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FOCAL ARTICLE

Emotional Intelligence: Toward Clarification of a Concept

CARY CHERNISS
Rutgers University

Abstract

There has been much confusion and controversy concerning the concept of emotional intelligence (EI). Three issues have been particularly bothersome. The first concerns the many conflicting definitions and models of EI. To address this issue, I propose that we distinguish between definitions and models and then adopt a single definition on which the major theorists already seem to agree. I further propose that we more clearly distinguish between EI and the related concept of emotional and social competence (ESC). The second issue that has generated concern is the question of how valid existing measures are. After reviewing the research on the psychometric properties of several popular tests, I conclude that although there is some support for many of them, they all have inherent limitations. We need to rely more on alternative measurement strategies that have been available for some time and also develop new measures that are more sensitive to context. The third area of contention concerns the significance of EI for outcomes such as job performance or leadership effectiveness. Recent research, not available to earlier critics, suggests that EI is positively associated with performance. However, certain ESCs are likely to be stronger predictors of performance than EI in many situations. Also, EI is likely to be more important in certain kinds of situations, such as those involving social interaction or significant levels of stress. Context makes a difference.

During the last 2 decades, the topic of emotion has become popular once again in psychology (Barsade, Brief, & Spataro, 2003). Of all the areas related to the topic, one of the most popular has been ''emotional intelligence'' (EI). EI has been defined as ''the ability to perceive and express emotion, assimilate emotion in thought, understand and reason with emotion, and regulate emotion in the self and others'' (Mayer, Salovey, & Caruso, 2000, p. 396). Researchers have examined EI in a variety of contexts, including education, social adjustment, health, personal relationships, and work (Mayer, Roberts, & Barsade, 2008).

Interest in the topic was initially fueled by anecdotal evidence suggesting that mental ability by itself is not enough for success in life. Clinical experience also demonstrated in rather compelling ways that people could score high on traditional intelligence tests yet do poorly in areas such as self-regulation and social relations. Asperger's syndrome represents a case in point. There were also vivid examples from the neurological literature, such as the case of a brilliant attorney who underwent surgery to remove a brain tumor. Following the surgery, his cognitive abilities were as strong as ever, but he could barely function at work, and his social relations substantially deteriorated. An MRI indicated that the neural pathways connecting the emotional areas of the brain to the prefrontal cortex had been

Correspondence concerning this article should be addressed to Cary Cherniss.
E-mail: Cherniss@rutgers.edu
Address: GSAPP, Rutgers University, 152 Frelinghuysen Road, Piscataway, NJ 08854

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damaged during the surgery, making it impossible for him to make even the simplest decisions (Damasio, 1994). Taken together, these examples suggested that emotional processing abilities are important for effective performance and adjustment.

The concept of EI is based on three premises. The first is that emotions play an important role in life. Second, people vary in their ability to perceive, understand, use, and manage emotions. And third, these differences affect individual adaptation in a variety of contexts, including the workplace. These basic premises seem self-evident. However, opinion about EI as a construct has varied greatly, especially in industrial–organizational (I–O) psychology (Ashkanasy & Daus, 2005). In fact, as Spector and Johnson (2006) have observed, ''There is perhaps no construct in the social sciences that has produced more controversy in recent years than emotional intelligence'' (p. 325). Wild claims about the concept have led to a strong backlash of skepticism. On the one hand, some advocates have argued that EI is more important than IQ for individual and organizational effectiveness. On the other hand some critics have argued that EI is merely a new, catch-all label for constructs that have been around for decades, and that it makes little difference for a person's success or well-being in life.

As is often the case, the truth about EI seems to be more complex than either of these extreme views suggest. After describing the most popular approaches to defining and measuring EI, I will consider three issues that have generated the most debate. The first concerns the many conflicting definitions and models of EI. I will suggest that one way to resolve this issue is to distinguish between *definitions* and *models*. There actually seems to be considerable agreement about what EI is. Once we adopt this common definition, it becomes relatively clear which models and measures are consistent with it. It also becomes clear that two different constructs are often included under the label of EI. One is emotional *intelligence*, and the other is emotional and social *competence*. Distinguishing between these two constructs can help clarify thinking and communication in the field.

The second issue concerns measurement. There now is some research supporting the construct validity of several measures, but most of the popular measures leave something to be desired, which is not surprising given that the field is still relatively young. Research on assessment in other areas could point the way to better measures of EI in the future.

The third issue concerns the significance of EI for important organizational outcomes such as leadership effectiveness and job performance. There is a growing body of research, published in respected, peer-reviewed journals, suggesting that EI does play an important role in work-related processes. Several studies also suggest that EI accounts for unique variance (incremental validity). And there is even more research suggesting that there is a link between emotional and social competence (ESC) and performance.

Definitions, Models, and Measures of EI

Although there are other models of EI, four models currently dominate the field. The first is Bar-On's (1988) model of what he now calls ''emotional and social intelligence.'' Bar-On was interested in identifying the traits and skills that help people to adapt to the social and emotional demands of life. His research suggested that these personal qualities include the ability to be aware of, to understand, and to express oneself; the ability to be aware of, to understand and relate to others; the ability to deal with strong emotions and control one's impulses; and the ability to adapt to change and to solve problems of a personal or social nature. The five main components in his model are intrapersonal skills, interpersonal skills, adaptability, stress management, and general mood (Bar-On, 1997, 2006). Bar-On's model is connected with the emotional quotient inventory (EQ-i), a

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self-report measure developed by Bar-On in the mid-1980s and widely used since the late 1990s.

Another major model is based on the work of Mayer, Salovey, and Caruso (Mayer & Salovey, 1997). Coming to the topic with an interest in the psychology of emotions, personality theory, and mental abilities, they sought to develop a new, distinct type of intelligence. They consider their model to be a ''mental ability'' or ''information-processing'' approach, and measures based on it tend to correlate more highly with cognitive ability tests than with personality tests (Mayer, Roberts, et al., 2008; Van Rooy & Viswesvaran, 2004). The four components (or ''branches'') of their model are: the ability to perceive emotions, the ability to use emotions to facilitate thought, the ability to understand emotions, and the ability to manage emotions (Mayer, Roberts, et al., 2008). Although a number of measures have been designed based on the model, the most recent one to be developed by the model's creators is the Mayer–Salovey–Caruso emotional intelligence test (MSCEIT). The MSCEIT is an ability test designed to measure EI by evaluating actual performance on a range of tasks. For instance, emotional perception is measured in part by having the test-taker rate the emotional expressions on a number of faces.

A third major model of EI is based on the work of Boyatzis and Goleman (Boyatzis & Sala, 2004). Although their model was inspired by the earlier thinking of Mayer, Salovey, and Caruso, it was designed to encompass the social and emotional competencies that are linked to outstanding performance in the workplace. The Boyatzis–Goleman model is strongly influenced by the work of McClelland (1973), Boyatzis (1982), and Spencer and Spencer (1993). The model consists of a number of specific competencies organized into four basic ''clusters'': self-awareness, self-management, social awareness, and relationship management. The primary measures associated with this model are the emotional competence inventory (ECI) and the emotional and social competence inventory (ESCI). Both are multirater or ''360 degree'' instruments. Recently, Goleman (2006) has distinguished between EI and ''social intelligence'' (SI), and he has proposed that the last two components in the original model, which he now terms *social awareness* and *social facility*, be considered components of SI.

The most recent model to emerge is known as ''trait emotional intelligence.'' This might be considered a second generation model because it was designed to include many of the personal qualities included in earlier models (Petrides, Pita, & Kokkinaki, 2007). It is based on a content analysis of early EI measures and is meant to include all ''personality facets that are specifically related to affect'' (Petrides et al., 2007, p. 274). The model consists of four components: well-being (which includes self-confidence, happiness, and optimism), sociability (social competence, assertiveness, and emotion management of others), self-control (stress management, emotion regulation, and low impulsiveness), and emotionality (emotional perception of self and others, emotion expression, and empathy) (Petrides et al., 2007). The model is measured with a self-report instrument known as the trait emotional intelligence questionnaire (TEIQue) (Mikolajczak, Luminet, Leroy, & Roy, 2007).

