

# Relating Emotional Abilities to Social Functioning: A Comparison of Self-Report and Performance Measures of Emotional Intelligence

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Three studies used J. D. Mayer and P. Salovey's (1997) theory of emotional intelligence (EI) as a framework to examine the role of emotional abilities (assessed with both self-report and performance measures) in social functioning. Self-ratings were assessed in ways that mapped onto the Mayer–Salovey–Caruso Emotional Intelligence Test (MSCEIT), a validated performance measure of EI. In Study 1, self-ratings and MSCEIT scores were not strongly correlated. In Study 2, men's MSCEIT scores, but not self-ratings, correlated with perceived social competence after personality measures were held constant. In Study 3, only the MSCEIT predicted real-time social competence, again, just for men. Implications for analyzing how emotional abilities contribute to social behavior are discussed, as is the importance of incorporating gender into theoretical frameworks and study designs.

*Keywords:* emotion, emotional intelligence, MSCEIT, gender, social competence

Emotions contain information about a person's relationship with the environment and can be triggered when the person–environment relationship changes (Lazarus, 1991). During social interactions, verbal and nonverbal emotional expressions convey information about one's own and others' thoughts, intentions, and behaviors (Buck, 1984; Ekman, 1973; Keltner & Haidt, 2001). Emotional abilities, including the ability to perceive, use, understand, and manage emotion, contribute to optimal social functioning (Denham et al., 2003; Eisenberg, Fabes, Guthrie, & Reiser, 2000; Feldman, Philippot, & Custrini, 1991; Nowicki & Duke, 1994; Savage, 2002). For example, accurately perceiving a person's emotions (type and intensity) facilitates the prediction and understanding of that person's subsequent actions (Elfenbein, Marsh, & Ambady, 2002). Understanding the significance of emotional states regarding the person–environment relationship guides attention, decision making, and behavioral responses (Damasio, 1994). Managing emotions effectively also is critical to optimal social functioning as this skill enables one to express socially appropriate emotions and behave in socially acceptable ways

(Gross, 1998). Intelligent processing and effective management of emotional information are necessary to navigate the social world (Keltner & Kring, 1998).

Emotional intelligence (EI) theory, which explicates the cognitive and emotional mechanisms that process emotional information, provides a unified framework to study the role of emotional abilities in social functioning (Mayer & Salovey, 1997; Salovey & Mayer, 1990). Mayer and Salovey's model of EI identifies four interrelated emotional abilities, including the perception, use, understanding, and management of emotion. The purpose of the research described here is to examine the relationship between EI and social functioning. Demonstrating that EI is related to social functioning would support the emerging literature on the importance of emotional abilities for building better quality relationships. Different approaches to measuring EI can influence the validity of the construct, however. Thus, we now present an overview of the theory of EI and the two primary approaches to measuring EI: performance-based tests and self-report inventories.

## EI: Theory and Measurement

Two areas of psychological research informed the conceptualization of EI. The first pertains to how emotions and thinking interact (e.g., Bower, 1981; Clark & Fiske, 1982; Isen, Shalcker, Clark, & Karp, 1978; Zajonc, 1980). Whereas intelligence and emotion often were considered in opposition (De Sousa, 1987), accumulating research in the 1980s documented how cognition and affect were integrated processes; affect influences many aspects of cognitive functioning, including memory, attention, and decision making (e.g., Damasio, 1994; Forgas & Moylan, 1987; Mayer & Bremer, 1985; Salovey & Birnbaum, 1989; Singer & Salovey, 1988). Accordingly, the theory of EI postulates that the information value of emotions can make thinking more intelligent.

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EI theory also was developed as the concept of intelligence was broadening to include an array of mental abilities, including social, practical, and personal intelligence, rather than merely a monolithic *g* (e.g., Cantor & Kihlstrom, 1987; Gardner, 1983; Sternberg, 1985). Specific intelligences often are distinguished according to the kinds of information on which they operate (J. B. Carroll, 1993; Wechsler, 1997). EI operates on “hot” cognitions or information processing that involves matters of personal and emotional importance to individuals and their relationships (Abelson, 1963; Zajonc, 1980; see also Mayer & Mitchell, 1998). EI is distinguishable from other mental skills, such as verbal–propositional intelligence, which operates primarily on “cold” cognitive processes. EI also is conceptually and empirically distinct from temperament and personality traits, such as neuroticism (see Mayer, Salovey, & Caruso, 2004; Salovey & Mayer, 1990). Whereas neuroticism involves individual differences in thresholds of emotional reaction, latency, intensity, and recovery time (Rothbart, 1989) as well as the ease with which emotions are activated or aroused (Eisenberg et al., 1995), EI involves the accurate processing of emotion-relevant information (e.g., facial expressions) and the ability to use emotions in reasoning in order to solve problems. By way of example, an individual may be predisposed to a certain level of emotional reactivity and intensity, but emotion management skills determine how the person’s emotions are dealt with once activated.

The four emotional abilities constituting the EI model are arranged such that the more basic psychological processes (i.e., perceiving emotions) are at the foundation, and more advanced processes (i.e., reflective regulation of emotion) are at the top of the model and are thought, to some extent, to be dependent on the lower level abilities. Within each dimension, there is a developmental progression of skills from the more basic to the more sophisticated (see Mayer & Salovey, 1997). Abilities within each dimension also are expected to develop with experience and age. The theory specifies that the four abilities contribute to the higher order construct of EI (Mayer & Salovey, 1997), which has been supported empirically (Mayer, Salovey, Caruso, & Sitarenios, 2003). Below is a brief description of the four EI abilities; more detailed information is available elsewhere (Brackett & Salovey, 2004; Mayer & Salovey, 1997; Rivers, Brackett, Salovey, & Mayer, in press).

*Perceiving emotion* pertains to the ability to identify emotions in oneself and others, as well as in other stimuli, including voices, stories, music, and works of art (e.g., Ekman & Friesen, 1975; Nowicki & Mitchell, 1998; Scherer, Banse, & Wallbott, 2001). *Using emotion* involves the ability to harness feelings that assist in certain cognitive enterprises, such as reasoning, problem solving, decision making, and interpersonal communication. Emotions can create diverse mental sets that prove more or less tuned to various kinds of reasoning tasks (e.g., Isen, 1987; Palfai & Salovey, 1993; Schwarz, 1990; Schwarz & Clore, 1996). *Understanding emotion* involves language and propositional thought that reflect the capacity to analyze emotions. This skill includes an understanding of the emotional lexicon; the manner in which emotions combine, progress, transition from one to the other; and the outcomes of emotional experiences (e.g., Frijda, 1988; Lane, Quinlan, Schwartz, Walker, & Zeitlin, 1990). *Managing emotion* pertains to the ability to reduce, enhance, or modify an emotional response in oneself and others, as well as the ability to experience a range of emotions while also making decisions about the appropriateness or

usefulness of the emotion in a given situation (e.g., Eisenberg et al., 2000; Gross, 1998).

Currently, there are two distinct types of EI theories and measurement tools. Mayer, Salovey, and Caruso (2000) distinguished the *ability* model described above from *mixed* models. Ability models conceptualize EI as a set of mental skills that can be assessed with performance tests. The first comprehensive performance test of EI was the Multifactor Emotional Intelligence Scale (Mayer, Caruso, & Salovey, 1999), which led to a briefer test, the Mayer–Salovey–Caruso Emotional Intelligence Test (MSCEIT, Version 2.0; Mayer, Salovey, & Caruso, 2002a). As a performance test, the MSCEIT assesses the ability to manage emotions, for example, with vignettes describing particular emotional problems, asking participants to rate a number of possible actions on a scale ranging from *very ineffective* to *very effective*. Responses are evaluated through a comparison of responses made by either experts or a normative sample.

Mixed models, in contrast, are based primarily on popular depictions of EI (Goleman, 1995, 1998) and include three classes of constructs: perceived emotional (and other) abilities, competencies, and personality traits. For instance, Bar-On (1997) included the perceived ability to handle relationships and traits such as optimism in his model of EI. Proponents of this mixed approach, sometimes called the *personality* or *trait* approach, generally use self-report inventories to measure EI (Bar-On, 1997; Boyatzis, Goleman, & Rhee, 2000; Petrides & Furnham, 2003; Schutte et al., 1998). Two of the most widely used self-report inventories, the Emotion Quotient Inventory (Bar-On, 1997) and the Self-Report EI Test (Schutte et al., 1998), are strongly associated with indices of well-being, neuroticism, and depression ( $r_s = .50$  to  $.70$ ); Bar-On, 1997, 2000; Brackett & Mayer, 2003; Dawda & Hart, 2000; Newsome, Day, & Catano, 2000; Parker, Taylor, & Bagby, 2001). The associations of the MSCEIT to the Emotion Quotient Inventory and the Self-Report EI Test are rather low ( $r_s \leq .22$ ; Brackett & Mayer, 2003; David, 2005), indicating that self-report measures based on popularizations of EI and performance measures based on Mayer and Salovey’s (1997) EI theory yield different information about the same person.

