The Construct and Criterion Validity of Emotional Intelligence and Its Potential Utility for Management Studies

Kenneth S. Law
Hong Kong University of Science and Technology

Chi-Sum Wong
The Chinese University of Hong Kong

Lynda J. Song
Hong Kong University of Science and Technology

In this study, the authors reviewed the definition of emotional intelligence (EI) and argued that EI is conceptually distinct from personality. In Study 1, the authors showed that EI was related to yet distinct from personality dimensions and that it had incremental predictive power on life satisfaction. The authors examined the construct validity of self-reports and others' ratings of EI using two samples in Study 2. In a student sample, parents' ratings explained additional variance in the students' life satisfaction and feelings of powerlessness after controlling for the Big Five personality dimensions. In the work sample, peer ratings were found to be significant predictors of job performance ratings provided by supervisors after controlling for the Big Five personality dimensions. Other implications for future research on EI are discussed.

Emotional intelligence (EI) has been an emerging topic among social and organizational psychologists in recent years (see, e.g., Fineman, 1993; Mayer & Salovey, 1997; Schutte et al., 2001). There have been serious academic discussions on whether EI is an elusive construct (Davies, Stankov, & Roberts, 1998) on its dimensions (Salovey & Mayer, 1990), and on whether it should be considered as an intelligence dimension (Mayer, Caruso, & Salovey, 2000a; Mayer & Salovey, 1997). Proponents of the EI construct have argued that it is distinct from traditional personality traits and general mental ability and that it is a meaningful construct that can be used to explain various psychological and managerial phenomena. These proponents have developed various EI-related scales to measure the construct. However, some scholars have voiced strong reservations concerning the reliability and validity of these scales. For example, Davies et al. (1988) reviewed all of the existing EI-related scales and demonstrated, through exploratory factor analyses, that most of the scales had salient cross-loadings on personality dimensions. However, Wong and Law (2002) reexamined the definition and domain of the EI construct and developed a new EI scale. Using this new EI scale, they showed that on top of general mental abilities (GMAs), EI was a good predictor of job performance. Given these opposing

views of EI, some researchers continue to develop new and revised EI measures (see, e.g., Salovey, Mayer, Caruso, & Lopes, in press; Schutte et al., 1998; Stough & Palmer, 2002), whereas others continue to take a conservative position and question the usefulness of EI for serious scientific research (see, e.g., Petrides & Furnham, 2000).

The major purposes of this study are threefold. First, we review the definition and domain of the EI construct and argue that when EI is properly defined, it is conceptually distinct from personality dimensions. Second, we examine a newly developed EI scale under the generally agreed EI definition and demonstrate empirically that as measured by this new scale, EI is distinct from personality dimensions. Third, in addition to conceptual and empirical distinctiveness, we also try to establish the predictive validity of EI in social and organizational settings. We use self- and others' ratings of EI to investigate its construct validity using multitrait–multimethod (MTMM) analyses. Furthermore, we illustrate the incremental predictive power of others' ratings of EI on psychological and work outcomes, over and above personality dimensions, using a series of hierarchical regression analyses.

Definition and Domain of EI

Psychology and management researchers were interested in studying human emotions long before the construct of EI was proposed. Salovey and Mayer (1990) were among the earliest to suggest the name *emotional intelligence* to refer to the ability of a person to deal with his or her emotions. They defined EI as "the subset of social intelligence that involves the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (p. 189). Despite this early definition of EI, there has been confusion regarding the exact meaning and domain of this construct. During the early stage of the development of the EI

Kenneth S. Law and Lynda J. Song, Department of Management of Organizations, Hong Kong University of Science and Technology, Hong Kong; Chi-Sum Wong, Department of Management, The Chinese University of Hong Kong, Hong Kong.

Correspondence concerning this article should be addressed to Kenneth S. Law, Department of Management of Organizations, Hong Kong University of Science and Technology, Clear Water Bay Road, Hong Kong. E-mail: mnlaw@ust.hk

construct, different researchers used slightly different definitions of EI, which has led to some variations in the domain of the construct. As Mayer et al. (2000a) commented, some of "these alternative conceptions *of emotional intelligence* [italics added] include not only emotion and intelligence per se, but also motivation, non-ability dispositions and traits, and global personal and social functioning" (p. 268). The Bar-On Emotional Quotient Inventory (EQi; Bar-On, 1997) is a well-known EI scale that belongs to this category.

Among various academics who have contributed to the development of the EI construct, two groups of scholars have been of prime importance. They are Davies et al. (1998) and Salovey and Mayer (1990). In 1998, Davies et al. qualitatively summarized the EI literature and developed from it a four-dimensional definition of EI. However, they did not develop any measure of EI. Instead, they used earlier work on EI and a group of EI-related measures to show that these measures loaded on the same factors as the Big Five personality dimensions. On the basis of these cross-loadings in a series of exploratory factors analyses, Davies et al. concluded that EI was elusive as a construct. Ironically, while building up the foundation of EI by drawing a four-dimensional definition of EI from the literature, they used early EI scales that were not based on this four-dimensional definition and concluded that EI was an elusive construct.

Two years later, Mayer, Caruso, and Salovey (2000b) used a slightly different definition of EI and developed the Multifactor Emotional Intelligence Scale. Mayer et al. followed the conceptualization developed by Salovey and Mayer (1990; Mayer & Salovey, 1997) and defined EI as a set of interrelated skills that can be classified within the following four dimensions:

> the ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth. (Mayer & Salovey, 1997, p. 10)

Although the definitions of EI used by Davies et al. (1998) and Mayer et al. (2000b) were not identical, the differences in the definitions were minor. As Ciarrochi, Chan, and Caputi (2000) commented in a review of the EI literature, "while the definitions of EI are often varied for different researchers, they nevertheless tend to be complementary rather than contradictory" (p. 540). They further pointed out that "in general, the various measures *(of EI)* cover [italics added] . . . four distinct areas: emotion perception, regulation, understanding, and utilization" (p. 540).

In this study, we use the four-dimensional definition of EI developed by Davies et al. (1998). These four EI dimensions are as follows:

1. *Appraisal and expression of emotion in oneself*. This relates to an individual's ability to understand his or her deep emotions and to be able to express emotions naturally. People who have good ability in this area will sense and acknowledge their emotions better than most people.

2. *Appraisal and recognition of emotion in others*. This relates to an individual's ability to perceive and understand the emotions of the people around them. People who rate highly in this ability will be very sensitive to the emotions of others as well as able to predict others' emotional responses.

3. *Regulation of emotion in oneself*. This relates to the ability of a person to regulate his or her emotions, enabling a more rapid recovery from psychological distress. A person with high ability in this area would be able to return quickly to normal psychological states after rejoicing or being upset. Such a person would also have better control of his or her emotions and would be less likely to lose his or her temper.

4. *Use of emotion to facilitate performance*. This relates to the ability of a person to make use of his or her emotions by directing them toward constructive activities and personal performance. A person who is highly capable in this dimension would be able to encourage him- or herself to do better continuously. He or she would also be able to direct his or her emotions in positive and productive directions.

We use Davies et al.'s (1998) definition of EI because it is more representative of the entire EI literature. Davies et al.'s review considered Mayer and Salovey's (1997; Salovey & Mayer, 1990) definition of EI. In addition, Davies et al.'s definition of EI is, in fact, quite similar to that of Mayer and Salovey and also matches well with Ciarrochi et al.'s (2000) summary of the four basic areas of EI. Davies et al.'s definition of the dimensions of EI allows us to focus on the nature and characteristics of the EI construct.

Nature of EI

EI has its roots in the concept of *social intelligence* first identified by Thorndike in 1920. Thorndike (1920) defined social intelligence as "the ability to understand and manage men and women, boys and girls—to act wisely in human relations" (p. 228). Following Thorndike's ideas, Gardner (1993) included interpersonal and intrapersonal intelligences in his theory of multiple intelligences. According to Gardner, social intelligence, which is one among seven intelligence domains, comprises an individual's interpersonal and intrapersonal intelligences. Intrapersonal intelligence relates to one's ability to deal with oneself and to "symbolize complex and highly differentiated sets of feelings" (p. 239) within the self. Interpersonal intelligence relates to one's ability to deal with others and to "notice and make distinctions among other individuals and, in particular, among their moods, temperaments, motivations and intentions" (p. 239). EI can be viewed as a combination of the intrapersonal and interpersonal intelligence of an individual.