The four models tend to be associated with different measurement strategies. Bar-On's model and trait EI have been operationalized primarily through self-report measures. Mayer, Salovey, and Caruso have used ability tests; and Boyatzis and Goleman have relied on a multirater instrument. However, Ashkanasy and Daus (2005) suggested in their discussion of the ''three streams of research'' on EI that a distinction should be made between theoretical models and measurement strategies. A particular theoretical model of EI can be measured in more than one way. For example, a number of researchers have developed self-report measures based on the Mayer–Salovey–Caruso model (Schutte et al., 1998; Wong, Law, & Wong, 2004).

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Similarly, there is a multirater version of Bar-On's EQ-i.

Current Controversies and Some Possible Resolutions

As noted above, the concept of EI has generated considerable controversy. Of all the criticisms that have been raised, the most fundamental involves the lack of agreement concerning what EI is. This issue needs to be addressed first because all of the other issues, such as how significant EI is for work-related performance, depend on how one defines EI.

Lack of Consensus Concerning Definitions and Models

Both critics and supporters of the EI concept have been concerned about the many different definitions and models that have emerged. Matthews, Emo, Funke et al. (2006) have complained that ''the label 'emotional intelligence' has been rather haphazardly used to refer to a multitude of distinct constructs that may or may not be interrelated'' (p. 8). Murphy (2006) notes that when we say someone is ''emotionally intelligent,'' it can mean many different things. Locke (2005, p. 428) was even more blunt when he wrote, ''What does EI . . . not include?''. Mayer, Salovey, and Caruso (2008, p. 503) wrote that the term ''is now employed to cover too many different things.'' And Daus and Ashkanasy (2003, pp. 69–70) argued, ''These [different] models have done more harm than good regarding establishing emotional intelligence as a legitimate, empirical construct with incremental validity potential.''

Although critics of the EI concept have made much of the lack of agreement on definition, the problem is not unique to EI. There is still considerable disagreement about how to define general intelligence, even after 100 years of active research on the topic. Back in the mid-1980s, when a group of two dozen distinguished experts on the concept of intelligence were asked to define the concept, they gave two dozen different definitions (Sternberg & Detterman, 1986). Another large group of experts commissioned to consider the matter argued that ''Such disagreements are not cause for dismay. Scientific research rarely begins with fully agreed definitions, though it may eventually lead to them'' (Neisser et al., 1996, p. 77). If intelligence researchers are still saying this about standard intelligence after 100 years of study, the existence of several different models of EI should not be surprising. Nevertheless, the widely discrepant views of what EI is do seem to pose a real problem for both scientific legitimacy and progress in the field.

There have been several responses to the problem of multiple definitions and models. The first is to reject the concept of EI completely (Landy, 2005; Locke, 2005). Ashkanasy and Daus (2005) have responded by arguing that there are some important differences between the concepts of SI and EI. They believe that problems with particular definitions, models, and measures at this early stage of research should not lead us to abandon the concept entirely. They propose that we reject the unfounded claims and focus on the growing body of research that has appeared in refereed journals.

A second approach to the problem of multiple definitions and models is to accept the fact that there is a diversity in views and live with it, at least for the present (Bar-On, 2006; Emmerling & Goleman, 2003; Petrides et al., 2007). One problem with this solution is that because the models are so different from one another the concept of EI is in danger of becoming meaningless. In one study, for example, the correlation between two of the models (as represented by the MSCEIT and the EQ-i) was only .21 (Brackett & Mayer, 2003). It is fine to have different models of a particular construct, but when the most common measures of the two models share only 4% of the variance, it is hard to argue that they are measuring the same thing.

A third solution to the problem is to choose one of the existing models and

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demonstrate convincingly that it is the best one. Ashkanasy and Daus (2005) have taken this approach in proposing that the Mayer–Salovey–Caruso model is the one that the field should adopt. It is tempting to choose one model and call it the only legitimate one, but all the current models have significant limitations, including the Mayer–Salovey–Caruso model. As Matthews, Emo, Funke et al. (2006, p. 7) pointed out, the model may be too restricted: ''Several qualities commonly attributed to EI are excluded, such as emotional expressiveness, empathy, perspective-taking, and self-control.'' Also, competing models have certain strengths. One virtue of the broader models is that they bring together many of the emotional and social abilities that are important for success in school, work, and life into one framework. Even Ashkanasy and Daus acknowledged that for those who wish to predict, understand, and manage human behavior in organizations, the broader, ''mixed models'' can be useful. But how can we label all of these models ''emotional intelligence''?

Rather than try to put forth one model as the only correct one, it might be better to formulate a single *definition* of EI. This common definition can then be used to determine which collections of abilities and traits are true models of EI. Such an approach assumes that there can be a multiplicity of different models even though there is a single definition.

Distinguishing between ''definitions'' and ''models'' is an idea that was suggested by Salovey and Mayer in a somewhat different context when they made a distinction between *intelligence* and *models of intelligence*. Following Wechsler (1958), they defined intelligence broadly as the capacity to ''deal effectively with the environment'' (Salovey & Mayer, 1990, p. 187), and they suggested that many different types of intelligence, including EI, fit this basic definition. However, there are a number of different models of intelligence that differ considerably from one another. For instance, Spearman's (1927) famous view that all intelligence ultimately is based on a single, underlying factor (''g'') is not a definition of intelligence but rather a model of intelligence. The concept of EI clearly is incompatible with Spearman's model of intelligence, but it should still be considered a type of intelligence based on the common definition.

If we apply this way of thinking to EI research and theory, we would seek to establish a common definition of EI and then evaluate proposed models and measures in terms of that definition. Is it possible at this point to identify a common definition that most theorists and researchers seem to accept? Although there is no unanimous agreement, a review of the literature suggests that most researchers have accepted a basic definition proposed by Mayer et al. in their earlier writings. They defined EI as ''the ability to perceive and express emotion, assimilate emotion in thought, understand and reason with emotion, and regulate emotion in the self and others'' (Mayer et al., 2000, p. 396). This early formulation led to their current model, which includes the four basic abilities of perceiving, using, understanding, and managing emotion.

Boyatzis and Goleman, Petrides, and Bar-On all seem to include this definition in their own work (Ciarrochi, Forgas, & Mayer, 2001; Daus, 2006). For instance, Boyatzis (2009) has defined an ''emotional intelligence competency'' as ''an ability to *recognize, understand, and use emotional information* about oneself that leads to or causes effective or superior performance.'' Petrides and Furnham (2003, p. 39) wrote, ''Broadly speaking, the construct of EI posits that individuals differ in the extent to which they *attend to, process, and utilize affect-laden information* of an intrapersonal (e.g., managing one's own emotions) or interpersonal (e.g., managing others' emotions) nature.''

Bar-On's conception is more expansive, but it does include the elements of Mayer et al.'s definition:

> From Darwin to the present, most descriptions, definitions and conceptualizations of emotional–social intelligence

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> have included one or more of the following key components: (a) the ability to *recognize, understand and express emotions and feelings*; (b) the ability *to understand how others feel* and relate with them; (c) the ability to *manage and control emotions*; (d) the ability to manage change, adapt and solve problems of a personal and interpersonal nature; and (e) the ability to generate positive affect and be self-motivated (Bar-On, 2006, p. 3).

Mayer et al., in their more recent writings, also deviate to some extent from their original definition. They now define EI as ''the ability to carry out accurate reasoning about emotions and the ability to use emotions and emotional knowledge to enhance thought'' (Mayer, Roberts et al., 2008, p. 511). However, in their model and measure of EI they continue to retain the original four basic abilities of perceiving, using, understanding, and managing emotion. Thus, although there is no total agreement, most of the major theorists seem to accept as a common definition that EI is ''the ability to perceive and express emotion, assimilate emotion in thought, understand and reason with emotion, and regulate emotion in the self and others'' (Mayer et al., 2000, p. 396).

Another virtue of this definition is that it seems to meet a basic requirement for a concept to be considered an intelligence: It consists of a set of conceptually related *abilities*, and these abilities involve reasoning, problem-solving, and the processing of information (Mayer, Caruso, & Salovey, 1999).