Evidence is accumulating that the MSCEIT has a factor structure congruent with the theory on which it is based; it also is reliable, distinct from established measures of personality, and not especially susceptible to response distortion (Barchard, 2001; Brackett & Mayer, 2003; S. A. Carroll & Day, 2004; Lopes, Salovey, & Straus, 2003; Lumley, Gustavson, Patridge, & Labouvie-Vief, 2005; Mayer et al., 2003). The MSCEIT also is incrementally valid in the prediction of better quality relationships among romantic partners (Brackett, Warner, & Bosco, 2005) and friends (Lopes et al., 2003, 2004); lower levels of drug and alcohol consumption and deviant behaviors among men (Brackett, Mayer, & Warner, 2004); important workplace outcomes, including stress management and leadership potential (Janovics & Christiansen, 2002; Lopes, Grewal, Kadis, Gall, & Salovey, in press); and lower levels of anxiety and depression (David, 2005; see Mayer et al., 2004, for a review).

The goal of the studies presented here was to use theoretically derived self-report and performance measures of EI to examine the role of emotional abilities in the social behaviors expected to influence the quality of relationships. This relationship has yet to be examined because (a) reliable and valid performance measures

of EI have emerged only recently, and (b) there has been a lack of content-valid self-report EI measures. If valid, a theoretically derived self-report measure would make it possible to examine whether (a) EI can be detected with a self-report measure and (b) the relationship between self-report and performance measures of EI operate in a similar fashion to cognitive intelligence (e.g., Dunning, Johnson, Ehrlinger, & Kruger, 2003). Past research on EI has used self-report measures that have little to do with formal definitions of emotion and intelligence; consequently, these measures fail to conceptually and empirically map onto EI theory. Thus, we measured self-rated EI in ways that mapped onto a theoretically derived performance test of EI, the MSCEIT.

### Overview of the Studies

Three studies used Mayer and Salovey's (1997) theory of EI as a framework to examine the role of emotional abilities in social functioning. As with any psychological construct, knowledge about EI is limited by our ability to operationally define it and validly measure it. In Study 1, we examined the relationship between self-rated and performance measures of EI. We then examined whether the EI measures were incrementally valid in the prediction of social behaviors, including perceived social competence (Study 2) and observable behaviors in a social encounter (Study 3).

Because gender differences exist on many emotional abilities, we conducted all analyses separately for men and women. Women, for example, tend to outperform men on a variety of performance measures of emotional abilities (L. R. Brody & Hall, 1993, 2000), including the MSCEIT (Brackett & Mayer, 2003), perhaps because, as Fivush and colleagues have shown, parents tend to talk about emotions more with their daughters than with their sons (e.g., Adams, Kuebli, Boyle, & Fivush, 1995; Fivush, 1991, 1998; Fivush, Brotman, Buckner, & Goodman, 2000). There also is evidence for the presence of gender differences in the relationship between emotional abilities and relevant outcomes. Eisenberg et al. (1995) reported that emotion regulation was related to social functioning for boys but not for girls, and Brackett et al. (2004) reported that MSCEIT scores predicted social deviance (drug and alcohol use, aggressive acts) for men but not for women. In contrast, Custrini and Feldman (1989) showed that the ability to decode and encode emotions contributed to social competence for girls but not boys. There are few theoretical explanations for these differences offered in the literature. Shields (2002) suggested that behaviors often are interpreted on the basis of the gender of the actor. Indeed, Bacon and Ashmore (1985) found that parents categorize children's social behaviors differently depending on the gender of the child. Thus, social functioning may be defined differently for men and women and for boys and girls. To account for this, in Studies 2 and 3, we selected assessments of social functioning that were expected to be less susceptible to gender differences in both occurrence and interpretation. For example, in Study 2, we selected responses to positive and negative events in close friend relationships as outcomes because men and women typically respond similarly when attempting to achieve comparable goals (Gable, Reis, Impett, & Asher, 2004; Rusbult, 1993).

### Study 1

The purpose of Study 1 was to examine the relationship between self-rated and performance measures of EI by using instruments that tapped the same theoretical dimensions of EI. Because there are no self-report measures that map onto Mayer and Salovey's (1997) model of EI and the MSCEIT, we developed the Self-Rated Emotional Intelligence Scale (SREIS). As a second assessment of self-rated EI, we also asked participants to estimate their performance on the MSCEIT.

Previous work has demonstrated that performance and self-report measures of mental abilities, such as verbal-propositional intelligence, are related only modestly (e.g., Paulhus, Lysy, & Yik, 1998). Because daily life provides little explicit feedback in the domain of human emotions, we predicted that the association between EI measures is weaker than the association between verbal ability measures, which we also collected. College students, for instance, may have some indication of their overall verbal ability because they receive feedback, such as their SAT scores and school performance; however, until the recent advent of social and emotional learning programs in schools and the workplace, few institutions have devoted time to developing, assessing, and thus providing feedback on emotional skills (Ciarrochi, Forgas, & Mayer, 2006).

The first two hypotheses guiding Study 1 were as follows:

1. Self-rated and performance tests of EI are weakly related.
2. Participants are more accurate at estimating their verbal intelligence than their EI.

As noted above, gender differences in emotional abilities are reported in the literature; therefore, we expected to see gender differences in EI. Hence, the final hypothesis was as follows:

3. MSCEIT scores are higher for women than men.

### Method

#### Participants

Two hundred ninety-one undergraduates (65% female) at a state university participated for partial completion of a course requirement. Participants were primarily White, single, and heterosexual and ranged in age from 17 years to 29 years ( $M = 18.9$ ,  $SD = 1.26$ ). The majority of participants (72%) were in their 1st year at the university.

#### EI Measures

**MSCEIT.** The MSCEIT, Version 2.0 (Mayer et al., 2002a), is a performance measure of EI that assesses how well people solve emotion-laden problems across four domains, including the perception, use, understanding, and management of emotions. The test contains 141 items that are divided among eight tasks (two for each of the four theoretical domains).

The MSCEIT measures Perceiving Emotions by asking respondents to identify the emotions expressed in photographs of people's faces (Faces) as well as the feelings suggested by artistic designs and landscapes (Pictures). Use of Emotion to Facilitate Thought is measured by two tasks that assess the ability to (a) describe emotional sensations in a cross-modality matching task involving nonfeeling vocabulary (Sensations) and (b) identify the feelings that might facilitate or interfere with the successful performance of various cognitive and behavioral tasks (Facilitation). Understanding Emo-

tions is measured by two tests that pertain to a person's ability to analyze blended or complex emotions (Blends) and to understand how emotional reactions change over time or how they follow one another (Changes). Finally, Managing Emotions is measured by two tasks pertaining to the ability to manage one's own emotions (Emotion Management) and the emotions of others (Social Management).

The MSCEIT is scored with both consensus and expert scoring methods, which tend to converge ( $r > .90$ ; Mayer et al., 2003). In consensus scoring, respondents are given credit for correct answers to the extent that their answers match those provided by the normative sample (over 5,000 heterogeneous individuals). Expert scoring relies on emotions experts (researchers) to indicate what they believe are the correct answers. Similar to consensus scoring, respondents receive credit for correct answers to the extent that they match those of the experts.

The test publisher provides five scores, one for each domain, as well as a total EI score. Because consensus and expert scores were highly correlated,  $r(290) = .94$ , and there were no significant differences in correlations between consensus and expert scores and the criteria in the studies reported here, we arbitrarily used consensus scores. Also, in all three studies, we report analyses using the total MSCEIT score because of our focus on EI as an overall construct and not the individual abilities that comprise EI.<sup>1</sup> Two criteria confirmed the decision to use the total score: (a) Confirmatory factor analysis of the MSCEIT supports the one-factor model (Mayer et al., 2003); and (b) in the present study, the part-whole correlations between the four dimension scores and the total MSCEIT score were high and statistically significant,  $r_s(287) = .65$  to  $.78$ . The split-half reliability coefficient for the total score was  $.94$ . For more information on the psychometric properties of the MSCEIT, see Mayer, Salovey, and Caruso (2002b; Mayer et al., 2003).