Given its roots in social intelligence, Mayer et al. (2000a) argued that the conceptual background of EI met traditional standards for intelligence measures. They highlighted three criteria that qualify EI as a facet of intelligence. These are conceptual, correlational, and developmental criteria. The conceptual criterion requires that EI reflect mental abilities instead of preferred ways of behaving. *Intelligence* refers to the ability of a person. Gardner (1993) defined intelligence as "the *ability* [italics added] to solve problems, or to fashion products, that are valued in one or more cultural or community settings" (p. 7). To fulfill the conceptual criterion and label EI as an intelligence facet, one must provide evidence that EI is not a personality trait or a preferred way of behaving but is itself a set of abilities. We argue conceptually that EI is defined as a set of abilities on the basis of its theoretical definition. We also cite empirical evidence that EI has been shown to be distinct from personality dimensions as follows.

As defined earlier, EI consists of a set of abilities that a person uses to understand, regulate, and make use of his or her emotions. Emotional understanding, regulation, and utilization reflect the capability of a person to manage his or her emotions. Some people

have higher competence to do so; some have less competence. As a particular type of competence, EI is different from personality traits that reflect tendencies to think, feel, and behave in certain ways. In this competence sense, the four-dimensional definition qualifies EI as abilities and, therefore, as one possible facet of intelligence (see, e.g., Mayer & Salovey, 1997; Mayer et al., (2000a); Salovey & Mayer, 1990). There is also empirical evidence that EI abilities are distinct from personality traits. When developing the Multifactor Emotional Intelligence Scale, Mayer and Salovey (1997) provided some preliminary data to show that EI was different from personality traits. Wong and Law (2002) also showed in multiple samples that EI as measured under Davies et al.'s (1998) four-dimensional definition, was empirically distinct from the Big Five personality dimensions.

Mayer et al.'s (2000a) second criterion is the correlational criterion. If EI is an intelligence facet, it "should represent a set of correlated abilities that are similar to, but distinct from, mental abilities" (p. 270). In other words, if EI is an intelligence facet, it should correlate with other intelligence facets, such as GMAs. These correlations cannot be too high (discriminant validity), nor can they be too low (convergent validity). Both Mayer et al. and Wong and Law (2002) showed empirically that the dimensions of EI were moderately correlated among themselves but only mildly correlated with general mental abilities. There is, therefore, some empirical evidence that EI meets the correlational criterion of an intelligence facet.

Mayer et al.'s (2000a) third argument that EI could be conceptualized as an intelligence facet is that intelligence should be developmental in nature. The verbal ability of a person, for example, should increase as one becomes more mature. Wong, Wong, and Law (2002) found that EI is positively correlated with age among incumbents of six different types of jobs. Mayer et al. also showed with a series of studies, that EI increased with age and experience, which qualifies it as an ability rather than a personality trait.

Discriminant and Predictive Validity of EI

On the basis of the above discussion, it is clear that the definition and domain of EI have been gradually established. It also seems clear, however, that further and stronger evidence that EI possesses the three basic characteristics of an intelligence facet as suggested by Mayer et al. (2000a) is needed. To establish the construct validity of EI, we need to "demonstrate its partial (or complete) independence from other, seemingly analogous, concepts" (Davies et al., 1998, p. 989). As mentioned earlier, Davies et al. (1998) factor analyzed some existing EI-related scales and personality measures in multiple samples and concluded that EI was elusive.

One possible reason for Davies et al.'s (1998) finding is that the EI-related scales used in their investigations were early scales related to EI. During that time, a definition of EI had not been systematically developed. Davies et al. also admitted that the scales they identified were only EI-related scales. These scales were not developed according to the four-dimensional view then proposed by Davies et al. In fact, some earlier scales had not even been identified as EI scales by their developers. The use of these scales in identifying EI may, therefore, be questionable and unfair. In response to the findings by Davies et al., Wong and Law (2002) developed a new EI scale (labeled as the *Wong and Law EI Scale*,

or WLEIS[1] for easy reference) following the four-dimensional definition of EI as introduced by Davies et al. Wong and Law used both exploratory and confirmatory factor analyses (CFAs) in the scale development and validation process to show that EI as measured by the WLEIS, was distinct from the Big Five personality dimensions. To examine the overall usefulness of the EI construct, we used CFA in this study to compare the distinctiveness of the WLEIS and various EI-related scales included in the Davies et al. study from the Big Five personality dimensions. On the basis of the data collected, we found that the WLEIS was distinct from the Big Five personality dimensions, although they were moderately correlated because of conceptual overlaps.

Because EI is conceptualized as an intelligence facet, it is an ability measure instead of a personality measure. This leads to our first hypothesis, which is the core focus of Study 1:

> *Hypothesis 1*: EI is distinct from, but correlated with, the Big Five personality dimensions.

The construct validity of the WLEIS was further investigated by the MTMM method with self- and others' ratings of EI. In Study 2, we deliberately chose two criterion variables from the EI literature, life satisfaction and powerlessness, which should have positive and negative correlations with EI, respectively. Life satisfaction was used as a criterion variable because proponents of EI have argued that theoretically, life satisfaction should be positively related to EI. Intrapersonal emotional recognition and management helps an individual deal with his or her emotions. A person with high EI should be able to recognize his or her emotions, to regulate those emotions, and to use them to facilitate performance. As a result, this person should be happier as a whole in life. Several empirical studies have provided evidence of this positive relationship (e.g., Wong & Law, 2002; Wong et al., 2002). *Powerlessness* refers to the extent to which one regards one's experiences as being fatalistically determined, in contrast with their being under one's control (Pearlin & Schooler, 1978). Specifically, powerlessness is similar to a temporal variable showing one's state of mind toward one's control over life problems and experiences. A person with high EI would be less affected by his or her emotions, be able to direct emotions in a positive direction, and have lower chances of feeling depressed. EI also includes a dimension of understanding others' emotions. A person with high EI would also be able to interpret others' moods correctly and therefore have a higher chance of forming close relationships and getting social support in general. As a result, this person should be less likely to feel powerless. There is some evidence in the literature that feelings of powerlessness are related to negative emotions such as sadness and fear (e.g., Roseman, Dhawan, Rettek, & Naidu, 1995). These ideas lead to our second and third hypotheses:

> *Hypothesis 2*: EI is positively associated with life satisfaction.

> *Hypothesis 3*: EI is negatively associated with feelings of powerlessness.

Finally, EI will be a useful construct for management studies if it has predictive power for job performance. It is intuitive that EI

---

[1] The 16 items of the WLEIS and a short description of the scale development process are presented in the Appendix.

would affect job performance. Understanding and regulation of one's emotions as well as understanding of others' emotions are the core factors affecting intrapersonal well-being and interpersonal relations. In a negative sense, a person who is not sensitive to his or her own emotions and who is unable to regulate his or her emotions would have problems interacting with others. Because interpersonal interactions are a basic component of many jobs, it is reasonable to hypothesize that EI would affect job performance in general. On the positive side, the use of the emotion dimension of EI describes one's ability to direct emotions to performance. A person with high EI would be able to direct positive emotions to high performance and redirect negative emotions to generate constructive performance goals. As Mayer and Salovey (1997) summarized, "using the emotions as one basis for thinking, and thinking with emotions themselves, may be related to important social competencies and adaptive behavior" (p. 22).

Theoretically, if we follow the *social exchange framework* (Blau, 1964), in which organizations use different types of exchanges to facilitate performance, and social exchange is one important type of exchange in organizations, then we know that factors that facilitate social exchanges improve employee performance. Social exchange involves interactions. As we argued above, emotional understanding, regulation, and utilization would help to cultivate positive social interactions and exchanges in an organization and, as a result, facilitate employee performance.

There have also been similar arguments used in the previous literature to justify an EI–performance link. On the basis of Atwater and Yammarino's (1992) work on self–other rating agreements, Sosik and Megerian (1999) argued that one's understanding of one's and others' affective ratings (as a result of one's EI) would influence self–other rating agreements, which, in turn, would influence performance outcomes. Lam and Kirby (2002) showed that overall, EI explains individual cognitive-based performance above and beyond the level attributable to general intelligence. Dulewicz and Higgs (2000) showed that EI was predictive of the career success of 100 managers.

On top of showing a main effect of EI on job performance, Wong and Law (2002) argued that emotional labor moderates the EI–performance link and provided preliminary evidence for EI's predictive validity on job performance. *Emotional labor* refers to the extent to which an employee is required to present an appropriate emotion in order to perform a job in an efficient and effective manner (Hochschild, 1983). Both Lam and Kirby (2002) and Wong and Law used self-ratings of EI. In the current study, we used colleagues' ratings of EI to predict supervisory ratings of job performance. This design provided much stronger support for the utility of the EI construct in management studies. The above discussion leads to the final hypothesis of this study:

> *Hypothesis 4*: EI is positively associated with employees' job performance.

Hypothesis 1 was tested in Samples 1 and 2 of Study 1. Hypotheses 2 and 3 were tested with Sample 1 of Study 2. Hypothesis 4 was tested with Sample 2 of Study 2.