If we adopt this common definition of EI and apply it to the various models that have been proposed, some models seem to fit better than others. The Mayer–Salovey–Caruso model, not surprisingly, is a good fit. However, other models also fit the definition. For example, Palmer, Gignac, Ekermans, and Stough (2008), beginning with the Mayer–Salovey–Caruso definition and model, found empirical support for a seven-factor model. The seven factors that emerged were (a) Emotional Self-awareness, (b) Emotional Expression, (c) Emotional Awareness of Others, (d) Emotional Reasoning, (e) Emotional Self-management, (f) Emotional Management of Others, and (g) Emotional Self-control. They have developed a multirater measure based on this model, designed specifically for use in work contexts (Palmer, Stough, Hamer, & Gignac, 2009).

Although more than one model can fit the basic definition, some of the current models seem to go well beyond it. They include traits and other personal qualities (e.g., achievement motivation, flexibility, happiness, and self-regard) that do not seem to be consistent with the definition. Viewing these models as representations of EI poses serious problems for the field. Nevertheless, these broader models do serve a useful purpose, even if they don't qualify strictly as models of ''emotional intelligence.'' They provide a useful catalog of the personal qualities, other than cognitive intelligence, that most strongly aid adaptation. But if these models are not to be considered models of EI, what are they?

One way of thinking about them is that they are models of *ESC*. A competency is any ''characteristic of the person that leads to or causes effective or superior performance'' (Boyatzis, 1982). Thus, ESC refers to those competencies that are clearly linked to EI (i.e., the perception, expression, understanding, and regulation of emotion in oneself and others). Another way of thinking about the distinction is that ESC involves those parts of the brain associated with emotion. *Empathy* is an ESC because it relies on the ability to accurately perceive how others are feeling. On the other hand, *analytical ability* is an example of a cognitive competency.

This distinction between EI and ESC can be found in Salovey and Mayer's (1990, p. 199) original formulation. For instance, they referred to ''charisma'' as an example of how leaders use regulation of emotion (a component of EI) to ''influence others'' (a competency in the Boyatzis–Goleman model).

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This distinction between EI, based on a common definition of the construct, and the various competencies associated with it is also consistent with the view of some critics of the EI construct. Matthews, Emo, Funke et al. (2006, pp. 4–5) argued that intelligence should be thought of as a ''basic aptitude'' and a ''latent factor in a structural model of ability.'' A competency, on the other hand, is a ''more loosely defined capability for performing some physical or mental activity that may be influenced by learning and context as well as aptitude.'' Other psychologists (Lichten & Wainer, 2000) have proposed an ''aptitude-knowledge continuum,'' with aptitude referring to ''the capacity to learn'' and knowledge referring to ''what a person actually has learned'' (Mayer, Roberts et al., 2008, p. 513). Based on this conception, one can think of EI as contributing to the aptitude necessary for developing ESC.

This view suggests that the core EI abilities, such as emotional perception, provide the foundation for emotional and social competencies such as ''influence'' or ''stress tolerance.'' For instance, those who are skillful in reading how others are feeling (emotional perception) can use this ability to develop more effective strategies for influencing others. Emotional and social competencies also can build on one another. Influence, for example, is a rather complex social competency that seems to be built on more basic emotional competencies such as self-regard and optimism.[1]

Applying the basic definition of EI, and the EI–ESC distinction, to the major models described above, it seems clear that the abilities found in the Mayer–Salovey–Caruso model represent EI, whereas the other three models consist primarily of emotional and social competencies. Having made this distinction, it should be noted that this does not make the Mayer–Salovey–Caruso model inherently ''superior'' to the others. As McClelland (1973) pointed out long ago, competence ultimately is more important for success in work and in life than is intelligence as traditionally defined and measured. However, the Mayer–Salovey–Caruso model is a model of EI, whereas the Bar-On, Boyatzis–Goleman, and Petrides models involve primarily ESC.

This distinction between EI, based on a common definition of the construct, and various competencies associated with it, seems to provide much needed clarity and consistency to the field. However, it is not a perfect solution; there always will be a gray area where it is difficult to reach consensus on whether certain attributes truly are part of EI. Nevertheless, focusing on a common definition of EI does provide a certain degree of coherence to the field without totally abandoning the broader models. It also allows us to more easily address the other controversies that have surrounded the concept of EI.

The Problem of Measurement

A second area of controversy involves measurement. Critics have argued that all EI and ESC measures are inadequate in various ways. They question current tests on many grounds, including weak content validity, unstable factor structures, and lack of empirical support for either divergent or convergent validity (Conte, 2005; Matthews, Emo, Roberts, & Zeidner, 2006). Some critics have argued that the very nature of the EI concept makes it impossible to develop adequate measures (Matthews, Emo, Roberts et al., 2006; Murphy, 2006).

A consideration of the research now available for the most popular tests suggests a more mixed picture. There is some evidence in support of reliability and validity, but there are also some basic limitations and shortcomings. Effective assessment of EI and ESC is not impossible, but there do seem to be some basic limitations inherent in the most popular approaches.

Ability measures of EI. Of all the major measures that explicitly propose to measure EI, the MSCEIT seems to have the strongest

1. I am indebted to one of the anonymous reviewers of this paper for this point.

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support for its content validity. Not only do its subtests conform closely to the basic definition of EI, but it is most like an IQ test also in which the test taker must answer a number of multiple-choice questions for which there is one correct answer for each question. Reliability of the MSCEIT also seems to be adequate, with split-half estimates for the whole scale of .91 and .93. Test–retest reliability has been estimated as $r = .86$ (Mayer, Roberts et al., 2008). Internal consistency reliabilities have not been quite as good, although they usually have been above .75 (Conte & Dean, 2006). Research on the measure's factor structure has consistently supported both a single, underlying factor and the four-branch model on which the measure is based. As for divergent validity, the MSCEIT does correlate with tests of personality, but the correlations are low. For measures of the Big Five, the strongest correlations are with Agreeableness ($r = .21$ to .28). Correlations with the other four factors are less than .20 (Mayer, Roberts et al., 2008).

Convergent validity for the MSCEIT is more problematic. There was virtually no correlation between the MSCEIT's emotional perception scales and other tests of emotional perception such as the Japanese and Caucasian brief affect recognition test (JACBART), and the correlation between the MSCEIT and the levels of emotional awareness scale (LEAS) was only about $r = .20$ (Mayer, Roberts et al., 2008). On the other hand, the MSCEIT correlates with measures of verbal intelligence ($r = .36$) and with other kinds of intelligence ($r = .10$ to .20) at the levels one would want from a form of intelligence that is supposed to be related to but distinct from other types of intelligence.

Critics of the MSCEIT have been especially concerned about the scoring process (MacCann & Roberts, 2008). Traditional intelligence tests are composed of items for which there is clearly one correct answer. However, in the case of a measure of EI, it is difficult to know whether the answer to a test item is right or wrong (Matthews, Emo, Funke et al., 2006). The MSCEIT's developers have addressed this problem by utilizing two different approaches—consensus scoring and expert scoring. In the first approach, the correct answer is based on the choices made by the majority of those taking the test. In the second approach, the correct answer is determined by a group of emotion researchers. Fortunately, these two scoring methods have agreed almost perfectly ($r = .96$ to .98). Nevertheless, concerns about scoring remain. As Murphy (2006, p. 348) pointed out, ''it is unclear whether a person who thinks about the emotional domain differently from experts or from the average of several peers is low on that ability or whether that person simply has a new (and perhaps better) way of thinking.''

Another concern with the MSCEIT is that it is as much a measure of knowledge as a measure of ability, and knowledge tests do not provide a good assessment of a person's actual ability. As Spector and Johnson (2006, p. 335) noted,

> The assessment of knowledge in the abstract does not reflect the live performance of EI in the rich social situation of real life. ... One might understand that smiling at someone can be an effective means of producing a positive emotional reaction, but recognizing in a live encounter the moment to smile and doing so in a way that does not seem false or insincere may well be a different ability.