**SREIS.** The SREIS was developed to map onto the emotional abilities measured by the MSCEIT. To develop the SREIS, we first examined and amended items from relevant scales, such as the Trait Meta-Mood Scale (Salovey, Mayer, Goldman, Turvey, & Palfai, 1995), and the self-report measure of EI by Schutte et al. (1998). For example, we used the item "By looking at their facial expressions, I recognize the emotions people are experiencing" from the Trait Meta-Mood Scale because it mapped onto the perception of emotion domain on the MSCEIT. We wrote additional items to cover all four EI domains adequately.

Before administering the SREIS, 10 graduate students familiar with Mayer and Salovey's (1997) model of EI rated the content validity of each item. Items for which there was less than 75% agreement were dropped, yielding a total of 34 items. The final scale included 9 items for Perceiving Emotions (e.g., "I can tell how people are feeling by listening to the tone of their voice"), 8 items for Using Emotions (e.g., "I can access my emotions/feelings in order to help me improve my problem solving abilities"), 8 items for Understanding Emotions (e.g., "It's hard for me to describe my feelings" [reverse scored]), and 9 items for Managing Emotions (e.g., "I have difficulty managing my emotions" [reverse scored]). Participants rated each item on a response scale ranging from 1 (*disagree strongly*) to 5 (*agree strongly*).

A preliminary factor analysis (principal axis with oblique rotation) of the 34-item scale suggested that our hypothesized four-factor solution was optimal. However, 6 items had factor loadings on unintended factors, and 3 items had loadings below  $|.30|$ . These items were dropped, and the remaining 25 items were factor analyzed again. Items with factor loadings above  $|.35|$  on the pattern matrix were retained. Six items comprised each of the scales for the Perceiving, Using, and Managing Emotions domains, and 4 items comprised the Understanding Emotions domain. Because our primary interest was on the EI construct overall, we computed a total EI score by averaging across the scales. The part-whole correlations between the four dimension scores and the total SREIS score were high and statistically significant,  $r_s(287) = .57$  to  $.78$ , and the full scale was reliable ( $\alpha = .84$ ).

**Estimated performance tasks.** Participants estimated their performance on the MSCEIT both prior to and after completing the test. They estimated how well they would perform (or did perform) relative to all other students, all other male students, and all other female students at their university. For example, for the Understanding Emotions domain, participants responded to the question "I think I would perform [did perform] better than \_\_\_\_% of all other male students at the university on a test that measured my understanding of emotion concepts and the complexity of emotion" on an 11-point scale spaced in intervals of 10 (0%–100%).

The estimates within each EI domain across the three comparisons correlated highly for both the pre- and postestimates ( $r_s = .66$  to  $.89$ ,  $p_s < .001$ ). Thus, we created two total scores (pre- and postestimates of EI performance) by averaging responses across domains and comparison groups separately for both the pre- and postestimates. Both of these scales were highly reliable ( $\alpha > .82$ ).

### Verbal Intelligence Measures

**Verbal SAT.** Verbal SAT scores were used as a proxy measure of verbal intelligence. We obtained consent to access the participants' ( $n = 228$ ) scores from the university registrar.

**Self-rated verbal intelligence.** A 10-item self-report scale ( $\alpha = .83$ ) measured self-rated verbal intelligence (Paulhus et al., 1998). Participants responded to each item (e.g., "I have a good vocabulary") on a response scale ranging from 1 (*very inaccurate*) to 5 (*very accurate*).

**Estimated performance task.** As with EI, participants compared themselves with their peers on their verbal intelligence. Participants indicated the extent to which their verbal SAT scores were better than all college students (in general), all students at their university, all other female students at their university, and all other male students at their university. For example, they responded to the question "I think my verbal SAT scores are better than \_\_\_\_% of all other male students at this university" on an 11-point scale spaced in intervals of 10 (0%–100%). Performance ratings for all four comparisons were correlated highly ( $r_s = .81$  to  $.92$ ,  $p_s < .001$ ); thus, a total score was computed, which was highly reliable ( $\alpha = .96$ ).

### Procedure

All data were collected in one 75-min session. Participants completed the self-administered measures in groups of 25 to 50 in the following order: the self-rated EI and verbal intelligence measures, MSCEIT, post-MSCEIT estimate of performance, and demographics. Verbal SAT scores were collected from the college registrar after data collection.

## Results

### Descriptive Statistics and Gender Differences

Data were screened carefully for outliers and missing values. Four participants with extremely low MSCEIT total scores ( $< 59$ ) were dropped from all analyses. Descriptive statistics on the four EI measures are reported in Table 1. MSCEIT scores were comparable to other samples in the literature (Brackett et al., 2004; Mayer et al., 2002b). Mean scores on the SREIS were significantly above the midpoint on the 5-point scale, indicating that participants agreed that they possessed higher than average EI,  $t(286) = 18.79$ ,  $p < .001$ . Mean scores on the estimated performance tasks also were significantly above the midpoint: preestimate,  $t(285) = 14.72$ ; postestimate,  $t(285) = 11.88$ ;  $p_s < .001$ . Participants, on

<sup>1</sup> Domain-level findings are available from Marc A. Brackett.

Table 1  
Correlations Between EI Measures for Men (Above Diagonal) and Women (Below Diagonal) and Descriptive Statistics (Study 1)

Measure	MSCEIT	SREIS	Pre-MSCEIT estimate	Post-MSCEIT estimate
MSCEIT	—	.27**	.23*	.24*
SREIS <sup>a</sup>	.19**	—	.53***	.31***
Pre-MSCEIT estimate <sup>b</sup>	.12	.42***	—	.67***
Post-MSCEIT estimate <sup>b</sup>	.03	.37***	.67***	—
Sample mean ( <i>SD</i> )	90.66 (12.57)	3.46 (0.41)	62.23 (14.05)	60.01 (13.97)
Women's mean ( <i>SD</i> )	93.64 (11.80)	3.44 (0.42)	60.90 (14.10)	58.00 (14.20)
Men's mean ( <i>SD</i> )	85.09 (12.10)	3.49 (0.39)	64.72 (13.68)	63.64 (12.86)
Gender differences: <i>t</i> tests ( $\eta^2$ )	5.80*** (.105)	1.03 (.004)	2.21* (.017)	3.26*** (.037)

Note. Total sample:  $275 < N < 286$ ; men:  $98 < n < 100$ ; women:  $177 < n < 186$ . EI = emotional intelligence; MSCEIT = Mayer-Salovey-Caruso Emotional Intelligence Test; SREIS = Self-Rated Emotional Intelligence Scale.

<sup>a</sup> Responses ranged from 1 (*disagree strongly*) to 5 (*agree strongly*). <sup>b</sup> Responses ranged from 0 (*I would perform better than 0% of others*) to 100 (*I would perform better than 100% of others*), in 10-point increments.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

average, predicted that they would (and did) perform better than about 60% of their peers. Indeed, nearly 80% of the participants believed that they would (or did) perform above the 50th percentile on the MSCEIT.

To examine gender differences on the EI measures, we conducted a 2 (gender)  $\times$  4 (test type: MSCEIT, SREIS, and pre- and postestimates) repeated measures multivariate analysis of variance (MANOVA) after standardizing the test scores. There were significant differences in men's and women's scores on the four EI measures,  $F(3, 816) = 23.27, p < .001$ , as shown in Table 1. Follow-up analyses showed that the gender differences were significant for three of the four EI measures. Consistent with our hypotheses and previous research (Brackett et al., 2004; Mayer et al., 1999), our results indicated that women scored significantly higher than men on the MSCEIT. On the two estimated performance tasks (both before and after taking the MSCEIT), men's scores were significantly higher than women's scores. There were no significant gender differences in SREIS responses.

With respect to verbal ability, SAT scores ranged from 340 to 750 ( $M = 541.53, SD = 70.60$ ). Scores for men ( $M = 547.12, SD = 73.72$ ) and women ( $M = 538.90, SD = 69.15$ ) were not significantly different,  $t(226) < 1$ . Participants were slightly above the midpoint on the self-reported verbal intelligence scale ( $M = 3.19, SD = 0.68$ ). There were no significant gender differences in self-ratings of verbal ability (women,  $M = 3.24, SD = 0.67$ ; men,  $M = 3.09, SD = 0.69$ ),  $t(284) = 1.78, p > .05$ . Means on the estimated performance task indicated that participants believed their verbal intelligence to be slightly above average ( $M = 55.84, SD = 18.07$ ) and significantly greater than 50% of their peers,  $t(284) = 5.46, p < .001$ . Consistent with previous research (Bailey & Mettetal, 1977; Bennett, 1996), our results showed that men ( $M = 62.38, SD = 18.42$ ) had significantly higher self-rated verbal intelligence than women ( $M = 52.31, SD = 16.90$ ),  $t(283) = 4.65, p < .001$ .