Study 1

In this study, we collected data that are comparable to the Davies et al. (1998) data, which enabled a more rigorous test of the

distinctiveness of the EI construct using CFAs. The results of Study 1 were threefold. First, a series of CFAs on Sample 1 illustrated that the EI-related scales used by Davies et al. are not psychometrically sound. Second, CFAs of the new WLEIS, developed on the basis of Davies et al.'s four-dimensional view, showed that EI is distinct from the Big Five personality dimensions. This result is cross-validated with Sample 2. Third, the WLEIS explained incremental variance in life satisfaction over and above that accounted for by the Big Five personality dimensions in both Samples 1 and 2.

Data for the first sample in Study 1 were collected from university students in two stages. In the first stage, we included only three of the five self-report EI-related scales that were used in the Davies et al. (1998) study, because two of the EI-related scales were not made available to us. After all five EI-related scales were made available, we collected data using all of the scales from an additional sample of students. The data collected during these two stages were combined to form Sample 1 of Study 1. In both stages of data collection, we also used the WLEIS. Given the positive results from Sample 1, which confirmed our arguments, we cross-validated the results with another sample of university students. This cross-validation sample formed Sample 2 of Study 1.

Method

Sample and Procedures

Respondents in the first stage consisted of 202 undergraduate students at a large university in Hong Kong. The students were asked to make self-assessments on EI-related scales, Big Five personality scales, and life satisfaction measures in an introductory management course. We included most of the self-report measures that were examined by Davies et al. (1998) for easy comparison. The EI-related scales that were included at this stage were the Trait Meta-Mood Scale (TMM; Salovey, Mayer, Goldman, Turvey, & Palfai, 1995), the Emotional Empathy Scale (EES; Mehrabian & Epstein, 1970), and the Toronto Alexithymia Scale (TAS; Bagby, Taylor, & Parker, 1994). After obtaining items for the Emotional Control Questionnaire (ECQ; Roger & Najarian, 1989) and the Affective Communication Test (ACT; Friedman, Prince, Riggio, & Dimatteo, 1980), in our second stage of data collection, we added these two scales to all of the measures that were used in the first stage. The respondents in the second stage consisted of 216 undergraduate business students from another large university in Hong Kong. They filled out this survey as a partial fulfillment of the course requirements for an introductory organizational behavior course. Data collected in these two stages were pooled together to form Sample 1 of Study 1. The sample size for the Big Five personality scales, the TMM, the EES, and the TAS was 418, and the sample size for the ECQ and ACT scales was 216.

Having obtained evidence to confirm our arguments, we collected a further sample to provide cross-validation data on personality measures, the WLEIS, and life satisfaction. This sample consisted of 314 undergraduate students from the same university as the participants in the first stage of Sample 1. All questionnaires were administered in English to the Hong Kong participants.

Measures

EI-related measures. We used the same self-report EI-related measures as did Davies et al. (1998). These included (a) the 30-item TMM, which measures three EI subscales: Attention, Repair, and Clarity; (b) the 33-item EES; (c) the 20-item TAS, which measures EI with three subscales: Difficulty Identifying Feelings, Difficulty Describing Feelings, and

Externally Oriented Thinking; (d) the 32-item ECQ; which measures four EI-related subscales: Rehearsal, Emotional Inhibition, Benign Control, and Aggression Control; and (e) the 13-item ACT.).

Because all of the above EI-related scales did not measure EI on the basis of Davies et al.'s (1998) proposed four-dimensional definition, we also included the newly developed 16-item WLEIS as a final measure of EI. The response format of the WLEIS is a 7-point Likert-type scale (1 = totally disagree to 7 = totally agree). A sample item from the Self-Emotions Appraisal is "I really understand what I feel." A sample item from the Use of Emotion to facilitate performance dimension is "I would always encourage myself to try my best." A sample question from the Regulation of Emotion dimension is "I can always calm down quickly when I am very angry." A sample item from the Others' Emotion Appraisal is "I have good understanding of the emotions of people around me." The full WLEIS scale and a short description of its development process are presented in the Appendix.

Personality. In Sample 1, we used the short form of the Neuroticism, Extraversion, and Openness Personality Inventory to capture the Big Five personality dimensions (Costa & McCrae, 1985). Each dimension contained 12 items. In Sample 2 (the cross-validation sample), we used the Big Five adjective scale that was developed by McCrae and Costa (1987). Because all the data were collected in class as an exercise on dispositional variables, we had limitations on the length of the questionnaires. To be fully comparable to the Davies et al. (1998) study, we included all five EI-related scales. To limit the length of the questionnaire, we randomly selected 6 items for each of the Big Five personality dimensions from the original 80-item scale, resulting in a 30-item measure. Because all the items within each Big Five dimension of the McCrae and Costa scale measure the same construct, random selection of 6 items from each dimension would not affect the validity of the scale. Classical measurement theory argues that fewer items from each dimension might lower the reliability of the measures. However, our results showed that reliabilities of the Big Five dimensions were comparable to the original 80-item scale in the literature (Costa & McCrae, 1985). In fact, the coefficient alphas of the five personality dimensions were higher than those of the short form of the NEO-PI in Sample 1, indicating that the reliabilities of these 30 items were acceptable.

Life satisfaction. The nine-item life satisfaction measure, constructed by A. Campbell, Converse, and Rodgers (1976), was adopted. This is a well-established measure of the general satisfaction of an individual toward his or her life.

Analyses

We conducted two sets of analyses of Sample 1. In the first set of analyses, we randomly grouped the items to form three indicators for each EI-related dimension and each personality dimension and used these indicators as inputs in the CFA. This method of averaging indicators to form new indicators to reduce the number of observed variables in CFAs is quite common in the literature (see, e.g., Mathieu & Farr, 1991; Mathieu, Hofmann, & Farr, 1993). We used CFA instead of exploratory factor analysis because the factor structure of all the constructs was known. Our purpose in Study 1 was to confirm the factor structure of the EI and personality scales and to study their interfactor correlations to determine whether they are distinct constructs.

In the second set of analyses, we conducted a series of hierarchical regressions to show the incremental validity of the WLEIS in predicting life satisfaction above and beyond the Big Five personality dimensions. We first entered the personality dimensions as control variables for predicting life satisfaction. The four dimensions of the WLEIS scale were then added as the next set of predictors. If the change in model R^2 after adding the WLEIS were significant, EI would have incremental explanatory power in predicting life satisfaction above and beyond the personality dimensions. This would be considered an additional piece of evidence to demonstrate that EI and the personality dimensions are distinct constructs. On the

cross-validation sample (Sample 2 of Study 1), we conducted a CFA and a hierarchical regression to cross-validate the results of the WLEIS used in Sample 1.

Results

Summary Statistics

Descriptive statistics, coefficient alphas, and correlations among all the measures for the two samples are presented in Tables 1 and 2. Results in Table 1 indicate that most of the measures have acceptable reliability estimates. Table 2 shows that some personality and EI-related dimensions were moderately correlated, although none of the correlations exceeded .50 except for the correlation between the ACT and Extraversion ($r = .59$).

CFA of the Factorial Structure of EI

Table 3 shows the results when each EI-related measure was factor analyzed with the Big Five personality dimensions through the use of CFA. We included only one EI-related measure in each CFA for two reasons. First, the sample size of 216 did not allow us to include more measures without a severe loss of statistical power. Second, and more important, we could examine the structure and goodness of fit of each EI-related measure if we study each one independently. The first row of Table 3 shows that when the 9 TMM indicators (3 indicators for each TMM dimension) were factor analyzed with the 15 Big Five personality indicators (3 indicators for each Big Five personality dimension) and eight latent factors were specified, the model fit indices were very marginal (comparative fit index [CFI] = .88; Tucker–Lewis Index [TLI] = .85; root-mean-square error of approximation [RMSEA] = .062) The last row under TMM in Table 3 (i.e., the fourth row in the table) shows that when a second-order factor was added underlying the 3 TMM factors, the model fit indices dropped significantly (CFI = .83; TLI = .81; RMSEA = .072). These results led to two conclusions concerning the TMM scale. First, the scale might not have a clear factorial structure distinct from the Big Five dimensions. Second, there might not be a higher order factor underlying the three TMM dimensions.

Table 3 shows that the results of the CFA for many of the EI-related scales also have quite unsatisfactory fit indices. For example, the fit indices for the ECQ were quite low (equal to or less than .85) for both the first-order and the second-order models. The same was true for the ACT (CFI = .85; TLI = .80; RMSEA = .077). The first-order model fit for the TAS was marginal (CFI = .90; TLI = .88; RMSEA = .055), whereas the second-order model fit (three TAS factors, one second-order TAS factor, and five Big Five personality factors) was quite low (CFI = .86; TLI = .84; RMSEA = .064). The above analyses led to another possible explanation of Davies et al.'s (1998) results. Although it may still be true that these EI-related measures are cross-loaded with the Big Five personality dimensions, the cross-loadings may be a result of their poor representation of the EI construct. In other words, Davies et al.'s findings might be due to the construct validity of the EI-related scales that were included in their investigation.

