize, understand, and use emotional information about oneself or others that leads to or causes effective or superior performance" (Chapter 7, p. 172). Importantly, their version of EI differs from other versions of EI in that it explicitly includes components that are tied to performance in work-related contexts. Their *relationship management cluster* speaks directly to this point. This

cluster includes such competencies as *teamwork and collaboration* and *inspirational leadership*.

Ability EI, as conceptualized by Mayer et al. (2000), has been defined as "a set of information processing abilities that cluster into four branches, where skills in the lower branches are essential precursors for skills in the higher branches" (MacCann et al., this volume) and is, importantly, limited to only mental abilities. In other words, no non-cognitive personality attributes are explicitly included in such models. According to proponents of this way of conceptualizing EI, a construct that corresponds to a distinct kind of intelligence needs to be measured with instruments that discriminate among correct and incorrect answers. Self-report indices of different kinds of intelligences are, according to this view, inherently unreasonable as they presume that individuals are accurate in their reports of their own mental abilities. A plethora of work in different areas of psychology speaks against the idea that people are effective at self-reporting their mental states (even when they are not employing presentational-related biases; Nisbett & Wilson, 1977). Thus, proponents of EI as framed in exclusively ability-based terms, have created measures of EI that are decidedly non-self-report in nature.

The most recent ability-based version of EI (espoused by individuals such as Jack Mayer, Peter Salovey, David Caruso, and Marc Brackett) conceives of EI as a four-level hierarchical structure in which more basic skills are necessary before skills in the higher levels of the hierarchy can be achieved. These four branches are: (a) the perception and expression of emotion, (b) emotional facilitation of thought, (c) understanding emotions, and (d) emotion regulation (See Brackett & Salovey, this volume, Chapter 8). Several indices of EI based on this framework have been developed. These indices include the Emotional Accuracy Research Scale (EARS; Mayer & Geher, 1996; Geher, Warner, & Brown, 2001), the Multifactorial Emotional Intelligence Scale (MEIS; Mayer, Salovey, & Caruso, 1999), and the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; 2002). These different indices all include stimuli that require participants to make emotion-relevant judgments that conceptually relate to the different branches of Mayer and Salovey's (1997) ability model of EI. The newest such index, the MSCEIT, is summarized in detail by Brackett and Salovey (this volume, Chapter 8). Ultimately, participants' scores on these kinds of measures are based on the degree to which they match either modal judgments given by a large, normative sample or modal judgments provided by emotion experts.

An implication of the dramatic conceptual distinctions among the different EI models and paradigms for measuring EI pertains to empirical distinctions among such models. In other words, if the Mayer et al. (2000) conceptual model differs so much from the Boyatzis et al. (2000) model which, further, differs considerably from Bar-On's (1997) model, one might expect indices of EI as framed by these different conceptions to be generally uncorrelated. The degree of intercorrelation among these models is indeed a point of active discussion among scholars in this area. The psychometric perspective is empirical in nature; regarding the disparate conceptions of EI, the psychometric perspective ultimately posits that if the different indices of EI are generally uncorrelated, they must be measuring different abstract constructs. Conversely, if the different measures are positively inter-related, it may be argued that they do ultimately tap the same underlying construct, regardless of differences in how they may be presented in conceptual terms.

A worthwhile example regarding the intercorrelation among EI measures representing different conceptions pertains to the intercorrelations found among the MSCEIT (Mayer et

al., 2000) and the EQ-i (Bar-On, 1997). Both indices are published by Multi Health Systems (MHS). According to Bar-On (this volume, Chapter 6), MHS has reported intercorrelations among the MSCEIT and the EQ-i as ranging from .13 to .51 with an average r of .31. Bar-On (this volume, Chapter 6) argues that this pattern speaks to the strong convergent validity among these measures. In a recent study examining (among other things) the relationship between the MSCEIT and the EQ-i, Brackett and Mayer (2003) found a correlation of .21 between these variables, a correlation clearly in the .13-.51 range noted above. Brackett and Mayer (2003) use this correlation to underscore the *distinct nature* of these indices. Bar-On (this volume, Chapter 6), on the other hand, suggests that the overall pattern of intercorrelations among these indices suggests that these measures are indeed measuring the same construct. Clearly, further research, coupled, perhaps, with the setting of quantitative guidelines for interpreting whether some relationship index speaks more to convergent versus discriminant validity are needed to elucidate the issues at hand in the current context.