#### Relationship Between Performance Tests and Self-Ratings

*EI.* Consistent with our hypotheses, our results showed that EI self-ratings were not related strongly to performance on the MSCEIT. Although the correlation between the MSCEIT and the SREIS was significant, the relationship was not strong,  $r(287) =$

.19,  $p < .01$ . MSCEIT scores were not related to scores on the estimated performance tasks,  $r(286) = .10$  and  $r(275) = .03$ , respectively;  $ps > .05$ . The correlations between the SREIS and the two estimated performance measures were significant,  $rs(275) = .35$  to  $.46, ps < .001$ . There were no significant gender differences in the strength of these correlations (Fischer's  $z_s < 1.96$ ), as shown in Table 1.

Because individuals who score higher in EI (MSCEIT) may have a more accurate perception of their emotional abilities, we assigned participants to the bottom, second, third, or top quartile on the basis of their MSCEIT test performance (following Dunning et al., 2003) and conducted a 4 (EI scale: MSCEIT, SREIS, and pre- and postestimate)  $\times$  4 (quartile) repeated measures MANOVA. There was a significant Quartile  $\times$  Measure interaction,  $F(9, 810) = 36.34, p < .001$ . Follow-up analyses showed that individuals with higher EI scores were not more accurate in their self-ratings; individuals in the bottom two quartiles overestimated their performance on the MSCEIT on all three self-ratings, and those in the upper two quartiles underestimated their MSCEIT performance.

*Verbal intelligence.* As predicted, participants were, in general, more accurate in estimating their verbal intelligence than their EI. The two self-report indices of verbal intelligence were related significantly to verbal SAT scores: for self-rated verbal intelligence,  $r(228) = .43, p < .001$ , and for the estimated performance measure,  $r(226) = .53, p < .001$ . There were no significant gender differences in the strength of these correlations. These correlations were somewhat higher than those found in other studies, which generally yield correlations in the .30–.35 range (Paulhus et al., 1998).

#### Discussion

Self-rated and performance measures of EI were not strongly related, suggesting that perceptions of one's EI may not be an accurate indicator of EI and that these measures are most likely tapping into different mental processes. These findings can be interpreted in the context of more extensive studies showing that people are notoriously bad at both self-reporting their mental abilities and estimating their own performance on ability tests

(Bailey & Mettetal, 1977; Dunning et al., 2003; Mabe & West, 1982; Paulhus et al., 1998; Reilly & Mulhern, 1995).

There are a number of possible explanations for the lack of correspondence between the EI measures. First, self-reports are prone to social desirability response biases (Paulhus, 1991). Second, an individual's level of EI may influence the self-ratings. That is, similar to individuals with lower intelligence, individuals with lower EI may lack the metacognitive skills to report on their EI. Highly emotionally intelligent people, on the other hand, may be inaccurate because they overestimate the EI of others (Dunning et al., 2003). It also is possible that chronic self-views of EI interfere with the ability to estimate EI accurately (Ehrlinger & Dunning, 2003). The strong correlation between the two self-rating tasks (SREIS scores and estimates of MSCEIT performance) provides some support for this possibility. Finally, individuals may not have preconceived notions about their EI. This may explain why the relationship between self-rated EI and performance EI was weaker than the relationship between self-rated and performance measures of verbal intelligence. Compared with EI, verbal-propositional intelligence is more highly institutionalized, thus providing individuals with more opportunities for feedback in this domain. It is important to mention, however, that we compared participants' self-reported verbal intelligence with their verbal SAT scores, which they had taken previously; we did not administer a verbal ability test during the testing session.

With regard to gender, we replicated previous studies indicating that women perform better than men on the MSCEIT (e.g., Brackett & Mayer, 2003). This finding also supports other research on emotional abilities showing the women are more skilled in the emotions domain than are men. For example, there is evidence that women use a more varied emotions vocabulary (e.g., Adams et al., 1995; Fivush et al., 2000) and are better than men at reading nonverbal behaviors, including facial expressions of emotions (e.g., Hall, 1978, 1984; McClure, 2000; Rosenthal, Hall, DiMatteo, Rogers, & Archer, 1979).

On the EI self-ratings, gender differences emerged for the estimated performance tasks but not for the SREIS. Men's estimated MSCEIT performance was significantly higher than women's. This effect held even after participants took the MSCEIT and even though women outperformed men on the MSCEIT. This result is not necessarily surprising as women tend to underestimate their abilities in other achievement settings, whereas men tend to overestimate theirs (Lenney, 1977; T. Roberts, 1991). This is especially so when performance criteria are unclear (Lenney, 1977), as may well be the case with emotional abilities.

In sum, this study showed that people are particularly poor at both providing self-reports and estimating their performance on ability measures of EI, indicating that self-rated EI may not be a good proxy assessment of ability EI. Although self-rated and performance measures of EI are relatively distinct, each may contribute to understanding of the role of emotional abilities in social functioning. This question is explored in the next two studies.

## Study 2

Emotional abilities help individuals to form and maintain functional interpersonal relationships (Keltner & Haidt, 2001). For example, emotional abilities are associated with perceptions of

global relationship quality among friends (Lopes et al., 2004) and romantic partners (Brackett et al., 2005). In this study, we moved beyond global relationship quality assessments and examined whether self-rated and performance measures of EI were related to perceived social competence with friends. Specifically, we examined the relationship between EI and the strategies that individuals reported they used in response to positive and negative emotions in relationships. These two contexts were selected for three reasons: (a) Each requires the use of emotional abilities; (b) previous research on responses to positive events and conflict showed no gender differences (Gable et al., 2004, and Rusbult, 1993, respectively); and (c) responses to positive events and conflict can be classified as effective or ineffective with regard to relationship well-being (Gable et al., 2004; Rusbult, Verrethe, Whitney, Slovic, & Lipkus, 1991).

Because the validity of ability and self-report measures of EI to predict important outcomes above and beyond well-studied measures of personality, well-being, and intelligence has been questioned (e.g., N. Brody, 2004; Hedlund & Sternberg, 2000; McCrae, 2000), we examined the relationship between the EI measures and social competence outcomes by controlling for these variables. Unlike self-report measures based on popularizations of EI, we did not expect that the SREIS would correlate too highly with these other indices because it is based on EI theory. Nevertheless, as a self-report measure, the SREIS may share some semantic content and method variance with existing measures, such as Neuroticism.<sup>2</sup> Thus, we made the following hypothesis:

1. The MSCEIT is mostly uncorrelated with measures of personality, well-being, and verbal intelligence, whereas the SREIS is moderately correlated with measures of personality and well-being, but not verbal intelligence.

There is a general consensus that performance tests (as opposed to self-report scales) are the gold standard in intelligence research because they measure the actual capacity to perform well at mental tasks, not just one's self-efficacy about certain skills (J. B. Carroll, 1993). Because it is likely that a person's actual knowledge and reasoning ability about emotions, in contrast to perceived ability, contribute to effective social functioning, we tested a second hypothesis:

2. The MSCEIT, but not the SREIS, is associated with perceived interpersonal strategies after personality, well-being, and verbal intelligence are held constant. More specifically, the MSCEIT is correlated positively with constructive responses and negatively with destructive responses to both relationship problems and positive events.

## Method

### Participants

Three hundred fifty-five undergraduates (61% female) at a private research university participated in this study for partial completion of a course requirement. The group of participants was 58% White, 19% Asian, 9% African American, 6% Hispanic, and 7% other. Participants were primarily single and heterosexual and ranged in age from 18 years to 34

<sup>2</sup> Because the results were comparable across the two self-rating assessments (SREIS, performance estimates), only the SREIS was used in Studies 2 and 3.

years ( $M = 20.13$ ,  $SD = 2.90$ ). The majority of participants (72%) were in their 1st year at the university.

### Measures of EI

**MSCEIT.** An online version of the MSCEIT, described in detail in Study 1, was used. Prior research has suggested that booklet and online forms of the MSCEIT produce indistinguishable scores (Mayer et al., 2003). Split-half reliability of the total score was .91.

**SREIS.** A revised 19-item measure of the SREIS was used (Brackett, 2004; see Appendix). The revised scale corrected for ambiguous statements contained in the original SREIS. For instance, we changed the statement "It's hard for me to describe my feelings" from the Understanding Emotions domain to "I could easily write a lot of synonyms for words like happiness or sadness" in order to represent the contents of the MSCEIT more accurately. A confirmatory factor analysis of the revised SREIS supported both one- and four-factor solutions. Thus, there is converging evidence that the four basic dimensions of EI can be detected with both self-report and performance tests, which both load on one hierarchical factor of EI.