To their credit, Mayer and his colleagues have recognized the MSCEIT's limitations. They have conceded that ''the present version of the MSCEIT may be insufficient to validly assess a person's accuracy in emotional perception'' and that ''its factor structure remains open for discussion'' (p. 514). They concluded by noting, ''there remains room for further understanding and substantial improvement in these and other areas'' (p. 514). Fortunately, new ability tests are emerging that seem to address some of the limitations of the MSCEIT. Two notable examples are the situational test of emotional understanding (STEU) and the

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situational test of emotional management (STEM) (MacCann & Roberts, 2008).

Self-report measures of EI and ESC. Data on the psychometric properties of self-report measures of EI also have been accumulating during the last decade. One of the most popular is Schutte's self-report emotional intelligence test (SREIT). The SREIT, which is based on the Mayer–Salovey–Caruso four-branch model of EI, consists of 33 items. Internal consistency reliability is high ($r = .90$), and 2-week test–retest reliability is adequate ($r = .78$) (Conte & Dean, 2006). Many researchers have used just the total score for the measure, but one study did find support for both a one-factor and four-factor solution, confirming the intended factor structure (Saklofske, Austin, & Minski, 2003).

Research on discriminant validity has been more mixed. For instance, in an initial small study involving only 23 college students, the correlation with Openness to Experience from the Big Five was high ($r = .54$), but the correlations with the other personality factors were lower ($r = .21$ to .28) and statistically nonsignificant (Schutte et al., 1998). In a larger study, the correlations with the Big Five ranged from .18 for Agreeableness to .51 for Extraversion (Saklofske et al., 2003). The correlation between the SREIT and positive mood also proved high in one study ($r = .55$) (Schutte, Malouff, Simunek, McKenley, & Hollander, 2002). In another study, the correlation with a measure of psychological well-being was $r = .70$ (Brackett & Mayer, 2003). On the other hand, the SREIT accounted for variance in life satisfaction and depression proneness above and beyond that accounted for by the Big Five (Saklofske et al.). Finally, the SREIT seems to be unrelated to general intelligence as measured by the Wechsler (Saklofske et al.), which is troubling for those who believe that any construct that is supposed to be a type of intelligence should be correlated to some extent with other types of intelligence.

One of the most popular measures of ESC is Bar-On's EQ-i. This self-report measure covers 15 different skills and traits, including emotional self-awareness, assertiveness, stress tolerance, empathy, and social responsibility. As a measure of EI, the EQ-i's content validity is questionable because it includes personality traits that are not usually considered to be abilities, and it omits some of the core abilities of EI such as emotional perception and emotional understanding. On the other hand, as a measure of ESC, the content validity seems adequate given that it was ''designed to examine . . . a conceptual model of *emotional and social functioning*'' (Bar-On, 2006, p. 15). Internal consistency reliability ranges from .86 to .94, with an overall estimate of .97 (Bar-On, 2004) and a test–retest reliability of .79 after 3 months (Conte & Dean, 2006). The original factor structure, which consisted of five primary factors, has not been supported in some studies (Bar-On, 2006; Palmer, Manocha, Gignac, & Stough, 2003).

Evidence on divergent validity for the EQ-i is mixed. There appears to be very little overlap with measures of cognitive ability (Bar-On, 2006; Van Rooy, Viswesvaran, & Pluta, 2005), but some research has found a high degree of overlap with personality measures. For example, one study found that the correlation between the EQ-i and the anxiety scale on Cattell's 16PF, a measure of trait anxiety, was −.77 (Conte & Dean, 2006). And in another study, the average correlation with a measure of the Big Five was .50 (Conte & Dean). Bar-On (2006, p. 16) has responded by noting that the overlap between the EQ-i and personality tests is ''probably no more than 15% based on eight studies in which more than 1,700 individuals participated.'' However, when the Big Five was used to predict EQ-i scores, the multiple *r*s ranged from .75 to .79 in two different studies (Brackett & Mayer, 2003; Grubb & McDaniel, 2007). As for convergent validity, the EQ-i reportedly correlates well with other self-report measures ($r = .58$ to .69) (Bar-On, 2004).

Self-report measures of EI or ESC do have some distinct limitations. The most obvious one is that people often are poor judges of

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their own abilities, especially when those abilities are highly valued. This seems to be a particular limitation when it comes to tests of emotional perception and understanding. The more lacking people are in these areas, the more suspect will be their judgments about those abilities. One might imagine, for example, a rather clueless person with an anger management problem indicating on a self-report inventory that he rarely gets angry about things that bother him. Bar-On has tried to correct for this problem by including ''positive and negative impression indicators'' in his EQ-i, but Grubb and McDaniel (2007) demonstrated that scores on the short form of the EQ-i can be shifted .8 standard deviations by having respondents fake effectively.

Alternative measures. A promising alternative to self-report measures is multirater or ''360'' assessment. Multirater measures such as the ECI, ESCI, or the Genos EI Inventory require others to rate the person rather than rely on the person's own self-evaluations (Boyatzis & Sala, 2004; Palmer et al., 2009). Of course, ratings by others also can be subject to bias, but multirater assessment can balance out this bias by asking several people in different roles (boss, peers, subordinates, and customers) to rate the person. However, multirater assessment is more complex and expensive than either performance tests or self-report inventories, and its results can be distorted by the politics of the social settings in which it occurs. This may be one reason why there is less published research at this time on the psychometric properties of the leading multirater instruments.

In addition to the measures that explicitly identify themselves as tests of EI or ESC, there are a number of other instruments that measure the same abilities or traits. Some of these measures have been in existence much longer, and there is considerable research on their psychometric properties. An example is the diagnostic analysis of nonverbal accuracy (DANVA), which measures emotional perception, a major component of EI (Mayer, Salovey et al., 2008; Nowicki & Duke, 1994). An example of an ESC measure is the Seligman attributional style questionnaire (SASQ), which measures optimism and resilience (Peterson & Villanova, 1988). The SASQ seems to be a good predictor of how people will respond to setbacks, obstacles, and challenges, which in turn predicts performance in areas such as sales and athletics (Peterson, Maier, & Seligman, 1993). The DANVA and SASQ are just two of many well-established tests that could be used to measure EI or ESC.

In addition to the shortcomings already noted, most EI and ESC measures suffer from one other basic limitation: They ignore the role of context. We know from decades of research in social psychology that behavior can vary enormously depending on the situation and setting. Any formal test of EI represents a sample of behavior from just one highly contrived context. Both performance tests and self-report measures assess ''respondent behavior'': The test taker is given a structured situation and must respond in a certain way. But in real life, people usually must respond to situations spontaneously without clearly defined options (McClelland, 1973). So most EI and ESC tests may be poor measures of how people actually behave in real-life situations.

Psychologists have been aware of these limitations for decades, and they have developed alternative strategies such as assessment centers (Lievens & Klimoski, 2001) and behavioral event interviews (McClelland, 1998). Although these alternatives can be challenging to develop and use, Spector and Johnson (2006) have suggested some promising approaches that could be utilized to assess at least some of the abilities associated with EI. For example, role play exercises could be used to test how well a person is able to comfort someone who is upset. These kinds of tests are more expensive than paper-and-pencil measures (or their online equivalent), but given the stakes involved when assessments are used in the workplace for selection or development, the cost may be worth it.

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In summary, it is difficult at this point to reach any firm conclusions—pro or con—about the quality of the most popular tests of EI and ESC. Given that the field is still relatively new, several of the most popular tests seem to have more psychometric support than some critics have suggested. However, there may be inherent limitations to how good any traditional test can be when it comes to measuring EI or ESC. Hopefully, researchers and practitioners will broaden their horizons in the future and consider more ecologically valid, behavior-based assessment strategies. (More information about the tests can be found at the Web site of the Consortium for Research on EI in Organizations [www.eiconsortium.org], which provides descriptive information on the tests and links to measures of both EI and ESC for which there is a substantial body of published research.)

The Importance of EI for Performance in the Workplace

Another area of controversy involves the purported link between EI and important outcomes such as job performance or leadership effectiveness (Antonakis, Ashkanasy, & Dasborough, 2009). For many I–O psychologists, and for virtually all of their clients, this issue is especially important. In evaluating the evidence relating to this controversy, we again need to be clear about whether we are referring to EI or ESC. Those who have claimed that EI strongly impacts performance, and that it may be even more important than IQ, often have not been talking about EI but rather ESC. We probably should not expect EI, defined as the ability to perceive, use, understand, and manage emotion, to be as strongly related to performance as particular ESCs.