ADDITIONAL MEASURES OF EMOTIONAL INTELLIGENCE

In addition to the EQ-i, the ECI, and the MSCEIT, described in the prior section, several other indices of EI have been developed. Some of these additional measures are representative of the self-report approach described prior. Such additional self-report measures include the Schutte Self-Report Index (SSRI; Schutte, Malouff, & Hall, 1998) which consists of 33-items modeled after the four-branch hierarchical model designed by Mayer and Salovey (1997). Like the MSCEIT, the SSRI measures four EI sub-factors: emotion perception, utilizing emotions, managing self-relevant emotions, and managing others' emotions. A relatively recent self-report index is the Trait Emotional Intelligence Questionnaire (TEIwue; Petrides & Furnham, 2003). This instrument was designed to measure trait EI. It consists of 144 items divided into 15 different scales, which are as follows: adaptability, assertiveness, empathy, happiness, impulsiveness (low), optimism, self-esteem, self-motivation, social competence, stress management, emotion expression, emotion management (others), emotion perception, emotional regulation, and relationship skills.

A different kind of self-report EI measure is found in the Levels of Emotional Awareness (LEAS; Lane, Quinlan, & Schwartz, 1990). The LEAS is an ability EI instrument that involves open-ended responses. Specifically, participants are asked to consider 20 scenes and report how they would feel, and how other individuals would feel, if they found themselves in the situation depicted in each scene. Scores on this measure are compared to a set of predefined rules and are associated with one of six (0-5) different levels of emotional comprehension. The lowest level (Level 0) represents a complete lack of emotion, while the highest level (Level 5) represents the most complete understanding and differentiation of emotions of oneself and others.

Several other well known indices of EI and of EI-related constructs exist in the literature. Such other indices include the Trait Meta-Mood Scale (TMMS; Salovey, Mayer, Goldman, Turvey, & Palfai, 1995), which is designed to measure attention to emotion, emotional clarity, and emotional repair and the Toronto Alexithymia Scale (Bagby, Parker, & Taylor, 1994), which measures three facets of alexithymia, including difficulty identifying feelings, difficulty describing feelings, and externally oriented thinking.

Excellent and thorough reviews of these and other EI measures are included in McCann, Matthews, Zeidner, and Roberts' and Barchard and Russell's chapters in this volume.

SCORING ISSUES REGARDING EMOTIONAL INTELLIGENCE MEASURES

Three general strategies exist in scoring indices designed to tap EI. One strategy involves typical methods for scoring self-report measures. For such indices (e.g., Bar-On's EQ-i), scores across multiple Likert-scale items are summed to compute scores for several EI subscales (e.g., emotional self-awareness). High scores reflect the degree to which participants rate themselves as high on particular EI subscales. Self-report indices of EI clearly are prone to problems associated with self-report measures in general, such as response biases. In the design of the EQ-i, Bar-On took this issue into account by including four validity indicators (such as a subscale comprised of items that are designed to tap a participant's overall tendency to respond with answers that would give a positive impression about the participant).

The two other general strategies for measuring EI fall under the broader category of measuring ability-based EI. Given that EI is conceptualized as a form of intelligence, several authors have argued that ability-based indices provide the most construct-valid means for assessing EI (Mayer, Salovey, & Caruso, 2000). From this perspective, EI in fact reflects several cognitive abilities that are tied to the emotion system. Thus, to determine if one is, indeed, high in these abilities, one needs to test these abilities, not simply ask participants to report on their own abilities. This reasoning is similar to the reasoning involved in tapping athletic ability; the winner of a marathon is determined by actual performance in a marathon, not by self-reports of long-distance running ability.

In light of the myriad attempts to tap EI-relevant constructs in the recent history of psychology, two general classes of ability-based indices of EI exist. Ability-based EI, as conceptualized by Mayer, Salovey, and their colleagues, takes the form of assessing the degree to which participants' emotion judgments regarding multiple emotion-laden stimuli match one of two criteria: lay consensus versus expert consensus. Initially, measures designed by researchers from this camp used consensus-matching as the exclusive criterion to tap EI. The EARS (Geher, Warner, & Brown, 2001), MEIS (Mayer, Salovey, & Caruso, 1999), and the MSCEIT (Mayer, Salovey, & Caruso, 2002) all are typically scored in this manner; high EI scores result from participants reporting judgments regarding emotional stimuli that are similar to judgments made by a large group of lay responders.