Participants indicated the extent to which the 19 randomly ordered statements on the SREIS accurately described them by using a 5-point Likert scale, ranging from 1 (*very inaccurate*) to 5 (*very accurate*). Cronbach's alpha for the total scale was .77.

### Personality Measures

Participants used a response format ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) for each personality measure.

**Revised NEO Personality Inventory.** Personality traits were assessed with the 240-item Revised NEO Personality Inventory (Costa & McCrae, 1992), which measures five global dimensions of personality: Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness (all  $\alpha$ s  $\geq .88$ ).

**Empathy.** Empathy was assessed with the Mehrabian and Epstein (1972) 19-item scale ( $\alpha = .75$ ).

**Psychological well-being.** Psychological well-being was assessed with Ryff's (1989) theoretically based self-report inventory, which contains 36 items to measure six dimensions: self-acceptance, environmental mastery, purpose in life, positive relations with others, personal growth, and autonomy. The reliability of the full scale was high ( $\alpha = .90$ ).

**Subjective well-being.** Subjective well-being was measured with the 5-item Satisfaction With Life Scale (Diener, Emmons, & Larsen, 1985; Pavot & Diener, 1993). The reliability of this scale was high ( $\alpha = .84$ ).

### Social Competence Outcomes

**Perceived interpersonal strategies to positive events.** Responses to positive events happening to another person were measured with a modified version of the Perceived Responses to Capitalization Attempts Scale (Gable et al., 2004). This scale assesses the extent to which respondents engage in various behaviors in reaction to a friend sharing a positive event (e.g., friend receives a good grade or has a great conversation with a potential love interest). Because the measure was developed originally for couples, the term *partner* was replaced with the combined term *roommate/suitemate/close friend*, and the events were altered slightly to be relevant to school. Participants rated each item with the stem "When my roommate/suitemate/close friend tells me about something good that has happened to him/her." The scale contained 12 items classified into four categories: active constructive (e.g., "I usually react to this person's good fortune enthusiastically"), active destructive (e.g., "I often find a problem with it"), passive constructive (e.g., "I say very little, but I am happy for this person"), and passive destructive (e.g., "I don't pay much attention"). Cronbach's alphas ranged from .50 to .72.

**Perceived interpersonal strategies to negative events.** Responses to negative events occurring in a relationship with a roommate/suitemate/close friend were assessed with a 16-item scale adapted from Rusbult, Johnson, and Morrow's (1986) Accommodation Scale. This scale assesses the extent to which individuals engage in various strategies during a conflict in a close relationship. The items were divided into four categories: active constructive (e.g., "When this person and I have problems, I discuss things with him/her"), passive constructive (e.g., "When this person and I are angry with each other, I give things some time to cool off on their own rather than taking action"), active destructive (e.g., "When this person and I have a disagreement, I end up screaming at him/her"), and passive destructive (e.g., "When I am annoyed at this person, I avoid spending time with him/her"). Cronbach's alphas ranged from .64 to .85.

### Procedure

Participants completed all the measures during two 1-hr sessions, except for the MSCEIT, which was completed online before the other scales.

## Results

### Descriptives

**Performance and self-rated EI measures.** Mean scores on the MSCEIT were comparable to Study 1 ( $M = 97.55$ ,  $SD = 10.63$ ). Consistent with Study 1, women ( $M = 99.05$ ,  $SD = 10.31$ ) had significantly higher MSCEIT scores than did men ( $M = 95.00$ ,  $SD = 10.72$ ),  $t(346) = 3.49$ ,  $p < .01$ ,  $\eta^2 = .034$ . As in Study 1, mean scores on the SREIS were significantly higher than the midpoint,  $t(349) = 27.17$ ,  $p < .001$ , indicating that participants had inflated self-ratings. In contrast to Study 1, women's self-ratings ( $M = 3.75$ ,  $SD = 0.41$ ) were significantly higher than men's ( $M = 3.59$ ,  $SD = 0.38$ ),  $t(346) = 3.67$ ,  $p < .001$ ,  $\eta^2 = .038$ . Finally, as predicted, MSCEIT and SREIS scores were unrelated,  $r(327) = .07$ ,  $p > .05$ , confirming that self-report and performance measures likely are tapping into different psychological processes.

**Social competence.** A MANOVA showed that men and women reported significantly different responses on each of the subscales,  $F(8, 353) = 8.85$ ,  $p < .001$ . As shown in Table 2, women were more likely than men to report using active constructive responses to positive events, but men were more likely than women to report using passive destructive, passive constructive, and active destructive responses,  $F_s(1, 360) > 9.0$ ,  $p_s < .01$ . In response to negative relationship events, women were more likely than men to use active constructive, passive destructive, and passive constructive responses,  $F_s(1, 360) > 4.0$ ,  $p_s < .05$ . Men and women did not differ in their use of active destructive responses to negative events,  $F(1, 360) < 1.0$ .

### Associations Among Measures of EI, Personality, Well-Being, and Verbal Intelligence

Significant correlations between MSCEIT scores and the personality variables ranged from  $|.11|$  to  $|.24|$ , whereas for the SREIS they ranged from  $|.11|$  to  $|.54|$  (see Table 3). Among the Big Five, the differences between the MSCEIT-personality and SREIS-personality correlations were statistically significant for Extraversion, Openness, and Agreeableness (Fischer's  $z$ s  $> 1.96$ ). There were no significant differences in the sizes of the correlations for men and women (Fischer's  $z$ s  $< 1.96$ ). To gain a more comprehensive perspective on these associations, we performed two sep-

Table 2  
Zero-Order and Partial Correlations Between EI Scales and Perceived Responses to Interpersonal Events (Study 2)

Perceived response	M (SD)				Zero-order				Partial <sup>a</sup>			
	Men (n = 143)		Women (n = 219)		MSCEIT (n = 127-129)		SREIS (n = 129-131)		MSCEIT (n = 98)		SREIS (n = 99)	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Positive events												
Active constructive	3.46 (0.64)	3.75 (0.64)	.16	-.06	.29***	.29***	.10	-.14	.12	.11	.12	.11
Active destructive	1.75 (0.64)	1.50 (0.53)	-.34***	-.14*	-.18*	-.15*	-.33***	-.08	-.04	-.03	-.04	-.03
Passive constructive	2.39 (0.80)	2.12 (0.78)	-.22*	-.10	-.29***	-.35***	-.23*	-.04	.00	-.10	.00	-.10
Passive destructive	1.67 (0.64)	1.44 (0.56)	-.38***	-.10	-.33***	-.21**	-.33***	-.03	-.21*	-.06	-.21*	-.06
Negative events												
Active constructive	3.21 (0.76)	3.38 (0.83)	.15	-.08	.25**	.20**	.09	-.08	.06	.01	.06	.01
Active destructive	1.64 (0.60)	1.60 (0.57)	-.23**	-.17*	-.15	-.09	-.22*	-.13	-.15	-.07	-.15	-.07
Passive constructive	3.65 (0.67)	3.91 (0.60)	-.03	.07	-.17*	-.05	-.02	.05	-.04	-.07	-.04	-.07
Passive destructive	2.63 (0.77)	2.91 (0.82)	-.30***	-.05	-.28**	-.13	-.27**	.00	-.11	-.01	-.11	-.01

Note. EI = emotional intelligence; MSCEIT = Mayer-Salovey-Caruso Emotional Intelligence Test; SREIS = Self-Rated Emotional Intelligence Scale.

<sup>a</sup> Big Five, psychological well-being, empathy, life satisfaction, and Verbal SAT scores held constant.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

arate multiple regression analyses by using all of the personality and verbal intelligence scores as predictor variables and the two EI tests as outcome measures for the full sample. The multiple correlation for the standard regression with the MSCEIT as the outcome was .30 (adjusted  $R^2 = .06$ ). Consistent with previous work, our results showed that Agreeableness ( $\beta = .18$ ) and psychological well-being ( $\beta = .24$ ) were related to total MSCEIT scores ( $ps < .01$ ; Brackett & Mayer, 2003; Lopes et al., 2003). The multiple  $R$  for the regression with the SREIS as the outcome variable was .62 (adjusted  $R^2 = .36$ ). In this analysis, Extraversion ( $\beta = .21$ ), Openness to Experience ( $\beta = .32$ ), and psychological well-being ( $\beta = .40$ ) were significant predictors ( $ps < .001$ ) of total SREIS scores. Thus, compared with the MSCEIT, there was more overlap between the SREIS and the personality variables.