The last two rows of Table 3 show the CFA results when the WLEIS was analyzed with the Big Five dimensions. In Sample 1, both the first-order model (CFI = .92; TLI = .91; RMSEA = .053) and the second-order model (CFI = .91; TLI = .90;

Table 1
Descriptive Statistics and Coefficient Alphas Among All Measures in Study 1

Variables	No. of items	Sample 1			Sample 2		
		M	*SD*	α	*M*	*SD*	α
Neuroticism	12/6	3.10	0.60	.81	3.50	0.77	.75
Extraversion	12/6	3.28	0.46	.70	3.84	0.76	.79
Openness	12/6	3.19	0.41	.57	3.72	0.64	.61
Agreeableness	12/6	3.29	0.41	.62	4.28	0.60	.67
Conscientiousness	12/6	3.30	0.45	.67	4.00	0.71	.70
TMM1 (Repair)	6	3.36	0.65	.70			
TMM2 (Attention)	13	3.52	0.46	.73			
TMM3 (Clarity)	11	3.13	0.45	.66			
EES (Emotional Empathy)	33	3.30	0.31	.74			
TAS1 (Difficulty Identifying Feelings)	7	2.72	0.68	.79			
TAS2 (Difficulty Describing Feelings)	5	2.90	0.68	.69			
TAS3 (Externally Oriented Thinking)	8	2.74	0.44	.46			
ECQ1 (Rehearsal)	8	2.86	0.68	.76			
ECQ2 (Emotional Inhibition)	8	2.67	0.60	.69			
ECQ3 (Benign Control)	8	2.94	0.55	.64			
ECQ4 (Aggression Control)	8	3.05	0.44	.49			
ACT (Affective communication)	13	3.06	0.46	.68			
WLEIS1 (Self-Emotions Appraisal)	4	4.01	1.05	.89	4.84	1.09	.90
WLEIS2 (Regulation of Emotion)	4	3.78	1.12	.89	4.27	1.20	.89
WLEIS3 (Use of Emotion)	4	4.09	0.92	.80	4.57	0.99	.79
WLEIS4 (Others-Emotions Appraisal)	4	4.15	0.96	.89	4.60	1.15	.93
Life Satisfaction	9	4.92	0.89	.90	4.80	0.89	.90

Note. $N = 418$ for all variables in Sample 1 except for the ACT and the ECQ, for which $N = 216$; $N = 314$ for Sample 2. α = the coefficient alpha of the scale or dimension; 12/6 = 12 items were used for Sample 1, and 6 were used for Sample 2; TMM1, TMM2, and TMM3 = the three dimensions of Trait Meta-Mood Scale; EES = Emotional Empathy Scale; TAS1, TAS2, and TAS3 = the three dimensions of the Toronto Alexithymia Scale; ECQ1, ECQ2, ECQ3, and ECQ4 = the four dimensions of the Emotional Control Questionnaire; ACT = Affective Communication Test; WLEIS1, WLEIS2, WLEIS3, and WLEIS4 = the four dimensions of the Wong and Law Emotional Intelligence Scale.

RMSEA = .057) showed good model fit. Again, in the cross-validation sample (Sample 2), the first-order model (CFI = .92; TLI = .90; RMSEA = .056) showed good model fit and the second-order model (CFI = .90; TLI = .89; RMSEA = .060) showed marginal fit.

These results support two important conclusions regarding the four-dimensional EI construct. First, the four EI dimensions, as measured by the WLEIS, were distinct from the Big Five dimensions. Although some EI dimensions were moderately correlated with Neuroticism ($r = .44$ and .52 in Samples 1 and 2, respectively) and Conscientiousness ($r = .59$ in both samples), EI is different from these personality dimensions. The correlations are expected because EI is conceptually related to these dimensions. For example, neuroticism is a general tendency to overreact to negative stimuli from the environment. Although neuroticism is conceptually distinct from EI, which reflects one's ability to understand, regulate, and use one's emotions, it is very likely that a person with low EI would be a neurotic person as well. We therefore see the moderate correlations between EI and some personality dimensions, as expected. However, results of the CFA clearly showed that EI is distinct from the Big Five personality dimensions. The second conclusion regarding the WLEIS, as illustrated in Table 3, is that a meaningful overall construct underlies the four EI dimensions. The second-order model for the WLEIS generated acceptable fit indices in both the first sample and the cross-validation sample. On the basis of the above analyses, we concluded that EI is an overall latent construct underlying

its four dimensions. In addition, when properly defined, EI is related to, yet different from, the Big Five personality dimensions. Hypothesis 1 was supported by the data.

Hierarchical Regression Analyses

Table 4 shows the results of the hierarchical regression for both Sample 1 and the cross-validation sample (Sample 2). The results were quite similar in both of these samples. Neuroticism, Extraversion, and Agreeableness were the three major personality traits affecting life satisfaction. When the four EI dimensions were added to the regression model, the increases in the model multiple correlation squared were significant ($p < .01$), although the absolute magnitude was not large ($\Delta R^2 = .05$ and .06 for Sample 1 and Sample 2, respectively). The 5%–6% additional variance accounted for in life satisfaction is understandable, because as we saw in Table 2, EI is moderately correlated with the Big Five personality dimensions. In addition, life satisfaction was moderately correlated with the personality dimensions; the Pearson correlations between life satisfaction and Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness were .48, .43, .18, .26, and .33, respectively. There was limited room for additional variance to be accounted for by EI when the Big Five personality dimensions were in the model. As a result, we interpreted the additional 5% to be of reasonable practical significance.

Table 2
Correlations Among Measures in Sample 1 and Sample 2 of Study 1

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1. NEURO	—	.01	.13	−.05	−.24													−.26	−.45	−.24	−.07	−.35
2. EXTRA	.38	—	.39	.24	.22													.23	−.01	.22	.19	.27
3. OPEN	−.01	.13	—	.00	.10													.13	−.13	.16	.20	.03
4. AGREE	−.20	.23	.10	—	.21													.19	.12	.05	.08	.20
5. CON	−.29	.25	.03	.30	—													.28	.26	.36	.21	.13
6. TMM1	−.48	.47	.15	.31	.26	—																
7. TMM2	−.09	.18	.25	.22	.05	.09	—															
8. TMM3	−.36	.17	.14	.16	.37	.29	.16	—														
9. EES	.25	.11	.28	.35	.05	.08	.40	.03	—													
10. TAS1	.45	−.19	−.04	−.37	−.35	−.33	−.17	−.53	−.09	—												
11. TAS2	.36	−.24	−.08	−.20	−.24	−.21	−.12	−.48	−.04	.48	—											
12. TAS3	.06	−.21	−.40	−.21	−.13	−.24	−.36	−.25	−.40	.25	.20	—										
13. ECQ1	.39	−.27	−.15	−.30	−.24	−.38	.05	−.34	−.07	.42	.23	.15	—									
14. ECQ2	.01	−.37	−.12	−.18	−.15	−.22	−.23	−.33	−.37	.23	.53	.30	.14	—								
15. ECQ3	.43	−.09	−.06	−.35	−.38	−.26	.05	−.40	−.06	.45	.32	.26	.25	.05	—							
16. ECQ4	−.01	.12	.12	−.34	.11	.10	.00	−.02	−.09	.10	−.08	−.14	.12	−.05	.05	—						
17. ACT	−.23	.59	.29	.13	.18	.31	.20	.20	.22	−.07	−.36	−.34	−.12	−.43	−.05	.21	—					
18. WLEIS1	−.30	.06	.15	.09	.30	.19	.02	.48	−.04	−.04	−.31	−.04	−.12	−.33	−.25	.04	.19	—	.34	.30	.45	.25
19. WLEIS2	−.43	.06	.03	.06	.27	.21	−.14	.28	−.25	−.19	−.08	.05	−.25	.08	−.43	−.10	.03	.54	—	.23	.14	.13
20. WLEIS3	−.22	.11	.22	.02	.44	.23	−.01	.32	−.09	−.11	−.12	−.07	−.16	−.27	−.12	.18	.24	.54	.52	—	.27	.32
21. WLEIS4	−.01	.03	.16	.04	.22	.05	.00	.16	.07	−.06	−.13	−.03	.00	−.27	−.14	.14	.21	.41	.33	.44	—	.12
22. LIFESAT	−.48	.44	.18	.26	.33	.48	.19	.33	.11	−.29	−.23	−.24	−.35	−.31	−.21	.16	.41	.34	.33	.37	.17	—

Note. Figures on the lower triangle are correlations for Sample 1; numbers on the upper triangle are correlations for Sample 2. $N = 418$ for all variables in Sample 1 except for the ACT and the ECQ, for which $N = 216$; $N = 314$ for Sample 2. NEURO = Neuroticism; EXTRA = Extraversion; OPEN = Openness; AGREE = Agreeableness; CON = Conscientiousness; TMM1, TMM2, and TMM3 = the three dimensions of Trait Meta-Mood Scale; EES = Emotional Empathy Scale; TAS1, TAS2, and TAS3 = the three dimensions of the Toronto Alexithymia Scale; ECQ1, ECQ2, ECQ3, and ECQ4 = the four dimensions of the Emotional Control Questionnaire; ACT = Affective Communication Test; WLEIS1, WLEIS2, WLEIS3, and WLEIS4 = the four dimensions of the Wong and Law Emotional Intelligence Scale; LIFESAT = Life Satisfaction.