A primary criticism of this consensus-based method has been that such a scoring procedure may not actually tap an ability, but may, rather, tap the tendency to respond in a stereotypical, common way. To address this concern, these researchers had several emotion experts rate the stimuli in the MSCEIT; their answers provided criteria that were, perhaps, not simply reflective of consensual responding. The rationale behind the use of the expert criteria basically suggests that matching expert scores is indeed an ability, not simply a tendency to respond in a typical fashion. One point that somewhat muddies this issue pertains to the fact that EI scores based on consensus scoring tend to be very positively related to EI scores based

on expert scoring. Conceptual and empirical issues regarding this framework for understanding EI need to be addressed in future work to more fully help us understand the degree to which such scoring does, indeed, tap EI ability.

Potential alternative methods for assessing ability-based EI may be found in the scoring methods of indices of emotion-relevant constructs that do not necessarily fall under the domain of EI per se. Specifically, O'Sullivan and Ekman (this volume, Chapter 5) make the case that several indices of the ability to accurately perceive facial emotions are ability-based and, further, have correct answers that are correct in absolute and objective senses. For instance, in a new index of ability to accurately detect emotions from faces, Ekman's (2003) Micro Momentary Emotional Expression Training Tool (METT) has participants make judgments regarding whether particular faces, shown for brief amounts of time, are more likely to express one affective state (e.g., disgust) versus another (e.g., anger). The faces included in this index, as with faces used in much research on facial expressions of emotions, are in fact based on objective facial qualities derived from Ekman's landmark research that has delineated specific qualities of facial features across affective states. These stimuli, therefore, are, in effect, objective (see O'Sullivan & Ekman, this volume, Chapter 5, for a detailed summary of research speaking to this point). Further, just as stimuli in used such measures are objective, scoring of indices such as the METT are, accordingly, objective in nature. Several other objective indices of EI-relevant constructs have been utilized by past researchers. EI researchers may be wise to consider carefully whether the qualities that characterize these different measures would be useful in moving toward more objective, ability-based ways to assess EI.

ISSUES OF VALIDITY AND INDICES OF EMOTIONAL INTELLIGENCE

The analysis included in this chapter generally highlights the fact that work on the conceptualization and measurement of EI tends to vary quite a bit. There are disparate ways of thinking about EI and disparate ways of measuring it. These facts suggest that a core goal of current work in EI should be to work toward consensual methods of conceptualization and measurement. This proposed goal, however, raises the question of what criteria should be used to determine how work in EI forms in the future. The psychometric approach here suggests that such decisions need to be based on data; indices of EI that demonstrate the myriad kinds of reliability and validity outlined by psychometricians -- and the conceptualizations of EI that correspond to such indices -- should serve as the basis for how EI is conceived in the future.

A particularly important empirical criterion for evaluating indices of EI pertains to discriminant validity. One of the core concerns regarding EI raised by Matthews et al. (2002) speaks to the issue of reinventing the wheel. In the current line of inquiry, *reinventing the wheel* corresponds to the idea that existing constructs in psychology may be being repackaged and perhaps, simply, *relabelled* as EI. This slant of Matthews et al. (2002) is clearly manifest in their depiction of the ECI. Generally, this index, described by Goleman (1998), is designed to tap an extremely broad conceptualization of EI. According to Matthews et al. (2002), this ambitious index, comprised of subscales designed to measure 20 competencies that presumably comprise EI, seems to have a dearth of data supporting it. In their words, "... we could find no factor ... analysis supporting the derivation of factors in the scientific literature"

(p. 217). Further, the authors write that "it is difficult not to be cynical of this measure, given the lack of publicly accessible data supplied by its creators and the constellation of old concepts packaged under its new label" (p. 218). Clearly, Matthews et al. (2002) argue that EI, as conceptualized by Goleman (1998) and Boyatzis and Sala (this volume, Chapter 7) represents nothing new in psychology; rather, the implication here is that this brand of EI includes several existing constructs in psychology that are simply being repackaged. Importantly, Boyatzis and Sala (this volume, Chapter 7) provide factor analytic data here speaking to the empirical validity of the ECI. Given the criticisms voiced regarding the ECI by Matthews et al. (2002), these analyses seem both important and timely.

In any event, Matthews et al. (2002) raise a crucial psychometric issue regarding EI in general: Are indices based on different conceptualizations of EI in fact empirically discriminant from indices of other conceptually related constructs? From a psychometric perspective, this issue is crucial. To the extent that EI indices are not empirically distinct from indices of conceptually unrelated constructs (discriminant validity) and are not uniquely predictive of relevant outcomes vis-a-vis other potentially similar predictor variables (incremental validity), EI may not be empirically viable.