*Predictive and Incremental Validity of EI Measures*

Table 2 presents the zero-order and partial correlations (controlling for personality, psychological well-being, empathy, life satisfaction, and verbal SAT) between the two EI measures and responses to positive and negative events. Because our central question pertained to the incremental validity of the EI measures, we focused on the partial correlations as opposed to the zero-order correlations. MSCEIT scores correlated significantly with perceived interpersonal strategies, but only for men. For men, MSCEIT scores were correlated negatively with the tendency to use both active and passive destructive responses and passive constructive responses to positive interpersonal events,  $prs(98) = -.23$  to  $-.33$ ,  $ps < .05$ . For women, the MSCEIT was associated (negatively) with just one response to positive events: active destructive strategies,  $r(216) = -.14$ ,  $p < .05$ , which dropped to nonsignificance after personality and verbal intelligence were held constant. The strength of the associations between the MSCEIT and both active and passive destructive responses to positive events was significantly different for men and women (Fischer's  $zs = 2.07$  and  $2.46$ , respectively).

A similar pattern of findings emerged for perceived responses to negative events. For men, MSCEIT scores were associated negatively with both active and passive destructive strategies,  $prs(98) = -.22$  and  $-.27$ , respectively;  $ps < .05$ . For women, the MSCEIT correlated negatively with just one outcome: active destructive strategies,  $r(214) = -.17$ ,  $p < .05$ , which also dropped to nonsignificance after personality and verbal intelligence were held constant. The strength of the associations between the MSCEIT and passive destructive responses to negative events was significantly different for men and women (Fischer's  $z = 2.18$ ).

After controlling for personality and intelligence measures, we found that the SREIS correlated significantly with just one of the scales for men: passive destructive strategies in response to positive events,  $pr(98) = -.21$ ,  $p < .05$ . There were no significant gender differences in the strength of the partial correlations of the SREIS with these outcomes. Finally, for men, the correlation between the MSCEIT and active destructive responses to positive events was significantly stronger than the correlation between the SREIS and this response (Fischer's  $z = 2.09$ ).

*Discussion*

First, we demonstrated that the MSCEIT and the SREIS are not significantly correlated, replicating Study 1. Then, we supported our



Table 3  
*Relationship Between EI Measures and Personality Variables (Study 2)*

Measure	MSCEIT			SREIS		
	All (316 < <i>N</i> < 347)	Men (114 < <i>n</i> < 129)	Women (202 < <i>n</i> < 218)	All (311 < <i>N</i> < 336)	Men (115 < <i>n</i> < 131)	Women (196 < <i>n</i> < 215)
Big Five traits						
Neuroticism	-.13*	-.25**	-.12	-.21***	-.22*	-.25***
Extraversion	.03	.23**	-.12	.43***	.44***	.42***
Openness to Experience	.04	-.09	.05	.41***	.39***	.37***
Agreeableness	.19***	.15	.17*	.04	.05	-.06
Conscientiousness	.15**	.04	.20**	.19***	.11	.22**
Empathy	.13*	.01	.07	.31***	.32***	.24**
Psychological well-being	.19***	.25**	.16*	.46***	.48***	.45***
Life satisfaction	.12*	.11	.13	.22***	.15	.25**
Verbal SAT	-.05	-.18	.02	.04	.11	-.03

*Note.* EI = emotional intelligence; MSCEIT = Mayer–Salovey–Caruso Emotional Intelligence Test; SREIS = Self-Rated Emotional Intelligence Scale.  
 \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

hypothesis that the MSCEIT did not overlap significantly with existing personality measures, such as the Big Five, which also corroborates earlier findings (Mayer et al., 2004). Also, as predicted, the SREIS was more highly correlated with measures of personality than the MSCEIT. The greater overlap was expected because of the inherent shared method variance between the measures and the similar semantic content between items on the SREIS (e.g., Management of Emotions Scale) and the personality scales (e.g., Neuroticism).

Our main goal was to examine the incremental validity of both measures in predicting perceived social competence with friends. Consistent with our hypotheses, our results indicated that the MSCEIT, but not the SREIS, was incrementally valid. However, this was the case for men only. Men with lower MSCEIT scores were more likely to use both passive and active destructive strategies in response to both relationship conflict and others' reports of positive events.

It is unclear why the MSCEIT predicted social competence outcomes only for men. However, this finding is not unique, as others have reported relationships between emotional abilities and social competence for only one gender (e.g., Brackett et al., 2004; Custrini & Feldman, 1989; Eisenberg et al., 1995). Shields (2002) and MacCoby (1998) suggested that emotions play a different role in the social interactions of men and women (and boys and girls) to the extent that the genders occupy different emotional worlds. Accordingly, emotional skills may operate differently in the social worlds of each gender. In this study, we used self-report scales of social competence that have not shown gender differences in previous research (Gable et al., 2004; Rusbult, 1993); however, there were significant gender differences on these scales in our sample. Thus, our operationalization of social competence may in fact be different for men and women. In Study 3, we attempted to better capture social competence by measuring real-time social behaviors.

### Study 3

The aim of Study 3 was to assess whether the MSCEIT and SREIS predicted observable behaviors in a social encounter, namely, interacting with an ostensible stranger in a getting-acquainted meeting. We expected that scores on the MSCEIT, but not the SREIS, would predict social success. Because definitions

of social success are contingent on the expectations, norms, and roles of a situation, and typically vary with the goals, beliefs, and motives of a given observer, valid operationalizations of social success often are obscured by its abstract, multifarious nature (Topping, Bremner, & Holmes, 2000). With this in mind, we used an assessment strategy designed to capture multiple facets of social success. These assessments included both key player evaluations (confederate and participant) and naive observer ratings.

In Study 2, the relationship between EI and social competence was significant for men only perhaps because there were gender differences on the social competence outcome. To minimize the presence of gender differences in Study 3, we carefully structured interaction so that participants approached it with the same specified goal. Gender differences in behavior are less likely to occur when the context is held constant (Christensen & Heavey, 1990).

## Method

### Participants

Fifty students (28 women and 22 men) from a liberal arts college participated in exchange for course credit or monetary payment (\$8). The group of participants was 74% White, 10% Asian, 4% African American, and 4% Hispanic. The average age was 19.3 years ( $SD = 0.91$ ).

### Procedure

The study consisted of two sessions. In the first session, participants completed the MSCEIT and the SREIS. One week later, participants returned individually to the laboratory under the auspices of performing a task with another participant. After first completing a personality assessment (described below), participants were told by the experimenter that they would be doing a group task that was "designed to measure how well two people work together." The experimenter informed participants that "groups are most successful in the task when the partners know a little bit about one another." This description was intended to provide participants with a clear goal in the interaction (i.e., to become personally acquainted with the confederate). Finally, the experimenter instructed the participant to sit with his or her partner (actually a confederate) in the waiting room while the group task was being set up.

When participants first entered the waiting room, a same-sex confederate behaved according to a script requiring the confederate to greet the par-

ticipant and then wait for the participant to initiate conversation. If the participant did not initiate conversation within 3 min, the confederate began a conversation. Confederates were instructed to respond the way they normally would during a social interaction but to let the participants lead the conversation. The extensively trained confederates were blind to the purpose and hypotheses of the study. Two hidden video camcorders recorded the interactions.

After 6 min, the experimenter entered the waiting room and asked participants to complete an interaction evaluation measure (described below) in a room separate from the confederate. Finally, the experimenter explained the true purpose of the experiment, the need for deception, and the use of hidden video cameras. Participants were given the opportunity to have their tape recordings erased. Only 1 participant made this request.

## Materials

**EI measures.** EI was assessed with the MSCEIT and the SREIS. Participants completed the online version of the MSCEIT, discussed in detail in Study 1. Split-half reliability of the total score was .89. The revised 19-item SREIS, described in Study 2, was used to assess perceived EI. Cronbach's alpha for the full scale was .66.

**Personality assessment.** Personality was assessed with the 54-item Big Five Inventory (Johnson, Donahue, & Kentle, 1991), which measures Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Cronbach's alphas for the five subscales ranged from .77 to .88.

**Participant self-evaluations of social competence.** Participants evaluated their behavior during the waiting room interaction with the confederate by indicating their agreement with six items: (a) "I am satisfied with my actions," (b) "My actions were appropriate for the context of the situation," (c) "I made it easy for the other participant to talk to me," (d) "I was genuinely involved in the conversation," (e) "My actions were an accurate representation of how I normally behave," and (f) "I would change something about the way I behaved" (reverse scored). They scored their responses on a 7-point Likert-type scale ranging from 1 (*completely disagree*) to 7 (*completely agree*). These six items were reliable ( $\alpha = .82$ ) and were averaged to form an overall self-evaluation score, with higher scores indicating more positive self-evaluations.