For instance, consider self-discipline or delay of gratification, which could be considered an emotional competency related to, but different from, EI. In the famous ''marshmallow studies'' at Stanford University, originally conducted in the late 1960s, 4-year olds were asked to stay in a room alone with a marshmallow and wait for a researcher to return. They were told that if they could wait until the researcher came back before eating the marshmallow, they could have two. Ten years later, the researchers tracked down the children who participated in the study. They found that the children who were best able to resist temptation had a total Scholastic Aptitude Test (SAT) score that was 210 points higher on average than those children who were unable to wait (Shoda, Mischel, & Peake, 1990). And this was not an isolated study. To take just one other example, Duckworth and Seligman (2005) found that self-discipline predicted grades twice as well as IQ scores in a sample of eighth graders.

EI also has been found to be related to academic achievement in children, but the strength of the association seems to be more modest. Research has found a significant but weak relationship between EI, as measured by the MSCEIT, and school grades, with correlations ranging between .14 and .23 (Brackett, Mayer, & Warner, 2004; O'Connor & Little, 2003). Thus, although EI does seem to predict achievement in children, more context-specific competencies seem to be better predictors.

Critics who question the predictive validity of EI usually are not considering these ESCs. For instance, in his critical review of the concept of SI, Landy (2006) examined only those studies that explicitly used the term ''social intelligence.'' He ignored the dozens of studies, like the ones on self-discipline and delay of gratification, that suggest a positive relationship between ESC and performance.

As for EI, if we look only at research appearing in peer-reviewed journals, we find that there have been 12 studies based on the MSCEIT or a related ability test (e.g., the DANVA) that have found a relationship between EI and performance (Côté & Miners, 2006; Day & Carroll, 2004; Elfenbein & Ambady, 2002; Elfenbein, Foo, White, Tan, & Aik, 2007; Feyerherm & Rice, 2002; Lam & Kirby, 2002; Lopes, Grewal, Kadis, Gall, & Salovey,

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2006; Matsumoto, LeRoux, Bernhard, & Gray, 2004; Mueller & Curham, 2006; Rosete, 2007; Rosete & Ciarrochi, 2005; Rubin, Munz, & Bommer, 2005). Some of these studies have looked at individual contributor performance while others have focused on leadership. Dependent variables have included supervisor and peer ratings, organizational citizenship behavior, and more objective outcomes such as salary increases and negotiation outcomes. Although some of the findings were weak or mixed, some were quite impressive. For instance, one study found a correlation of .43 between company rank and EI, and a correlation of .35 between merit salary increase percentage and EI as measured by the MSCEIT in a group of analysts and clerical employees (Lopes et al., 2006). Another study found that EI as measured by the MSCEIT was correlated with ratings of ''achieved business outcomes'' ($r = .26$) and ''effective personal behavior'' ($r = .50$) in a group of executives employed by a large public service company (Rosete & Ciarrochi, 2005).

In addition, there is research suggesting that EI is related to outcomes that are not direct measures of performance but seem to be important for effectiveness in many situations and roles. For example, several studies have found a link between EI, as measured by a performance test such as the MSCEIT or the DANVA, and the quality of social relations (Brackett, Rivers, Shiffman, Lerner, & Salovey, 2006; Carton, Kessler, & Pape, 1999; Ciarrochi, Chan, & Caputi, 2000; Lopes et al., 2004; Lopes, Salovey, Côté, & Beers, 2005). Research also has suggested a link between EI and psychological well-being (Brackett & Mayer, 2003; Brackett et al., 2006; Ciarrochi et al., 2000; Mayer et al., 1999). Finally, there are several studies suggesting that people who are higher in EI manifest lower levels of depression, anxiety, alcohol use, and illegal drug use (Bastian, Burns, & Nettlebeck, 2005; Brackett & Mayer, 2003; Brackett et al., 2004; Carton et al.; Matthews, Emo, Funke et al., 2006).

When researchers have used self-report or multirater measures of EI, the results have been similar. At least 13 studies have found some relationship between EI, as measured by tests such as the SREIT or the Wong–Law emotional intelligence scale (WLEIS), and job performance (Carmeli, 2003; Foo, Elfenbein, Tan, & Aik, 2005; Jennings & Palmer, 2007; Jordan, Ashkanasy, Hartel, & Hooper, 2002; Jordan & Troth, 2004; Law, Wong, Huang, & Li, 2008; Law, Wong, & Song, 2004; Rozell, Pettijohn, & Parker, 2006; Schutte, Schuettpelz, & Malouf, 2000; Semadar, Robins, & Ferris, 2006; Sue-Chan & Latham, 2004; Sy, Tram, & O'Hara, 2006; Wong & Law, 2002). For instance, Semadar et al. used the Swinburne University emotional intelligence test (SUEIT) with leaders in a division of a global manufacturing company and found that EI scores correlated with job performance as measured by annual performance appraisals ($r = .25$). Another study used the WLEIS with food service workers and managers and found that the correlation between EI scores and job performance, as assessed by managers, was $r = .28$ (Sy et al., 2006).

ESC, as measured by self-report measures such as the EQ-i and the TEIQue or multirater tests such as the ECI, also has been linked to work performance (Bachman, Stein, Campbell, & Sitarenios, 2000; Chia, 2005; Dulewicz & Higgs, 2000; Dulewicz, Higgs, & Slaski, 2003; Frye, Bennett, & Caldwell, 2006; Hopkins & Bilmoria, 2008; Iordanoglou, 2007; Koman & Wolff, 2008; Nikolaou & Tsaousis, 2002; Offerman, Bailey, Vasilopoulos, Seal, & Sass, 2004; Petrides & Furnham, 2006; Petrides, Niven, & Mouskounti, 2006; Rapisarda, 2002; Slaski & Cartwright, 2002). One example was a study of debt collectors, which found that scores on the EQ-i were associated with job performance (Bachman et al.). In another study, dancing quality of ballet dancers as rated by a group of experts was correlated with the TEIQue (Petrides et al., 2006). And a study using the ECI with MBA students found a link between ESC and

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team performance over a period of 2 years (Rapisarda).

Some studies show that EI or ESC predicts performance even when general mental ability and personality variables are controlled (''incremental validity''). For example, Rosete and Ciarrochi (2005) found that the perceiving emotion scores on the MSCEIT predicted how goals were achieved over and above personality characteristics and cognitive intelligence. In another study using the MSCEIT, EI predicted performance after controlling for scores on a measure of the Big Five personality model (Lopes et al., 2006). Two different studies using the WLEIS found that the positive correlation between EI and performance remained even after researchers controlled for personality with a measure of the Big Five (Law et al., 2004; Sy, Cote, & Saavedra, 2005). And a study using the ECI found that the positive relation between ESC and performance remained even after controlling for the Big Five (Offerman et al., 2004).

Thus, there is considerable support for the claim that there is a link between EI or ESC and work-related performance. However, these positive findings should be viewed with some caution for a number of reasons. First, the relationships tend to be modest, especially when general mental ability and/or personality are partialled out. Furthermore, some of the studies have been based on simulations with students; and in the case of field studies, the researchers sometimes used performance criteria such as supervisor ratings whose validity could be questioned. Also, many of these ''positive'' studies actually involved mixed or inconsistent findings. For example, some dimensions of EI in a study might not predict performance even though others do, and a dimension of EI might predict performance in one study while a different dimension predicted it in another. Also, EI might predict some measures of performance but not others.

These inconsistencies probably reflect the fact that much of the research has ignored the role of context. The importance of EI for performance probably will vary with the job, the specific situation, the outcomes, and the kind of people involved. EI will likely play a more important role in jobs involving much social interaction and influence, such as sales, politics, psychotherapist, and teacher (Antonakis et al., 2009). Similarly, EI should be more important for team performance than individual performance (Jordan et al., 2002; Jordan & Troth, 2004). EI also should play a greater role in situations high in stress (Antonakis et al.; Daus, 2006). And one study found that the EI-performance link was significantly stronger when the workers scored lower in cognitive ability (Côté & Miners, 2006). Future research on the EI-performance link needs to pay more attention to context. We also need to consider the differential effects of specific EI abilities. For example, emotional perception may be more important in some contexts than others, and emotion management may be more important than emotional perception in most contexts.