This issue of discriminant validity is addressed in multiple chapters in this volume. McCann, Matthews, Zeidner, and Roberts (this volume 2), Boone and Buck (this volume 4), Bar-On (this volume, Chapter 6), Boyatzis and Sala (this volume, Chapter 7) and Day (this volume, Chapter 11) all address this issue explicitly, often coming from very different perspectives. Much other current literature also addresses the issue of whether EI indices have sufficiently demonstrated discriminant and/or incremental validity (see Matthews et al., 2002).

The MSCEIT (described above and in Brackett & Salovey (this volume, Chapter 8) is currently the most widely used ability index of EI. In a recent study of the validity of this measure, Brackett and Mayer (2003) compare results from the MSCEIT and two self-report indices: the Self-Report Emotional Intelligence Test (SREIT; Schutte et al., 1998) and the EQ-i (Bar-On, 1997). In addition to examining the intercorrelations among these measures, these researchers examined the degree to which these different indices relate to indices of cognitive intelligence, well-being, and basic personality traits. Cognitive intelligence was tapped by participants' verbal SAT scores. Well-being was measured by Ryff's (1989) Personal Well-Being index, which includes self-report items that tap subjective dimensions of well-being such as 'self acceptance.' Personality traits were measured with Costa and McCrae's (1992) NEO-PI-R which taps the Big 5 trait dimensions (neuroticism, extraversion, openness, agreeableness, and conscientiousness) using self-report scales.

The measures included in this study allowed for an assessment of several kinds of questions speaking to the validity of these different instruments. Regarding convergent validity among the different EI predictors, the MSCEIT was less correlated with the two self-report indices than these indices were with each other. These researchers use that information to argue that the MSCEIT in fact is measuring a construct that is discriminant from the self-report measures. Further, in this study only the MSCEIT was correlated with verbal SAT; the self-report indices were not. These researchers suggest that this finding speaks to the fact that the MSCEIT is tapping a more *intelligence-like* construct than these other indices. Additionally, generally, the self-report indices were highly correlated with the Big 5 subscales, whereas the MSCEIT scores were generally less correlated with these indices.

Brackett and Mayer (2003) interpret these findings as evidence that the MSCEIT is discriminant from both self-report indices of EI and general trait measures. Further, they interpret their findings as evidence that the self-report measures here are not discriminant from basic personality traits.

Bar-On (this volume, Chapter 6), importantly, provides evidence that the EQ-i, in fact, may be less correlated with personality trait measures than Brackett and Mayer (2003) imply. Further, Bar-On provides evidence that the EQ-i may actually be more correlated with the MSCEIT than Brackett and Mayer's (2003) findings imply. Bar-On's analyses here are in fact highly relevant to issues regarding the validity of his self-report index. In his chapter, he provides evidence speaking to the factorial, discriminant, and predictive validity of the EQ-i.

Patterns of relationships among EI indices and indices of existing constructs have in fact been interpreted in a variety of ways by different researchers. While Brackett and Mayer (2003) suggest that correlations between EI and the Big 5 suggest a lack of discriminant validity, Boyatzis and Sala (this volume, Chapter 7) highlight intercorrelations between ECI scales and Big 5 scales. For instance, these authors suggest that a finding by Murensky (2000), which shows that the ECI social skills cluster has a correlation of .49 with extraversion (as measured by Costa & McCrae's (1992) NEO-PI-R), provides important evidence of overall construct validity for the ECI. In work designed to provide further support for the construct validity of the ECI, Boyatzis and Sala (this volume, Chapter 7) also underscore intercorrelations between ECI clusters and the Myers Briggs Type Indicator (MBTI) and indices of Type A personality. The current analysis suggests that relationships between EI measures and indices of other constructs may be alternatively (and, perhaps, capriciously) framed as either support or disconfirmation of a given conceptualization of EI.

In examining the multiple interpretations of different patterns of relationships between EI indices and other indices, one develops an understanding of the difficulty of the task at hand for EI researchers. The same kinds of relationships are often interpreted in very different ways to make separate kinds of points regarding scale validity. It seems that an examination of validity-based studies conducted by multiple EI researchers, in fact, provides an important basis for considering how EI research might best proceed in the future. Many such findings are presented by multiple researchers in a variety of contexts in this volume. A goal of this book is for the juxtaposition of such findings from varied researchers, as presented here, to help serve as a framework for the development of synthesized guidelines regarding how to interpret different patterns of correlations between EI measures and criterion measures. The development of such a framework should provide future researchers with a relatively clear map regarding scale development and scale assessment in future EI work.