**Confederate evaluations of social competence.** Because the central objective of the waiting room interaction was for the participants to get to know the confederate, confederates first responded to the item "This participant seemed interested in me" by using a 7-point scale ranging from 1 (*completely disagree*) to 7 (*completely agree*). Confederates then reported the extent to which they agreed with 11 items evaluating the social engagement, friendliness, likeability, confidence, and competence of each participant by using the same 7-point scale. The 11 items were highly reliable ( $\alpha = .93$ ) and were averaged together to form a confederate rating of social competence.

## Video Analysis

Four judges (two men and two women) who were blind to the purpose, hypotheses, and EI of the participants reviewed the interactions. The judges independently rated each participant on four dimensions: (a) social engagement, (b) comfort level, (c) ability to work well with others, and (d) overall social competence.

Judges rated level of social engagement by taking into account the amount of personal information discussed, efforts to prolong or continue the conversation, and the amount of times participants made eye contact with the confederate on a 5-point Likert-type scale ranging from 1 (*not at all engaged*) to 5 (*extremely engaged*). Participants who responded in full sentences, asked questions, and kept their gaze focused on the confederate received the highest possible scores. For the comfort rating, judges rated body movements, speech patterns, hand gestures, and overall posture on a 5-point Likert scale ranging from 1 (*not at all comfortable*) to 5 (*extremely comfortable*). Participants who did not fidget, spoke in an even rhythm, and

smiled frequently received the highest possible scores. The social engagement and comfort ratings were made at 90-s intervals yielding four separate judgments for each interaction and each judge. Because judges' ratings were made on interval scales, interrater reliability was assessed with Cronbach's alpha (Harris, 2001). Alphas ranged from .71 to .96 for the four social engagement ratings across the raters and from .63 to .82 for the four comfort ratings across the raters. Reliability across the four time and judge ratings for social engagement and comfort was very high ( $\alpha = .97$  and .89, respectively). Scores were averaged across time and raters to form composite scores for social engagement and comfort.

Overall competence and team player ratings were made at the conclusion of each interaction. Judges evaluated overall competence by responding to the following: "The goal of this interaction was for participants to get to know one another. How successful was this participant in accomplishing that goal?" Responses were scored on a 5-point Likert-type scale ranging from 1 (*not at all successful*) to 5 (*extremely successful*). Judges evaluated the extent to which each participant was a team player by responding to the question "How confident are you that this participant would work well collaborating with others; is s/he a 'team player'?" Responses were scored on a 5-point Likert-type scale ranging from 1 (*not at all confident*) to 5 (*extremely confident*). Interrater reliability was high for overall competence and team player ratings ( $\alpha = .96$  and .92, respectively). Scores were averaged across judges to form a total score for each judgment.

We also measured the duration of conversation for each interaction by measuring the total conversation length and dividing it by the total duration of the interaction. Conversation duration was defined as any moment when either the participant or the confederate was speaking.

## Results

### Descriptives

Consistent with Studies 1 and 2, our results indicated that on the MSCEIT, women ( $M = 104.99$ ,  $SD = 9.63$ ) scored significantly higher than men ( $M = 95.31$ ,  $SD = 11.46$ ),  $t(49) = 10.54$ ,  $p < .01$ ,  $\eta^2 = .18$ . On the SREIS, men ( $M = 3.65$ ,  $SD = 0.29$ ) and women ( $M = 3.55$ ,  $SD = 0.47$ ) did not differ significantly,  $t(49) < 1.00$ . As predicted, MSCEIT and SREIS scores were unrelated,  $r(50) = .03$ .

Confederate and participant evaluations were comparable for both men and women. Gender differences emerged for three of the four dimensions, whereby judges rated women as more socially engaged, more competent, and better able to work well with others,  $t(49) = 2.56$  to  $2.99$ ,  $ps < .01$ . Women ( $M = 69.00$ ,  $SD = 29.55$ ) talked significantly more during the interaction than did men ( $M = 47.15$ ,  $SD = 41.32$ ),  $t(44) = 2.09$ ,  $p < .05$ .

Overall there were strong, positive correlations between the confederates' and judges' ratings. Participants who were liked more by the confederates and who were rated as more interested by the confederates also were rated by the judges as more socially engaged, more competent, and better able to work with others,  $rs(44) = .47$  to  $.60$ . Participants who were rated as more socially competent by the confederate also reported being satisfied by their performance in the interaction,  $r(50) = .37$ . Participants who were satisfied with their performance in the interaction also were rated by the judges as more socially engaged and competent and better able to work well with others,  $rs(44) = .46$  to  $.50$ . The only lack of correspondence was with the comfort ratings; judges' and confederate ratings of comfort were uncorrelated,  $r(44) = -.06$ .

### Predictive and Incremental Validity of EI Measures

Table 4 displays the zero-order correlations between both EI measures and the social competence variables. Because of the

Table 4  
Zero-Order Correlations of the MSCEIT and the SREIS With the Social Behaviors (Study 3)

Ratings	MSCEIT		SREIS	
	Men	Women	Men	Women
Confederate and participant ratings				
Confederate overall rating	.20	.31	-.41	.35
Confederate interest rating	.48*	.27	-.41	.19
Participant self-evaluation	.13	-.14	.01	.16
Judges' ratings				
Social engagement	.47†	-.02	-.34	.28
Comfort	-.16	-.19	.08	.03
Team player	.53*	-.16	-.44	.19
Overall social competence	.51*	-.03	-.36	.27

Note.  $N = 44$  to  $50$  (women =  $26$ – $28$ ; men =  $18$ – $22$ );  $N$ s vary due to technical difficulties with the video recordings. MSCEIT = Mayer–Salovey–Caruso Emotional Intelligence Test; SREIS = Self-Rated Emotional Intelligence Scale.

†  $p < .10$ . \*  $p < .05$ .

small sample size for each gender, we examined scatterplots for all of the correlations; there was no evidence that individual outliers were driving any of the effects. Scores on the MSCEIT were associated with performance in the interaction, but only for men. Specifically, men with higher EI were more likely than men with lower EI to be rated as (a) showing greater interest in the confederate, (b) more socially engaged, (c) more socially competent, and (d) being a team player. These findings remained significant after statistically controlling for the Big Five (which were unrelated to the outcomes) in multiple regression analyses. Comparing correlations of the MSCEIT with these variables for men and women showed that there was a significant difference for being a team player (Fischer's  $z = 2.37$ ).

As predicted, the SREIS did not correspond significantly with any of the social competence measures, indicating that beliefs about one's emotional abilities were not significantly correlated with social success. For men, there were significant differences in the strength of the correlations between the MSCEIT and the SREIS, including confederates' overall and interest ratings, and the judges' ratings of social engagement, whether a participant was a team player, and overall social competence (Fischer's  $z$ s  $> 1.96$ ).

### Discussion

By evaluating observable behaviors in a social interaction, we provided additional evidence supporting the incremental validity of performance measures of EI. The MSCEIT, but not the SREIS, was associated with social competence, but only for men. When interacting with the confederate, men with higher MSCEIT scores were judged as more socially engaged and socially competent by both the confederate and naive judges. Finally, although not statistically significant, there were a number of counterintuitive negative correlations between the SREIS and the positive social outcomes for men ( $r$ s  $> -.34$ ).

This study extends the findings of Study 2 by showing that performance on a task-based measure of EI predicts social competence for men who are not only in already formed social relationships but are establishing new social relationships. The reasons

why the MSCEIT is associated with social competence for men only are unknown; a more thorough discussion of this issue will be presented in the General Discussion.

### General Discussion

The present investigation yielded two primary findings: (a) Self-ratings of EI, as assessed by the SREIS, and performance measures of EI, as assessed by the MSCEIT, were not strongly correlated; and (b) after statistically controlling for personality, the MSCEIT was associated with interpersonal competence for men, whereas the SREIS was generally unrelated to social competence for both genders.

There are a number of possible explanations for why self-report and performance measures of EI are less correlated than parallel measures of verbal intelligence. In Western culture, people receive little explicit feedback about their emotional abilities in comparison to other mental skills. For instance, various institutions promote certain mental abilities: Schools build knowledge, meditative retreats train consciousness, and guilds reinforce musical talent. People who attend these societies receive feedback on their performance. Few institutions are devoted explicitly to developing emotional capacities, however. Discrepancies between self-ratings and performance measures of EI may diminish as education systems incorporate social and emotional learning programs (Brackett & Katulak, in press).