Conclusion

In considering the controversies surrounding the concept of EI, the most important conclusion is that we should make a distinction between emotional *intelligence* and emotional or social *competence*. EI should refer to the basic abilities of emotion recognition, reasoning, and regulation. Other personal qualities that contribute to positive work-related performance should be thought of as competencies, not a form of intelligence. Such a distinction can help clarify some of the thorniest issues that have confronted the field during its first 2 decades of active research.

The distinction between EI and ESC also can help us move past some of the most heated and unproductive controversies in the field. As one of the anonymous reviewers of an earlier draft of this paper wrote, ''Having a common definition of EI may serve to unite [a] field . . . that is for the most part fragmented based on preference for a particular model . . .''. Rather than arguing

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about whether certain models are legitimate, the EI–ESC distinction suggests that all of the major models are not only legitimate but potentially very useful. However, some of the most popular and important models are representations of *ESC* not EI. Such a conceptual and definitional shift does not, and should not, eliminate all controversy and conflict. But it changes the focus of the debate to questions that are ultimately more useful, such as, ''How much of the variance in important outcomes is accounted for by EI and how much by ESC?''

The distinction between EI and ESC also points to important new areas for research in the future. One hypothesis to be explored further is that there will be a correlation between EI and ESC. In addition, certain ESC competencies should be stronger predictors of certain outcomes than EI. Another hypothesis is that people who score high in EI will be able to develop ESC more quickly, and use it more effectively, than people who score low in EI.

The proposed distinction also has implications for practice. It suggests that ultimately it might be more helpful to focus on selecting and developing certain emotional and social competencies related to EI than to concentrate just on EI by itself. For example, helping future executives to become more resilient in the face of stress (an ESC) may be more useful than teaching them how to identify better the emotional tone of an abstract painting or landscape (which is one of the eight subtests of the MSCEIT).

Ability measures of EI such as the MSCEIT have their place, as do self-report measures of ESC such as the EQ-i and TEIQue. However, I have suggested that we have decades of research and practice on assessment suggesting that there probably are better ways of measuring both concepts. The challenge is to find new approaches that are both more effective and economical. Perhaps new, computer-assisted simulations can be used to help us meet this challenge.

Furthermore, I have suggested that in the future we focus more on how the social context moderates the relationship between EI or ESC and human functioning. The EI–performance link undoubtedly will be stronger in some situations than in others. And the same person will act more emotionally intelligent in some situations than in others. EI, like other aspects of the person, can account for only a relatively small portion of the variance in important outcomes. Situational factors often play an equally large, if not larger role, and they sometimes are more amenable to modification. Certain work settings will encourage emotionally intelligent behavior more than others. We need to study emotionally intelligent contexts as well as emotionally intelligent people.

References

Antonakis, J., Ashkanasy, N. M., & Dasborough, M. T. (2009). Does leadership need emotional intelligence? *The Leadership Quarterly*, *20*, 247–261.

Ashkanasy, N. M., & Daus, C. S. (2005). Rumors of the death of emotional intelligence in organizational behavior are vastly exaggerated. *Journal of Organizational Behavior*, *26*, 441–452.

Bachman, J., Stein, S., Campbell, K., & Sitarenios, G. (2000). Emotional intelligence in the collection of debt. *International Journal of Selection and Assessment*, *8*, 176–182.

Bar-On, R. (1988). *The development of a concept of psychological well-being*. Unpublished doctoral dissertation, Rhodes University, Johannesberg, South Africa.

Bar-On, R. (1997). *Bar-On emotional quotient inventory: User's manual*. Toronto: Multi-Health Systems.

Bar-On, R. (2004). The Bar-On emotional quotient inventory (EQ-i): Rationale, description, and summary of psychometric properties. In G. Geher (Ed.), *The measurement of emotional intelligence: Common ground and controversy* (pp. 115–145). Hauppage, NY: Nova Science.

Bar-On, R. (2006). The Bar-On model of emotional-social intelligence (ESI). *Psicothema*, *18*, 13–25.

Barsade, S. G., Brief, A. P., & Spataro, S. E. (2003). The affective revolution in organizational behavior: The emergence of a paradigm. In J. Greenberg (Ed.), *Organizational behavior: The state of the science* (pp. 3–52). Hillsdale, NJ: Lawrence Erlbaum.

Bastian, V. A., Burns, N. R., & Nettlebeck, T. (2005). Emotional intelligence predicts life skills, but not as well as personality and cognitive abilities. *Personality and Individual Differences*, *39*, 1135–1145.

Boyatzis, R. E. (1982). *The competent manager: A model for effective performance*. New York: John Wiley and Sons.

Boyatzis, R. E. (2009). Competencies as a behavioral approach to emotional intelligence. *Journal of Management Development*, *28*, 749–770.

https://doi.org/10.1111/j.1754-9434.2010.01231.x Published online by Cambridge University Press

Boyatzis, R. E., & Sala, F. (2004). Assessing emotional intelligence competencies. In G. Geher (Ed.), *Measuring emotional intelligence: Common ground and controversy* (pp. 147–180). Hauppage, NY: Nova Science.

Brackett, M. A., & Mayer, J. D. (2003). Convergent, discriminant, and incremental validity of competing measures of emotional intelligence. *Personality and Social Psychology Bulletin, 29*, 1147–1158.

Brackett, M. A., Mayer, J. D., & Warner, R. M. (2004). Emotional intelligence and the prediction of behavior. *Personality and Individual Differences, 36*, 1387–1402.

Brackett, M. A., Rivers, S. E., Shiffman, S., Lerner, N., & Salovey, P. (2006). Relating emotional abilities to social functioning: A comparison of self-report and performance measures of emotional intelligence. *Journal of Personality and Social Psychology*, *91*, 780–795.

Carmeli, A. (2003). The relationship between emotional intelligence and work attitudes, behavior and outcomes: An examination among senior managers. *Journal of Managerial Psychology*, *18*, 788–813.

Carton, J. S., Kessler, E. A., & Pape, C. L. (1999). Nonverbal decoding skills and relationship well-being in adults. *Journal of Nonverbal Behavior*, *23*, 91–100.

Chia, Y. M. (2005). Job offers of multi-national accounting firms: The effects of emotional intelligence, extra-curricular activities, and academic performance. *Accounting Education: An International Journal*, *14*, 75–93.

Ciarrochi, J. V., Chan, A. Y. C., & Caputi, P. (2000). A critical evaluation of the emotional intelligence construct. *Personality and Individual Differences, 28*, 539–561.

Ciarrochi, J. V., Forgas, J. P., & Mayer, J. D. (2001). *Emotional intelligence in everyday life: A scientific inquiry*. Philadelphia: Taylor & Francis.

Conte, J. M. (2005). A review and critique of emotional intelligence measures. *Journal of Organizational Behavior*, *26*, 433–440.

Conte, J. M., & Dean, M. A. (2006). Can emotional intelligence be measured? In K. R. Murphy (Ed.), *A critique of emotional intelligence: What are the problems and how can they be fixed?* (pp. 59–77). Mahwah, NJ: Lawrence Erlbaum.

Côté, S., & Miners, C. T. H. (2006). Emotional intelligence, cognitive intelligence, and job performance. *Administrative Science Quarterly*, *51*, 1–28.

Damasio, A. (1994). *Descartes' error: Emotion, reason, and the human brain*. New York: Grosset/Putnam.

Daus, C. S. (2006). The case for an ability-based model of emotional intelligence. In K. R. Murphy (Ed.), *A critique of emotional intelligence: What are the problems and how can they be fixed?* (pp. 301–324). Mahwah, NJ: Lawrence Erlbaum.

Daus, C. S., & Ashkanasy, N. M. (2003). Will the real emotional intelligence please stand up? On deconstructing the emotional intelligence ''debate.'' *The Industrial–Organizational Psychologist*, *41*(2), 69–72.

Day, A. L., & Carroll, S. A. (2004). Using an ability-based measure of emotional intelligence to predict individual performance, group performance, and group citizenship behaviors. *Personality and Individual Differences*, *36*, 1443–1458.