EMOTIONAL INTELLIGENCE IN THE CONTEXT OF MODERN PSYCHOLOGY

When Salovey and Mayer (1990) published their landmark paper on EI, they presented this construct as an important, novel way of understanding and synthesizing much research, published prior to the publication of that article, dealing with emotions and with intelligence separately. They further argued, there and elsewhere (e.g., Mayer et al., 2000), that intelligence is in fact a reasonable metaphor for understanding the nature of EI. While

Salovey and Mayer acknowledge that EI is comprised of a variety of existing constructs in psychology, their framework for understanding EI suggests that there is much to be gained in terms of better understanding human psychology by having an organizing framework such as theirs. They argue that tying together different constructs from the literature speaking to individual differences in emotion-relevant processes (such as managing emotions in self and recognizing emotions in others) into a coherent framework, labeled as EI, helps improve our understanding of both (a) how such emotional processes inter-relate and (b) how such processes can, when viewed under a common construct, help us better predict important behavioral outcomes.

This point, speaking to whether EI does indeed represent a novel construct in psychology with demonstrated incremental validity, is at the center of much debate. The existence of all the research on discriminant and incremental validity of EI measures (addressed in prior section) speaks to the fact that EI researchers are clearly cognizant of this concern. Matthews et al. (2002) raise several issues regarding whether EI is indeed a novel idea within psychology. One of the primary themes that runs throughout their critique pertains to the issue of redundancy. Is EI in fact reasonably considered a novel, important, unique, distinct construct in the context of the current landscape of modern psychology? As an example of Matthews et al.'s ideas on this redundancy issue, consider the following quotation regarding the EQ-I: "(this scale does not) measure any construct that is not already captured in existing personality measures" (p. 16). Their overall critique suggests that EI is in fact no more than a re-labeling of existing constructs. Empirically, the authors argue, EI as a construct does not help us predict variability in relevant observable phenomena (emotion-relevant behaviors) above and beyond variability explained by a battery of existing constructs.

In a prior section, we describe research that basically speaks to interrelationships among EI measures. Given the lengthy history of research on issues that are highly pertinent to the constructs that comprise EI, such as emotion-detection research (e.g., Ekman, Friesen, & Ellsworth, 1972), it seems useful to consider EI in light of established EI-relevant constructs. Several constructs that are conceptually related to EI exist in multiple areas within psychology. Such existing constructs that are at least peripherally related to EI include, for instance, Niedenthal, Cantor, and Kihlstrom's *social intelligence* (1985), which deals with individual differences in effective problem solving in social interactions, and *self-monitoring* (Snyder, 1974), which pertains to individual differences in effectiveness at perceiving and dealing with social cues.

Other established constructs pertain more directly to EI. Boone and Buck (this volume, Chapter 4) summarize multiple established lines of research that have considerable conceptual overlap with EI. Such lines of research include, for instance, the Japanese and Caucasian Brief Affect Recognition Test (JACBART; Matsumoto, LeRoux, & Wilson-Cohn, 2000), the Communication of Affect Receiving Ability Test (CARAT; Buck, 1976), the Diagnostic Analysis of Nonverbal Accuracy (DANVA; Nowicki & Duke, 1994), and the Profile of Nonverbal Sensitivity (PONS; Rosenthal, Hall, DiMatteo, Rogers, & Archer, 1976), among others. These measures all assess some aspect of individual differences in the ability to accurately perceive emotions in others; a core feature of any definition of EI.

A crucial section of Boone and Buck's (this volume, Chapter 4) chapter is titled "Cross-validation of Receiving-Ability Measures." In this section, the authors examine the degree of intercorrelation among several extant indices of emotion-receiving ability. Importantly, the authors conclude:

While all these putative measures of receiving ability have shown some predictive validity in terms of being associated with outcomes such as personality or success in a profession that strongly relies on interpersonal skills, efforts to show a unified construct of receiving ability have failed (Chapter 4, p.77).

Generally, these authors conclude that scores on these different indices are generally uncorrelated with one another. Further, the authors indicate that measures designed explicitly to tap EI (e.g., the MSCEIT) have generally not been examined in terms of cross-validation concurrently with the existing kinds of measures described here.