Study 2

Our major purpose in Study 1 was to show that with appropriate measures, EI is distinct from the Big Five personality dimensions. EI also accounts for a significant proportion of the variance in life satisfaction, above and beyond that of the Big Five personality dimensions. However, the self-report nature of the WLEIS limited the validity of the evidence in Study 1. For example, its explanatory power for life satisfaction may be due to common method variance (see, e.g., Bagozzi & Yi, 1990; Williams & Brown, 1994). Therefore, we needed additional evidence to demonstrate the predictive power of EI using non-self-report measures of EI.

Study 2 addressed this issue by providing evidence of discriminant and convergent validity, using multiple raters to assess EI. Study 2 consisted of two samples: one of high school students and their parents and the other a work sample with self-, peer, and supervisory ratings of EI and job performance.

Study 2 contributed to the criterion validity of EI as well as to its construct validity. To demonstrate the construct validity of EI, we used multiple assessors (parent and self-ratings of students in Sample 1; self-, peer, and supervisory ratings in Sample 2) to measure EI and related constructs and analyzed the data using the MTMM technique. To demonstrate the criterion validity of EI, we used parents' ratings of EI to predict students' self-ratings of life satisfaction and feelings of powerlessness, after controlling for the Big Five personality dimensions. By making use of the work sample in Sample 2, we showed that peers' ratings of an employee's EI were a useful predictor of a supervisor's rating of job performance of the same employee, after controlling for relevant variables and

personality dimensions. In both cases, common method variance could be avoided because the dependent variable and the predictor (i.e., EI) were collected from different sources.

Method

Participants

Sample 1. In this first sample, we collected data by distributing 560 sets of questionnaires in two high schools in Anhui province of the People's Republic of China. All respondents were students in Grade 12 of high school. Each questionnaire set included one self-rating questionnaire to be completed by the students and one parent-rating questionnaire to be completed by their parents. Students were asked to fill in their self-rating questionnaire, which assessed their own EI, the Big Five personality dimensions, their life satisfaction, and their perception of powerlessness. One parent of each student received the parent questionnaire, which asked them to evaluate the EI and personality of their son or daughter. Out of the 560 sets of questionnaires (i.e., 1,120 questionnaires), we received 889 valid responses, a return rate of 79.4%.

Sample 2. We collected data from a cigarette factory in Anhui province. One hundred eighty-one sets of questionnaires were distributed to first-line supervisors in the factory. In each set, there were three questionnaires, sealed in separate envelopes. Each supervisor received one set of questionnaires in which he or she was asked to rate two of his or her immediate subordinates (Subordinates A and B). The supervisor was then instructed to give the two subordinate questionnaires to Subordinates A and B separately. Subordinate A was required to rate his or her own EI and job performance as well as the EI and job performance of his or her peer (i.e., Subordinate B), whose name was written on the questionnaire by the supervisor. Similarly, Subordinate B was asked to rate his or her own EI and job performance as well as that of Subordinate A. All the question-

Table 3
Results of Confirmatory Factor Analyses for Study 1

Measure	Model fit indices						Dimension	Factors				
	χ^2	df	RMSEA	TLI	CFI	IFI		NEURO	EXTRA	OPEN	AGREE	CON
TMM[a]	M_1[d] = 568.60	224	.062	.85	.88	.88	TMM1	−.59	.66	.25	.42	.36
							TMM2	.11	.23	.49	.35	.08
							TMM3	−.46	.28	.15	.30	.54
	M_2 = 714.72	234	.072	.81	.83	.84	Second order	−.72	.78	.39	.59	.60
EES[a]	336.50	120	.066	.86	.89	.89		.33	.16	.54	.49	.08
TAS[a]	M_1 = 485.79	224	.055	.88	.90	.90	TAS1	.57	−.26	−.06	−.50	−.52
							TAS2	.46	−.32	−.09	−.27	−.36
							TAS3	.10	−.04	−.81	−.39	−.26
	M_2 = 609.72	234	.064	.84	.86	.86	Second order	.61	−.34	−.15	−.52	−.55
ECQ[b]	M_1 = 520.94	288	.062	.81	.85	.85	ECQ1	.51	−.40	−.05	−.46	−.37
							ECQ2	.07	−.53	−.22	−.25	−.27
							ECQ3	.56	−.14	−.09	−.56	−.65
							ECQ4	.02	.18	.21	−.64	.21
	M_2 = 618.71	305	.071	.76	.79	.80	Second order	.92	−.50	−.18	−.87	−.95
ACT[b]	287.60	120	.077	.80	.85	.85		−.29	.78	.35	.18	.28
WLEIS (Sample 1)[a]	M_1 = 846.41	398	.053	.91	.92	.92	WLEIS1	−.37	.11	−.12	.11	.42
							WLEIS2	−.50	.09	−.22	.10	.38
							WLEIS3	−.25	.13	.02	.00	.59
							WLEIS4	.00	.04	−.01	.06	.29
	M_2 = 946.96	415	.057	.90	.91	.91	Second order	−.44	.14	−.12	.09	.59
WLEIS (Sample 2)[c]	M_1 = 794.07	398	.056	.90	.92	.92	WLEIS1	−.31	.28	.19	.23	.36
							WLEIS2	−.53	.00	−.17	.16	.28
							WLEIS3	−.32	.30	.25	.10	.47
							WLEIS4	−.08	.21	.27	.09	.25
	M_2 = 881.43	415	.060	.89	.90	.90	Second order	−.52	.37	.26	.27	.59

Note. RMSEA = root-mean-square error of approximation; TLI = Tucker–Lewis Index; CFI = comparative fit index; IFI = incremental fit index; NEURO = Neuroticism; EXTRA = Extraversion; OPEN = Openness; AGREE = Agreeableness; CON = Conscientiousness; TMM1, TMM2, and TMM3 = the three dimensions of Trait Meta-Mood Scale; EES = Emotional Empathy Scale; TAS1, TAS2, and TAS3 = the three dimensions of the Toronto Alexithymia Scale; ECQ1, ECQ2, ECQ3, and ECQ4 = the four dimensions of the Emotional Control Questionnaire; ACT = Affective Communication Test; WLEIS1, WLEIS2, WLEIS3, and WLEIS4 = the four dimensions of the Wong and Law Emotional Intelligence Scale.
[a] $N = 418$. [b] $N = 216$. [c] $N = 314$. [d] M_1 = the result applicable to the model that specifies only the first order dimensions for the emotional intelligence measure under investigation. M_2 = the result applicable to the model that also specifies a second order latent construct behind the dimensions for the emotional intelligence measure under investigation.

naires were sealed in envelopes and returned to the human resources management office of the factory within 2 weeks of dissemination. With the enthusiastic support and encouragement of the factory managers, we received 165 valid response sets (response rate = 90.7%). Because the English standard of students and workers in mainland China is not high, we followed the standard back-translation procedure (Brislin, 1980) to translate all the items into Chinese.

Measures in Sample 1

EI and personality. We used the same EI scale, the WLEIS developed by Wong and Law (2002), as that used in Study 1. Coefficient alphas for the EI dimensions of Self-Emotions Appraisal, Others-Emotions Appraisal, Regulation of Emotion, and Use of Emotion, as assessed by parents, were .69, .84, .78, and .72, respectively. For the students' self-ratings, the coefficient alphas for the above four EI dimensions were .69, .84, .81, and .72, respectively. For the personality dimensions, we used the 80-item Big Five personality measure of McCrae and Costa (1987). Coefficient alphas for parents' ratings of Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness were .79, .83, .85, .85, and .90, respectively. The coefficient alphas for the students' self-ratings were .77, .80, .82, .83, and .86, respectively.

Life satisfaction. Life satisfaction was measured by four items that were adopted from the life satisfaction scale developed by A. Campbell, Converse, and Rodgers (1976). The coefficient alpha for these four items was .75.

Powerlessness in life mastery. This was measured by the 7-item scale constructed by Pearlin and Schooler (1978). The coefficient alpha for the seven items was .64.