Duckworth, A. L., & Seligman, M. E. P. (2005). Self-discipline outdoes IQ in predicting academic performance of adolescents. *Psychological Science*, *16*, 939–944.

Dulewicz, V., & Higgs, M. (2000). Emotional intelligence: A review and evaluation study. *Journal of Managerial Psychology*, *15*, 341–372.

Dulewicz, V., Higgs, M., & Slaski, M. (2003). Measuring emotional intelligence: Construct and criterion-related validity. *Journal of Managerial Psychology*, *18*, 405–420.

Elfenbein, H. A., & Ambady, N. (2002). Predicting workplace outcomes from the ability to eavesdrop on feelings. *Journal of Applied Psychology*, *87*, 963–971.

Elfenbein, H. A., Foo, M., White, J. B., Tan, H. H., & Aik, V.-C. (2007). Reading your counterpart: The benefit of emotion recognition accuracy for effectiveness in negotiation. *Journal of Nonverbal Behavior*, *31*, 205–223.

Emmerling, R. J., & Goleman, D. (2003, October). Emotional intelligence: Issues and common misunderstandings. *Issues and Recent Developments in Emotional Intelligence*, *1*(1). Retrieved July 18, 2006, from www.eiconsortium.org

Feyerherm, A. E., & Rice, C. L. (2002). Emotional intelligence and team performance: The good, the bad, and the ugly. *International Journal of Organizational Analysis*, *10*, 343–362.

Foo, M. D., Elfenbein, H. A., Tan, H. H., & Aik, V. C. (2005). Emotional intelligence and negotiation: The tension between creating and claiming value. *International Journal of Conflict Management*, *15*, 411–429.

Frye, C. M., Bennett, R., & Caldwell, S. (2006). Team emotional intelligence and team interpersonal process effectiveness. *Mid-American Journal of Business*, *21*, 49–56.

Goleman, D. (2006). *Social intelligence*. New York: Bantam.

Grubb, W. L., & McDaniel, M. A. (2007). The fakability of Bar-On's emotional quotient inventory short form: Catch me if you can. *Human Performance*, *20*, 43–59.

Hopkins, M. M., & Bilmoria, D. (2008). Social and emotional competencies predicting success for male and female executives. *Journal of Management Development*, *27*, 13–35.

Iordanoglou, D. (2007). The teacher as leader: The relationship between emotional intelligence, leadership effectiveness, commitment and satisfaction. *Journal of Leadership Studies*, *1*, 57–66.

Jennings, S., & Palmer, B. R. (2007). Enhancing sales performance through emotional intelligence development. *Organisations and People*, *14*, 55–61.

Jordan, P. J., Ashkanasy, N. M., Hartel, C. E. J., & Hooper, G. S. (2002). Workgroup emotional intelligence: Scale development and relationship to team process effectiveness and goal focus. *Human Resource Management Review*, *12*, 195–214.

Jordan, P. J., & Troth, A. C. (2004). Managing emotions during team problem solving: Emotional intelligence and conflict resolution. *Human Performance*, *17*, 195–218.

Koman, E. S., & Wolff, S. B. (2008). Emotional intelligence competencies in the team and team leader:

https://doi.org/10.1111/j.1754-9434.2010.01231.x Published online by Cambridge University Press

A multi-level examination of the impact of emotional intelligence on team performance. *Journal of Management Development*, *27*, 55–75.

Lam, L. T., & Kirby, S. L. (2002). Is emotional intelligence an advantage? An exploration of the impact of emotional and general intelligence on individual performance. *Journal of Social Psychology*, *142*, 133–143.

Landy, F. J. (2005). Some historical and scientific issues related to research on emotional intelligence. *Journal of Organizational Behavior*, *26*, 411–424.

Landy, F. J. (2006). The long, frustrating, and fruitless search for social intelligence: A cautionary tale. In K. J. Murphy (Ed.), *A critique of emotional intelligence* (pp. 81–124). Mahwah, NJ: Lawrence Erlbaum.

Law, K. S., Wong, C. S., Huang, G. H., & Li, X. (2008). The effects of emotional intelligence on job performance and life satisfaction for the research and development scientists in China. *Asia Pacific Journal of Management*, *25*, 51–69.

Law, K. S., Wong, C. S., & Song, L. J. (2004). The construct and criterion validity of emotional intelligence and its potential utility for management studies. *Journal of Applied Psychology*, *89*, 483–496.

Lichten, W., & Wainer, H. (2000). The aptitude-achievement function: An aid for allocating educational resources, with an advanced placement example. *Educational Psychology Review*, *12*, 201–228.

Lievens, F., & Klimoski, R. J. (2001). Understanding the assessment centre process: Where are we now? In C. L. Cooper & I. T. Robertson (Eds.), *International review of industrial and organizational psychology* (Vol. 16, pp. 245–286). Chichester: Wiley.

Locke, E. A. (2005). Why emotional intelligence is an invalid concept. *Journal of Organizational Behavior*, *26*, 425–431.

Lopes, P. N., Brackett, M. A., Nezlek, J. B., Schutz, A., Sellin, I., & Salovey, P. (2004). Emotional intelligence and social interaction. *Personality and Social Psychology Bulletin*, *30*, 1018–1034.

Lopes, P. N., Grewal, D., Kadis, J., Gall, M., & Salovey, P. (2006). Evidence that emotional intelligence is related to job performance and affect and attitudes at work. *Psichothema*, *18*, 132–138.

Lopes, P. N., Salovey, P., Côté, S., & Beers, M. (2005). Emotion regulation abilities and the quality of social interaction. *Emotion*, *5*, 113–118.

MacCann, C., & Roberts, R. D. (2008). New paradigms for assessing emotional intelligence: Theory and data. *Emotion*, *8*, 540–551.

Matsumoto, D., LeRoux, J. A., Bernhard, R., & Gray, H. (2004). Unraveling the psychological correlates of intercultural adjustment potential. *International Journal of Intercultural Relations*, *28*, 281–309.

Matthews, G. M., Emo, A., Funke, G., Zeidner, M., Roberts, R., Costa, P. T., Jr., et al. (2006). Emotional intelligence, personality, and task-induced stress. *Journal of Experimental Psychology: Applied*, *12*, 96–107.

Matthews, G. M., Emo, A. K., Roberts, R. D., & Zeidner, M. (2006). What is this thing called emotional intelligence? In K. R. Murphy (Ed.), *A critique of emotional intelligence* (pp. 3–36). Mahwah, NJ: Lawrence Erlbaum.

Mayer, J. D., Caruso, D. R., & Salovey, P. (1999). Emotional intelligence meets traditional standards for an intelligence. *Intelligence*, *27*, 267–298.

Mayer, J. D., Roberts, R. D., & Barsade, S. G. (2008). Human abilities: Emotional intelligence. *Annual Review of Psychology*, *59*, 507–536.

Mayer, J. D., & Salovey, P. (1997). What is emotional intelligence? In P. Salovey & D. J. Sluyter (Eds.), *Emotional development and emotional intelligence* (pp. 3–34). New York: Basic Books.

Mayer, J. D., Salovey, P., & Caruso, D. R. (2000). Models of emotional intelligence. In R. J. Sternberg (Ed.), *Handbook of intelligence* (2nd ed., pp. 396–420). New York: Cambridge University Press.

Mayer, J. D., Salovey, P., & Caruso, D. (2008). Emotional intelligence: New ability or eclectic traits? *American Psychologist*, *63*, 503–517.

McClelland, D. C. (1973). Testing for competence rather than intelligence. *American Psychologist*, *28*, 1–14.

McClelland, D. C. (1998). Identifying competencies with behavioral-event interviews. *Psychological Science*, *9*, 331–339.

Mikolajczak, M., Luminet, O., Leroy, C., & Roy, E. (2007). Psychometric properties of the trait emotional intelligence questionnaire: Factor structure, reliability, construct, and incremental validity in a French-speaking population. *Journal of Personality Assessment*, *88*, 338–353.

Mueller, J., & Curham, J. (2006). Emotional intelligence and counterpart mood induction in a negotiation. *International Journal of Conflict Management*, *17*, 110–128.