The reasoning outlined here has important implications for future work on developing and validating EI measures. Simply, it would be productive to examine the interrelationships between EI indices and extant measures of EI-relevant constructs. Such research would be fruitful in multiple regards. To the extent that indices of EI such as the MSCEIT tap the same construct as measures of emotion-receiving ability (such as the PONS), scores should be intercorrelated. Demonstrating that such relationships exist would provide a strong foundation for EI measures and would allow EI to fit into more general frameworks for understanding emotion. In the current state, in which data speaking to the inter-relationships between EI indices and established measures of emotion-relevant constructs (e.g., the PONS) generally do not exist, it is difficult for EI researchers to argue that EI is indeed a novel construct that reasonably exists within broader areas of established constructs within psychology.

INTRODUCTION TO THE CURRENT VOLUME

The current volume represents an important step toward the creation of a synthesized way of thinking about EI among academics and practitioners. In particular, this volume focuses on measurement. As the reader will necessarily observe by digesting the content of this book, measurement schemes designed to tap EI vary considerably. An additional point, integrally related to the aforementioned point regarding heterogeneity of measurement, pertains to the issue of heterogeneity of conceptualizations of EI.

The foreword by Mayer sets the tone for this volume. In studying psychological phenomena, our conclusions can only be as good as our measuring instruments. The importance of measurement in helping develop scholarship in EI is underscored therein. After the foreword, this book is divided into four sections. This first, introductory section includes chapters that pertain to basic issues that underlie EI measurement issues across conceptualizations of EI. In addition to the current chapter, this section includes chapters by MacCann, Matthews, Zeidner, and Roberts (chapter 2), Barchard and Russell (chapter 3), Boone and Buck (chapter 4), and O'Sullivan and Ekman (Chapter 5). Without question, these authors comprise some of the world's leading voices regarding issues that underlie EI. To some extent, these initial chapters reflect views that are wary of fully endorsing EI as a viable construct compared with subsequent chapters which, generally, tend to progress assuming that EI, in some incarnation, is an important, viable construct. The ideas provided in these initial chapters provide an excellent framework for contextualizing and absorbing subsequent chapters.

The second section includes chapters on the most important EI measures of our day. These measures include the EQ-i (chapter 6; Bar-On), the ECI (chapter 7; Boyatzis & Sala), and the MSCEIT (chapter 8; Brackett & Salovey). These chapters are generally written by the authors of these instruments themselves, providing first-hand comments regarding the rationale underlying each measure, the measure's structure, and reliability/validity information. Further, given that these chapters are written in a post-Matthews et al. (2002) environment, the authors of these chapters wrote them with the opportunity to comment on criticisms raised by Matthews et al. This feature of the current work allows this volume to be an important element of the continuing dialogue regarding the utility and viability of EI among the top scholars in this field.

The third section includes chapters that deal with issues regarding EI measurement applied to specific kinds of social problems. Hall, Geher, and Brackett (Chapter 9) examine the utility of EI, measured using a variety of EI-relevant indices designed for younger populations, in discriminating between children with abnormal attachment patterns versus control children. Also included in this section is a thorough treatment of EI as a predictor of work-related outcomes (Chapter 10; Day & Kelloway). This work sheds much light on the question of whether EI is indeed an important factor for success in the workplace.

The final chapter (Chapter 11; Day) provides a detailed, thoughtful treatment of EI with an eye toward the future of work in this area. A thorough summary of multiple EI measures, critical comments regarding psychometric and conceptual issues associated with these measures, and implications for how EI researchers might best proceed are all addressed in this chapter.

Overall, this volume provides an opportunity for EI researchers who represent the many faces of EI in current psychology to make their cases regarding how EI should best be conceptualized and measured. Juxtaposed with the writing of MacCann, Matthews, Zeidner, and Roberts (this volume, Chapter 2) are chapters by EI researchers who clearly differ in their overall understanding of the importance, coherence, and utility of the EI construct. Several such researchers, including Boyatzis and Sala (this volume, Chapter 7) and Bar-on (this volume, Chapter 6), provide specific evidence that often bears directly on criticisms raised by Matthews and colleagues regarding their particular measurement schemes for tapping EI. Thus, to state that this volume reflects a diversity of perspectives on EI is to be understated. The open-minded reader will surely find the complexities and nuances included in the multiple perspectives provided here extremely useful in creating for him or herself a coherent understanding of what EI is and how EI should be measured.

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