Control variables. We collected data on students' gender (0 for male, 1 for female), whether the student's mother worked outside the home (0 for full-time, 1 for not employed), and the educational level of the student's father and mother (with 1 to 6 indicating *primary school, grade school, high school, two-year college program, four-year university program,* and *graduate school*) as control variables, respectively.

Measures of Sample 2

EI and personality. We used the same EI scale, the WLEIS developed by Wong and Law (2002), as in Sample 1. Coefficient alphas for the four EI dimensions ranged from .76 to .90 for supervisory ratings, from .72 to .89 for self-ratings, and from .77 to .91 for peer ratings. For personality dimensions, we used the 80-item Big Five personality measure introduced by McCrae and Costa (1987). Only self-ratings of the Big Five personality traits were available. Coefficient alphas for Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness were .79, .80, .87, .85, and .90, respectively.

Task performance. Task performance was assessed by supervisors, subordinates (self), and peers with three items derived from a general performance measure (Farh & Cheng, 1997). A sample item is "My performance is very good as compared with other employees on the same

Table 4

Results of Regression Analyses on Life Satisfaction After Controlling for Personality in Study 1

Variables entered	Sample 1			Sample 2		
	β	R^2	ΔR^2	β	R^2	ΔR^2
Step 1						
NEURO	−.32**			−.36**		
EXTRA	.24*			.13*		
OPEN	.13**			−.03		
AGREE	.08*			.25**		
CON	.15*	.354**		−.01	.203**	
Step 2						
WLEIS1	.09†			.10		
WLEIS2	.04			−.09		
WLEIS3	.19**			.23**		
WLEIS4	.00	.406**	.052**	−.01	.265**	.062**

Note. The regression weights of the control variables are the weights at Step 1 only; the beta weights for the other variables are the final regression weights after these variables were added to the model. $N = 418$ for Sample 1; $N = 314$ for Sample 2. NEURO = Neuroticism; EXTRA = Extraversion; OPEN = Openness; AGREE = Agreeableness; CON = Conscientiousness; WLEIS1, WLEIS2, WLEIS3, and WLEIS4 = the four dimensions of the Wong and Law Emotional Intelligence Scale.
† $p < .10$. * $p < .05$. ** $p < .01$.

job." The coefficient alphas for the three items, as reported by supervisor, peer, and self, were .80, .82, and .82, respectively. This variable is labeled *task performance* below.

Contextual performance. Contextual performance was measured with the scale developed by Van Scotter and Motowidlo (1996). The scale includes 15 items that capture two dimensions, interpersonal facilitation and job dedication. Seven items are used to capture interpersonal facilitation and 8 items are used to assess job dedication. The coefficient alphas for supervisory, peer, and self-ratings of interpersonal facilitation were .82, .86, and .85, respectively. For job dedication, coefficient alphas for the three rating sources were .85, .89, and .83, respectively. Because the rater and the ratee varied when different respondents (supervisor, self, and peer) were responding to the task and contextual performance items, the leading words in the questionnaire were adjusted accordingly.

Control variables. Loyalty to supervisor, trust in supervisor, and the demographic characteristics of the subordinates were used in the regression analyses to control for variables that might affect job performance. We used a 9-item scale to measure loyalty to supervisor, which was developed by Becker, Billings, Eveleth, and Gilbert (1996). The coefficient alpha was .89. A 3-item scale to measure trust in supervisor (Chen, 1997) was used. The coefficient alpha was .84. Age, gender (coded as 2 for women and 1 for men), education (months of education after graduation from high school), and tenure (months of experience with the immediate supervisor) were the other demographic control variables.

Analysis and Results

MTMM Approach

Sample 1. Table 5 shows the descriptive statistics and results of our MTMM analyses of Sample 1. First, the reliabilities are shown in parentheses on the main diagonal. EI was reliably measured by the two methods of self-rating and parent rating. The coefficient alphas were .78 and .81, respectively. Acceptable reliability was found with the Big Five personality measures rated by the students (self) as well as by their parents. The coefficient alphas ranged from .77 to .90. Second, the values of the

Table 5

Results of the 6 Traits × 2 Methods MTMM Analyses in Sample 1 of Study 2

Method and trait	M	SD	Self-rating						Parent rating					
			EI	NEURO	EXTRA	OPEN	ANT	CON	EI	NEURO	EXTRA	OPEN	ANT	CON
Self-rating														
EI	3.60	0.46	(.78)											
NEURO	3.67	0.93	−.39	(.77)										
EXTRA	4.74	0.94	.15	−.08	(.80)									
OPEN	4.93	0.95	.30	−.12	.45	(.82)								
ANT	5.21	0.74	.26	−.36	.29	.14	(.83)							
CON	5.04	0.77	.55	−.46	.10	.27	.47	(.86)						
Parent rating														
EI	3.57	0.45	**.28**	−.12	.00	.01	.02	.22	(.81)					
NEURO	3.56	0.98	−.18	**.34**	.04	−.02	−.18	−.20	−.30	(.79)				
EXTRA	4.65	1.04	.06	−.02	**.37**	.21	.02	−.02	.00	.08	(.83)			
OPEN	4.28	1.10	.15	−.04	.14	**.32**	−.10	.08	.15	.08	.55	(.85)		
ANT	5.34	0.88	.07	−.14	.01	−.02	**.20**	.14	.16	−.16	.28	.09	(.85)	
CON	5.13	0.95	.17	−.11	−.13	−.02	.05	**.34**	.42	−.21	.11	.24	.58	(.90)

Note. The six traits are emotional intelligence (EI), neuroticism (NEURO), extraversion (EXTRA), openness (OPEN), antagonism (ANT), and conscientiousness (CON). The two methods are self-rating and parent rating. The numbers on the diagonal are the coefficient alphas. Numbers in italics are in the heterotrait–monomethod analyses; numbers underlined are in the heterotrait–heteromethod analyses; numbers in bold are the results of the monotrait–heteromethod analyses. MMTM = multitrait–multimethod. Numbers in solid triangles are heterotrait–monomethod correlations; numbers in dotted triangle are heterotrait–heteromethod correlations.

heterotrait–monomethod triangles are shown in italics. Third, the values of the heterotrait–heteromethod triangle are underlined. Finally, the values presented in bold type are the monotrait–heteromethod values.

Our results from Sample 1 concur with the requirements set by D. T. Campbell and Fiske (1959). First, the coefficients on the reliability diagonal (numbers in parentheses) are the highest in the matrix. Second, the coefficients on the validity diagonals (numbers in bold) are significantly different from zero and are high enough to warrant further investigation. The correlation between self-rating EI and parent-rating EI was .28. Similar correlations for the Big Five personality dimensions ranged from .20 to .37. The data showed discriminant validity, which requires that the validity coefficient be higher than all of the values in the column and row in which it is located. The correlation between parents' EI ratings and students' EI ratings of .28 seems low. One possible reason is that these are high school students, who may not yet have clear and stable understandings of their own EI. Meanwhile, some Chinese parents are quite protective of their children. In the minds of these parents, their kids are always kids and the EI of their kids is always quite low. The first reason implies that parents' EI ratings may be more accurate than students' self-ratings. The second reason implies that parents' ratings of the EI of their kids are biased because some parents would underestimate the EI of their kids but some may not. Without additional information, both arguments seem to be plausible.

Fourth, some validity coefficients (numbers in bold) are smaller than some coefficients in the heterotrait–monomethod (numbers in italic) triangles, which may imply that we have a common method variance problem in the data set. However, these results should not be a worry. D. T. Campbell and Fiske (1959) commented that this was a frequent phenomenon in research on individual differences. Finally, we see the same pattern of interrelationships among different traits in the two heterotrait–monomethod triangles and the heterotrait–heteromethod triangle.

Although D. T. Campbell and Fiske's (1959) recommended analyses are standard, they were not sufficiently precise or normative to evaluate the goodness of fit of the data with respect to the prescribed model. Therefore, we used the factor analysis approach of the MTMM and ran a CFA with six traits (EI and the Big Five) and two methods (self-rating and parent rating) on the data. As in Study 1, we randomly grouped the items to form three indicators for each of the 12 constructs (six traits, each with two rating sources). In the CFA, we specified a latent trait factor for each of the six traits from the two sources (self-rating and parent rating). We also prescribed two method factors for all the traits that were assessed by self-rating and parent rating. However, because we had only two methods (sources), the model was not identified. To solve this problem, we followed Marsh and Hocevar's (1983) approach to obtain a priori estimates of the error variances of all the indicators. We conducted an exploratory factor analysis on all 36 indicators and used one minus the estimated communality for each indicator as the estimate of the error variance of each indicator.