Murphy, K. R. (2006). Four conclusions about emotional intelligence. In K. R. Murphy (Ed.), *A critique of emotional intelligence: What are the problems and how can they be fixed?* (pp. 345–354). Mahwah, NJ: Lawrence Erlbaum.

Neisser, U., Boodoo, G., Bouchard, T. J., Jr., Boykin, A. W., Brody, N., Ceci, S. J., et al. (1996). Intelligence: Knowns and unknowns. *American Psychologist*, *51*, 77–101.

Nikolaou, I., & Tsaousis, I. (2002). Emotional intelligence in the workplace: Exploring its effects on occupational stress and organizational commitment. *The International Journal of Organizational Analysis*, *10*, 327–342.

Nowicki, S. J., & Duke, M. P. (1994). Individual differences in the nonverbal communication of affect: The Diagnostic Analysis of Nonverbal Accuracy Scale. *Journal of Nonverbal Behavior*, *19*, 9–35.

O'Connor, R. M. J., & Little, I. S. (2003). Revisiting the predictive validity of emotional intelligence: Self-report vs. ability-based measures. *Personality and Individual Differences*, *35*, 1893–1902.

Offerman, L. R., Bailey, J. R., Vasilopoulos, N. L., Seal, C., & Sass, M. (2004). The relative contribution of emotional competence and cognitive ability to individual and team performance. *Human Performance*, *17*, 219–243.

Palmer, B. R., Gignac, G., Ekermans, G., & Stough, C. (2008). A comprehensive framework for emotional intelligence. In R. J. Emmerling, V. Shawel, & M. Mandel (Eds.), *Emotional intelligence: Theoretical and cultural perspectives* (pp. 17–38). New York: Nova Science.

https://doi.org/10.1111/j.1754-9434.2010.01231.x Published online by Cambridge University Press

Palmer, B. R., Manocha, R., Gignac, G., & Stough, C. (2003). Examining the factor structure of the Bar-On emotional quotient inventory with an Australian general population sample. *Personality and Individual Differences*, *35*, 1191–1210.

Palmer, B. R., Stough, C., Hamer, R., & Gignac, G. E. (2009). Genos Emotional Intelligence Inventory. In C. Stough, D. Saklofske, & J. D. Parker (Eds.), *Advances in the measurement of emotional intelligence*. New York: Springer.

Peterson, C., Maier, S. F., & Seligman, M. E. P. (1993). *Learned helplessness: A theory for the age of personal control*. New York: Oxford University Press.

Peterson, C., & Villanova, P. (1988). An expanded attributional style questionnaire. *Journal of Abnormal Psychology*, *97*, 87–89.

Petrides, K. V., & Furnham, A. (2003). Trait emotional intelligence: Behavioural validation in two studies of emotion recognition and reactivity to mood induction. *European Journal of Personality*, *17*, 39–57.

Petrides, K. V., & Furnham, A. (2006). The role of trait emotional intelligence in a gender-specific model of organizational variables. *Journal of Applied Social Psychology*, *36*, 552–569.

Petrides, K. V., Niven, L., & Mouskounti, T. (2006). The trait emotional intelligence of ballet dancers and musicians. *Psicothema*, *18*, 101–107.

Petrides, K. V., Pita, R., & Kokkinaki, F. (2007). The location of trait emotional intelligence in personality factor space. *British Journal of Psychology*, *98*, 273–289.

Rapisarda, B. A. (2002). The impact of emotional intelligence on work team cohesiveness and performance. *International Journal of Organizational Analysis*, *10*, 363–379.

Rosete, D. (2007). *Does emotional intelligence play an important role in leadership effectiveness?* Unpublished doctoral dissertation, University of Wollongong, Wollongong, New South Wales, Australia.

Rosete, D., & Ciarrochi, J. (2005). Emotional intelligence and its relationship to workplace performance of leadership effectiveness. *Leadership and Organization Development Journal*, *26*, 388–399.

Rozell, E. J., Pettijohn, C. E., & Parker, R. S. (2006). Emotional intelligence and dispositional affectivity as predictors of performance in salespeople. *Journal of Marketing Theory and Practice*, *14*, 113–124.

Rubin, R. S., Munz, D. C., & Bommer, W. H. (2005). Leading from within: The effects of emotion recognition and personality on transformational leadership behavior. *Academy of Management Journal*, *48*, 845–858.

Saklofske, D. H., Austin, E. J., & Minski, P. S. (2003). Factor structure and validity of a trait emotional intelligence measure. *Personality and Individual Differences*, *34*, 707–721.

Salovey, P., & Mayer, J. (1990). Emotional intelligence. *Imagination, Cognition, and Personality*, *9*, 185–211.

Schutte, N. S., Malouff, J. M., Hall, L. E., Haggerty, D. J., Cooper, J. T., Golden, C. J., et al. (1998). Development and validation of a measure of emotional intelligence. *Personality and Individual Differences*, *25*, 167–177.

Schutte, N. S., Malouff, J. M., Simunek, M., McKenley, J., & Hollander, S. (2002). Characteristic emotional intelligence and emotional well-being. *Cognition & Emotion*, *16*, 769–785.

Schutte, N. S., Schuettpelz, E., & Malouf, J. M. (2000). Emotional intelligence and task performance. *Imagination, Cognition, and Personality*, *20*, 347–354.

Semadar, A., Robins, G., & Ferris, G. R. (2006). Comparing the validity of multiple social effectiveness constructs in the prediction of managerial job performance. *Journal of Organizational Behavior*, *27*, 443–461.

Shoda, Y., Mischel, W., & Peake, P. K. (1990). Predicting adolescent cognitive and self-regulatory competencies from preschool delay of gratification: Identifying diagnostic conditions. *Developmental Psychology*, *26*, 978–986.

Slaski, M., & Cartwright, S. (2002). Health performance and emotional intelligence: An exploratory study of retail managers. *Stress and Health*, *18*, 63–68.

Spearman, C. (1927). *The abilities of man: Their nature and measurement*. New York: Macmillan.

Spector, P. E., & Johnson, H. M. (2006). Improving the definition, measurement, and application of emotional intelligence. In K. R. Murphy (Ed.), *A critique of emotional intelligence: What are the problems and how can they be fixed?* (pp. 325–344). Mahwah, NJ: Lawrence Erlbaum.

Spencer, L. M., Jr., & Spencer, S. (1993). *Competence at work: Models for superior performance*. New York: John Wiley and Sons.

Sternberg, R. J., & Detterman, D. R. (1986). *What is intelligence?* Norwood, NJ: Ablex.

Sue-Chan, C., & Latham, G. P. (2004). The situational interview as a predictor of academic and team performance: A study of the mediating effects of cognitive ability and emotional intelligence. *International Journal of Selection and Assessment*, *12*, 312–320.

Sy, T., Cote, S., & Saavedra, R. (2005). The contagious leader: Impact of leader's affect on group member affect and group processes. *Journal of Applied Psychology*, *90*, 295–305.

Sy, T., Tram, S., & O'Hara, L. A. (2006). Relation of employee and manager emotional intelligence to job satisfaction and performance. *Journal of Vocational Behavior*, *68*, 461–473.

Van Rooy, D. L., & Viswesvaran, C. (2004). Emotional intelligence: A meta-analytic investigation of predictive validity and nomological net. *Journal of Vocational Behavior*, *65*, 71–95.

Van Rooy, D. L., Viswesvaran, C., & Pluta, P. (2005). An evaluation of construct validity: What is this thing called emotional intelligence? *Human Performance*, *18*, 445–462.

Wechsler, D. (1958). *The measurement and appraisal of adult intelligence* (4th ed.). Baltimore: The Williams & Wilkins Company.

Wong, C. S., & Law, K. S. (2002). The effect of leader and follower emotional intelligence on performance and attitude: An exploratory study. *Leadership Quarterly*, *13*, 243–274.

Wong, C. S., Law, K. S., & Wong, P. M. (2004). Development and validation of a forced choice emotional intelligence for Chinese respondents in Hong Kong. *Asia Pacific Journal of Management*, *21*, 535–559.

https://doi.org/10.1111/j.1754-9434.2010.01231.x Published online by Cambridge University Press