### Does EI Contribute to Social Competence?

Because intelligence measures are judged in part according to their ability to predict theoretically related behavioral outcomes (cf. American Psychological Association Public Affairs Office, 1996; Funder, 2001), we were interested in whether the EI measures were associated with the ability to form and maintain functional relationships. For men, performance on ability but not self-report measures of EI was related to the quality of social interaction. It is important to note that these findings extend previous work by demonstrating that the MSCEIT is associated both with specific interpersonal strategies that individuals report using and with real-time interpersonal competence. However, the findings are limited in that the MSCEIT was related to outcomes only for men. Specifically, in comparison to men with lower EI, men with higher EI (a) reported using less destructive strategies in both positive and negative emotional situations with a friend (Study 2) and (b) were judged by the confederate and naive judges to be more socially competent in a laboratory-based social interaction with someone they did not know (Study 3). Although these findings need to be replicated, they are consistent with the results of a number of studies suggesting that EI may be an important variable for understanding social adaptation (Lopes et al., 2003), particularly among men (Brackett et al., 2004).

It is unclear why the MSCEIT was unrelated to social competence for women in the studies reported here. We suggest four explanations for the gender differences in our results.

First, because women are generally higher in EI than men, it is possible that the gender differences in correlations are due to a threshold effect. There may be a minimum level of EI that is needed to function effectively in social situations, and the proportion of men who fall below this threshold may be higher than the

proportion of women. Because women have higher MSCEIT scores than men, women (as a group) may have attained that threshold. Differences in scores for women, then, would not explain variance in social competence. Researchers would need to test these hypotheses in a sample with a large number of low-scoring women to see whether the effects are due to EI or gender. In the present studies, the number of women with low EI was too small to test such questions.

Second, it may be the case that the MSCEIT is not tapping into EI for women in the same way as it does for men. Emotional abilities may operate or manifest differently for men and women. In the United States, women are expected to be more adept emotionally than men (e.g., L. R. Brody & Hall, 2000); thus, their abilities may be quite different.

Third, emotions operate within social norms, and the norms governing appropriate gendered behavior for men and women are different. In everyday experience, expressing emotions that violate social norms and display rules can lead to social consequences (Frijda & Mesquita, 1994; Saarni, 1999); thus, learning to regulate these emotions is adaptive (Goffman, 1959; Hochschild, 1983). Gender norms may influence how emotional abilities operate in men and women. The MSCEIT may be biased in that it better assesses the emotional abilities of men (and thus better predicts relevant social outcomes for men), but it may not capture the abilities of women adequately (and thus is not related to social outcomes for women).

Finally, we may have selected gendered conceptualizations of social competence. Despite our efforts to use social competence measures that were comparably applicable to men and women, there were significant gender differences on each measure. As a result, our social competence outcomes may have been more valid for men than for women.

#### *What Are the Limitations of the EI Measures?*

In the studies reported here, we used only one self-report and one performance test of EI, but at present these are the only available instruments of EI that map onto Mayer and Salovey's (1997) theoretical model. Thus, the lack of association between the two measures may not generalize beyond these tests. For example, on the SREIS, we asked participants about their emotional abilities (e.g., "Do you have a good emotions vocabulary?"), not whether they believed in their ability to use these skills. A well-designed self-efficacy measure of EI may correlate more strongly with a performance measure (Bandura, 1977, 1997).

It is likely that the overlap between the SREIS and many of the personality measures was due to both shared method variance and similar semantic overlap among the items on the scales, although we were unable to test these hypotheses in the present studies. For example, items on the Emotion Management subscale of the SREIS resemble items on both the Neuroticism and Well-Being subscales. Moreover, the reliability of the SREIS was not ideal in all studies (.84, .77, and .66 for Studies 1, 2, and 3, respectively). A more comprehensive self-report measure may yield slightly different findings than those presented here.

Although studies have shown that the MSCEIT predicts a wide range of criteria in multiple life domains (see Mayer et al., 2004), it is possible that the MSCEIT is limited in its ability to measure Mayer and Salovey's (1997) four-domain model of EI. For exam-

ple, the MSCEIT does not assess real-time emotion regulation or the ability to express emotion effectively. There also is concern that consensus scoring on the MSCEIT reflects conformity to social norms rather than skill (R. D. Roberts, Zeidner, & Matthews, 2002). However, in the domain of emotions, skill and conformity are not disentangled easily because emotional skills necessarily reflect attunement to social norms and expectations (Lopes et al., 2004). In addition, there is high agreement between expert and consensus scores, which indicates that emotions experts generally view consensual responses as correct (Lopes et al., 2004). MSCEIT scores also are not correlated significantly with social desirability (David, 2005; Lopes et al., 2003).

#### *Future Directions*

The present research does not address three important issues. First, we know little about the processes through which EI operates in interpersonal relationships. The conceptualization of EI may be more complex in social situations. For example, it may be necessary to assess the EI of both friends when studying relationship quality because there may be an additive effect of EI in dyads (Brackett et al., 2005). Additionally, it would be important to test whether EI scores predict social success during other interactions, including situations that involve cooperation or unequal distributions of power. Moreover, there are no published experiments with mood inductions to assess whether EI skills are instrumental to achieving social success when in a negative emotional state, for instance. Such studies also will allow researchers to identify the processes through which EI operates in interpersonal relationships.

Second, we know little about why men and women differ in their performance on the MSCEIT and why the MSCEIT predicts social competence for men but not for women. Any of the explanations described above are possible. The results of this research, in combination with previous investigations, provide sufficient evidence that gender is an important variable to examine in both theories of emotion and empirical investigations.

Finally, in this study, we focused on EI as a coherent unified construct and conducted all analyses by using EI total scores. We did not examine the contribution of the individual abilities comprising EI (i.e., the perception, use, understanding, and management of emotion) to social functioning. It is possible that each emotional ability explains unique variance in various aspects of social functioning.

#### *Conclusion*

Although research on EI is in its incipient stages, these studies suggest that measuring EI with performance tests such as the MSCEIT, as opposed to self-report inventories, makes it possible to analyze the degree to which emotional abilities contribute to social functioning. There is much to be learned about EI. Indeed, performance tests such as the MSCEIT likely will be updated as we learn more about the construct. As an analogy, our knowledge of how intelligence is measured and what it predicts is the product of almost a full century of research.

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## Appendix

## Self-Rated Emotional Intelligence Scale

The following set of items pertains to your insight into emotions. Please use the rating scale below to describe how accurately each statement describes *you*. Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex as you are, and roughly your same age. Please read each statement carefully, and then write the letter that corresponds to how inaccurately or accurately each statement describes you.

	Very inaccurate 1	Moderately inaccurate 2	Neither nor 3	Moderately accurate 4	Very accurate 5
Number	Domain	Item wording			
1.	P	By looking at people's facial expressions, I recognize the emotions they are experiencing.			
2.	U	I am a rational person and I rarely, if ever, consult my feelings to make a decision (r).			
3.	R	I have a rich vocabulary to describe my emotions.			
4.	M <sub>1</sub>	I have problems dealing with my feelings of anger (r).			
5.	M <sub>2</sub>	When someone I know is in a bad mood, I can help the person calm down and feel better quickly.			
6.	P	I am aware of the nonverbal messages other people send.			
7.	U	When making decisions, I listen to my feelings to see if the decision feels right.			
8.	R	I could easily write a lot of synonyms for emotion words like happiness or sadness.			
9.	M <sub>1</sub>	I can handle stressful situations without getting too nervous.			
10.	M <sub>2</sub>	I know the strategies to make or improve other people's moods.			
11.	P	I can tell when a person is lying to me by looking at his or her facial expression.			
12.	U	I am a rational person and don't like to rely on my feelings to make decisions.			
13.	R	I have the vocabulary to describe how most emotions progress from simple to complex feelings.			
14.	M <sub>1</sub>	I am able to handle most upsetting problems.			
15.	M <sub>2</sub>	I am not very good at helping others to feel better when they are feeling down or angry (r).			
16.	P	My quick impressions of what people are feeling are usually wrong (r).			
17.	R	My "feelings" vocabulary is probably better than most other persons' "feelings" vocabularies.			
18.	M <sub>1</sub>	I know how to keep calm in difficult or stressful situations.			
19.	M <sub>2</sub>	I am the type of person to whom others go when they need help with a difficult situation.			

*Note.* P = Perceiving Emotion; U = Use of Emotion; (r) = reverse scored; R = Understanding Emotion; M<sub>1</sub> = Managing Emotion (self); M<sub>2</sub> = Social Management.

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