Results of the CFA with EI, the Big Five personality dimensions, and the two method factors of self and parent were encouraging. For this two-method/six-trait, $\chi^2(649, N = 405) = 3,906.87$. The CFI was .87 and the TLI was .85. We also tested two alternative models. Model A, which included only two methods, had $\chi^2(702, N = 405) = 15,048.18$, a CFI of .41, and a TLI of .38.

Model B, which included only six traits, had a model chi-square of 8,449.92, a CFI of .68, and a TLI of .66. The changes in the model chi-square of the two-method/six-trait model over these two-trait-only and the method-only models were both significant. Using a variance partitioning approach, we found that the six traits explained 41.49% of the total observed variance, the two methods explained 22.26% of the observed variance, and the remaining 36.26% was attributed to random error.

Sample 2. Table 6 shows the descriptive statistics and results of our MTMM analyses of Sample 2. These results are very similar to the results from Sample 1. First, the coefficients on the reliability diagonal (numbers in parentheses) are consistently the highest in the matrix. Second, all of the coefficients in the validity diagonals (numbers in bold) are significantly different from zero and high enough to warrant further investigation. This indicates high convergent validity. Third, the correlations between self-rating, peer-rating, and supervisory-rating of EI were .41, .38, and .34, respectively.

The CFA results of the MTMM in Sample 2 were very similar to those of Sample 1. In Sample 1, we needed to create three random indicators for each construct because there were only two sources for each trait. Because we had three methods (i.e., self, peer, and supervisor) and four traits (EI, task performance, interpersonal facilitation, and job dedication) in Sample 2, we used a single aggregate of each construct to simplify the model. In other words, the CFA consisted of 12 indicators from a combination of four latent traits and three latent methods. This three-method/four-trait model had a model $\chi^2(33, N = 274) = 79.85$. The CFI and the TLI of this model were .98 and .95, respectively. Seventy percent of the total observed variance was attributed to the three methods, 25% was attributed to the four traits, and 5% was attributed to random error. The alternative model, with three methods only, had $\chi^2(51, N = 274) = 283.91$, a CFI of .88, and a TLI of .84. The alternative model, with four traits only, had $\chi^2(48, N = 274) = 932.06$, a CFI of .53, and a TLI of .36. Therefore, results from Sample 1 confirmed that the variance attributed to the traits was a major component of the total observed variance, whereas method (source) was the major component of total observed variance in Sample 2.

Hierarchical Linear Regression

Sample 1. To demonstrate the predictive validity of the EI construct, we ran a hierarchical linear regression of the parents' EI ratings on the students' ratings of powerlessness and life satisfaction. After entering the control variables as the first step, we entered the Big Five personality dimensions as the second set of control variables. We then entered the parents' rating of EI as the final step. Table 7 shows the results of the hierarchical regression analyses. The parents' ratings of EI were a significant predictor of the students' life satisfaction, after controlling for demographic variables and the Big Five personality dimensions ($\beta = .16$, $p < .05$; $\Delta R^2 = .02$, $p < .01$). Hypothesis 2 was supported by the data. It was also a significant predictor of students' perceptions of powerlessness over and above that of the Big Five personality dimensions ($\beta = -.17$, $p < .05$; $\Delta R^2 = .02$, $p < .05$). Hypothesis 3 was supported by the data.

Sample 2. In Sample 2, we had three dependent variables in the hierarchical regression analyses: task performance, interper-

Table 6
Results of the 4 Traits × 3 Methods MTMM Analyses in Sample 2 of Study 2

Method and trait	M	SD	Self-rating				Peer rating				Supervisory rating			
			EI	Task	IF	JD	EI	Task	IF	JD	EI	Task	IF	JD
Self-rating														
EI	3.90	.46	(.89)											
Task	3.90	.58	.54	(.79)										
IF	4.06	.45	.65	.47	(.82)									
JD	3.99	.48	.67	.58	.78	(.85)								
Peer rating														
EI	3.75	.47	**.41**	.25	.34	.38	(.89)							
Task	3.87	.63	.15	**.39**	.18	.29	.49	(.82)						
IF	3.92	.52	.27	.17	**.38**	.34	.68	.46	(.86)					
JD	3.87	.57	.17	.18	.29	**.33**	.67	.62	.78	(.89)				
Supervisory rating														
EI	3.65	.48	**.38**	.32	.19	.32	**.34**	.24	.15	.16	(.88)			
Task	3.75	.66	.18	**.31**	.17	.30	.32	**.38**	.20	.27	.51	(.82)		
IF	3.70	.53	.20	.19	**.26**	.27	.38	.26	**.39**	.31	.57	.44	(.85)	
JD	3.71	.51	.23	.27	.26	**.39**	.45	.35	.32	**.37**	.58	.63	.69	(.83)

Note. Numbers in the triangles are heterotrait–monomethod correlations. Numbers in parentheses on the diagonal are the coefficient alphas. Correlations among different raters of the same constructs (interrater reliability) are marked in bold. EI = emotional intelligence; Task = task performance; IF = interpersonal facilitation; JD = job dedication.

sonal facilitation, and job dedication. We entered the demographic variables as controls (age, gender, education, and tenure with supervisor) in the first step of the regression. Loyalty for supervisor and trust in the supervisor were entered in the second step, and peer ratings or employees' self-ratings of EI were added in the final step. Table 8 presents the results of these regression analyses.

Table 8 (Column M_{4A}) shows that the peer rating of EI had significant predictive power on task performance after controlling for demographics, loyalty for supervisor, trust in the supervisor, and the Big Five personality dimensions ($\beta = .42$; $\Delta R^2 = .17$, $p < .01$). Similar significant results were found for the two contextual performance dimensions. When contextual performance was used

Table 7
Results of Regression Analyses of Parent Ratings of EI on Academic Results, Life Satisfaction, and Powerlessness

Variables entered	Life satisfaction			Powerlessness		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Gender	.05	.04	.04	−.08	−.09	−.09
Working mother	−.07	−.09	−.09	−.02	−.01	−.01
Father's education	.11	.08	.08	−.08	−.05	−.05
Mother's education	.06	.01	.01	.07	.11	.11
Neuroticism		−.17**	−.14*		.14*	.10
Extraversion		.14†	.14*		.09	.08
Openness		.10	.08		−.25**	−.23**
Agreeableness		.21**	.22**		−.06	−.07
Conscientiousness		−.03	−.10		−.07	.01
EI			.16*			−.17*
R^2	.04*	.16**	.18**	.01	.10**	.12**
ΔR^2		.13**	.02**		.09**	.02*
dfs	4, 284	5, 279	1, 278	4, 284	5, 279	1, 278
N		388			387	

Note. The Big Five factors and EI are parents' ratings. EI = emotional intelligence.
† $p < .10$.   * $p < .05$.   ** $p < .01$.

Table 8

Results of Regression Analyses of Peer Ratings and Self-Ratings of EI on Job Performance

Variables entered	Task performance					Interpersonal facilitation					Job dedication				
	M_1	M_2	M_3	M_{4A}	M_{4B}	M_1	M_2	M_3	M_{4A}	M_{4B}	M_1	M_2	M_3	M_{4A}	M_{4B}
Age	.00	.05	.05	.04	.05	.11	.13	.13	.11	.13	.02	.05	.05	.02	.04
Education	−.09	−.07	−.07	−.06	−.06	−.08	−.07	−.08	−.08	−.07	−.06	−.05	−.07	−.07	−.06
Tenure with supervisor	.16†	.12	.13	.15*	.12	−.06	−.07	−.07	−.03	−.07	.02	−.00	.00	.03	−.01
Gender	.13†	.14†	.14†	.15*	.13†	−.05	−.03	−.02	−.01	−.03	.10	.12	.14†	.14*	.12
NEURO (self)		−.03	.01	−.02	.03		.04	.09	.07	.12		.08	.12	.11	.16†
EXTRA (self)		−.04	−.04	.00	−.05		−.01	−.01	.04	−.01		−.05	−.04	.01	−.05
OPEN (self)		.06	.06	.04	.03		.01	.00	.00	−.03		−.01	−.01	−.02	−.06
AGREE (self)		.26*	.26**	.27**	.26*		.12	.13	.13	.12		.17†	.18†	.18*	.17†
CON (self)		−.07	−.06	−.10	−.06		−.01	.01	−.03	.01		.05	.07	.02	.06
Loyalty			.12	.06	.10			.17†	.13	.15			.22*	.16†	.19*
Trust			−.03	−.07	−.06			−.10	−.15†	−.15			−.19*	−.25**	−.25**
EI (peer)				.42**					.44**					.50**	
EI (self)					.17*					.26**					.31**
ΔR^2	.05†	.05	.01	.17**	.03*	.02	.01	.02	.18**	.06**	.01	.04	.04†	.24**	.08**
ΔF	2.06†	1.81	.88	35.97**	4.50*	.91	.39	1.56	36.11**	9.71**	.58	1.19	3.05†	54.55**	15.29**
dfs	4, 163	5, 158	2, 156	1, 155	1, 155	4, 161	5, 156	2, 154	1, 153	1, 153	4, 163	5, 158	2, 156	1, 155	1, 155

Note. $N = 168$. Model 1 (M_1) has only the demographic variables as predictors; Model 2 (M_2) has the demographic variables plus the Big Five personality dimensions; Model 3 (M_3) adds in loyalty to supervisor (Loyalty) and trust in supervisor (Trust) as predictors; Model 4A (M_{4A}) has all predictors in Model 3 plus peer rating of EI; Model 4B (M_{4B}) has all predictors in Model 3 plus self-rating of EI. NEURO = Neuroticism; EXTRA = Extraversion; OPEN = Openness; AGREE = Agreeableness; CON = Conscientiousness; EI = emotional intelligence.
† $p < .10$.   * $p < .05$.   ** $p < .01$.

as the dependent variable, the peer rating of EI was a significant predictor of interpersonal facilitation ($\beta = .44$; $\Delta R^2 = .18$, $p < .01$) and job dedication ($\beta = .50$; $\Delta R^2 = .24$, $p < .01$). Table 8 (Column M_{4B}) shows the results when employees' self-ratings of EI were used as predictors of the supervisors' rating of performance. Employees' self-ratings of EI were a significant predictor of task performance ($\beta = .17$; $\Delta R^2 = .03$, $p < .05$), interpersonal facilitation ($\beta = .26$; $\Delta R^2 = .06$, $p < .01$), and job dedication ($\beta = .31$; $\Delta R^2 = .08$, $p < .01$). Hypothesis 4 was therefore supported by the data.

Discussion

In this article, we reviewed the definition and domain of the EI construct and argued that it should be conceptually distinct from traditional personality dimensions. We then used a two-study/four-sample design to investigate the validity and utility of the EI construct. We followed Davies et al.'s (1998) work and other recent work on EI (e.g., George, 2000; Mayer & Salovey, 1997; Mayer et al., 2000a) in defining EI as a four-dimensional construct, comprising the ability to understand one's own and others' emotions, to regulate one's emotions, and to use one's emotions. This definition of EI as a set of abilities conceptually distinguishes it from personality traits, which are behavioral preferences.

On top of this conceptual argument, we dealt with the empirical conclusions of Davies et al. (1998) by using CFAs to investigate various EI-related scales and a newly developed EI scale (the WLEIS) on the basis of the four-dimensional view in Study 1. We replicated Davies et al.'s results from earlier EI-related scales, but we further found that the WLEIS captured a construct that may be distinct from the Big Five personality dimensions. A CFA using the data from a second sample in Study 1 replicated the structural distinctiveness of the EI construct from the Big Five personality dimensions. In Study 2, we obtained data on others' ratings of EI to show the convergent and discriminant validity of EI using MTMM analy-

ses. Parents' ratings of EI were also shown to account for incremental variance in life satisfaction and powerlessness beyond the Big Five personality dimensions in a student sample. Peers' ratings of EI were found to be predictive of supervisory ratings of in-role and extrarole performance in an employee sample.

There are at least three important implications arising from the results of this article. First, if EI does indeed measure emotion-related abilities that are distinct from personality traits, we certainly advocate continued research on EI and the development of scales that do not rely on self-reports. Furthermore, given the confusion over the definition and domain of the EI construct in the past, we believe that it would be beneficial to EI researchers to adopt a mutually acceptable definition of the construct and to develop more standardized measures according to this definition. As reviewed in this article, the four-dimensional definition adopted here appears to be a reasonable direction for future EI research. More research should be conducted according to this framework to avoid further confusion.

Second, our two studies provided evidence to support that EI is related to but distinct from the Big Five personality dimensions. Furthermore, Sample 2 of Study 2 showed that EI might be a good predictor of job performance. After controlling for relevant variables and the Big Five personality dimensions, EI still accounted for more than 10% of the variance in in-role and extrarole performance when peer ratings of EI were used. It should be noted that neither EI nor job performance was assessed by the employees themselves. The results are, therefore, not confounded by self-reporting. Given these initial positive results, researchers are encouraged to develop more rigorous non-self-report measures of EI. One possible direction would be the development of forced-choice EI questions, in which participants are asked to select the response that most closely represents their EI level, rather than evaluating their own abilities directly.

Third, the criterion variables examined in this study included life satisfaction, the feeling of powerlessness, and job performance. Con-

ceptually, EI may be more important for criterion variables such as psychological well-being and occupational stress experienced by workers. Future research should investigate the relationship between EI and criterion variables other than job performance. Furthermore, if EI is related to job performance and other important variables in the workplace, training in EI may be as important as selecting applicants with high EI. Future research may attempt to develop effective EI training programs. The predictive power of EI on job performance as compared with general mental abilities could also be an interesting research direction. Although we have some evidence that EI can predict performance above and beyond general mental abilities, past studies have used self-report measures of EI. It would be interesting to compare the predictive validity of EI and general mental abilities when EI is assessed by aptitude tests.

There are, however, two limitations of this EI project. First, although we have provided the validity of non-self-report assessment of EI in Study 2, tests of EI might be important because EI is defined as an ability facet. Traditionally, abilities are measured by tests as opposed to self-report measures. The recent development of the Mayer–Salovey–Caruso Emotional Intelligence Test (Mayer et al., 2000b) may be one possible move in this direction. The major contribution of our study was to provide some preliminary evidence of the validity of EI. By helping to open up this line of research, we hope that there might be development of rigorous tests of EI in the future, as well as evidence of its relationship with other organizational constructs.

Our second limitation is that all the data in this project were collected in Hong Kong and the People's Republic of China. Cross-cultural generalizability of the results may be a concern. We do not know whether EI varies across different cultures. However, when we go back to the EI literature, we do not find any discussion of EI across cultural boundaries. Our position is that one's abilities to understand, regulate, and use one's emotions in constructive ways are general human abilities. There is no immediate evidence that the validity of EI, as defined under our four-dimensional view, should vary across cultures. Whereas further studies may be needed to verify this position, we take the general scientific attitude that psychological and management phenomena are considered as universal unless there are theories or evidence showing their cross-cultural variations.

Although the EI construct may be universal, we agree that behaviors resulting from the EI of an individual may vary across cultures. For example, a nonreactive quiet response by the subordinate when one's boss is making unreasonable demands may reflect high EI among Chinese workers but probably not among non-Chinese workers. In this respect, our use of self-report measures of EI may, in fact, be a plus because we asked respondents about their final judgment of the EI of the target person irrespective of the assessment clues or methods they would use. By doing so, we may be able to avoid some cross-cultural differences in expressing emotions or diagnosing emotions, because the assessors would be able to use the clues or methods that are appropriate for their specific culture. This issue may have to be considered when behavior- or outcome-oriented tests of EI, such as the Mayer-Salovey-Caruso Emotional Intelligence Test, are used across cultural boundaries.

References

Atwater, L., & Yammarino, F. (1992). Does self–other agreement on leadership perceptions moderate the validity of leadership and performance predictions? *Personnel Psychology, 45*(1), 141–164.

Bagby, R. M., Taylor, G. J., & Parker, J. D. (1994). The twenty-item Toronto Alexithyma Scale: II. Convergent, discriminant, and concurrent validity. *Journal of Psychosomatic Research, 38,* 33–40.

Bagozzi, R. P., & Yi, Y. (1990). Assessing method variance in multitrait–multimethod matrices: The case of self-reported affect and perceptions at work. *Journal of Applied Psychology, 75,* 547.

Bar-On, R. (1997). *Bar-On Emotional Quotient Inventory: A measure of emotional intelligence.* Toronto, Canada: Multi-Health Systems.

Becker, T. E., Billings, R. S., Eveleth, D. M., & Gilbert, N. L. (1996). Foci and bases for employee commitment: Implications for job performance. *Academy of Management Journal, 39*(2), 464–482.

Blau, P. M. (1964). *Exchange and power in social life.* New York: Wiley.

Brislin, R. W. (1980). Translation and content analysis of oral and written material. In H. C. Triandis & J. W. Berry (Eds.), *Handbook of Cross-cultural Psychology: Vol 2. Methodology* (pp. 349–444). Boston: Allyn & Bacon.

Campbell, A., Converse, P. E., & Rodgers, W. L. (1976). *The quality of American life: Perceptions, evaluation and satisfaction.* New York: Russell Sage Foundation.

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait–multimethod matrix. *Psychological Bulletin, 56,* 81–105.

Chen, Z. Y. (1997). *Loyalty to supervisor, organizational commitment and employee outcomes: A Chinese case.* Unpublished doctoral dissertation, Hong Kong University of Science and Technology, Hong Kong, China.

Ciarrochi, J. V., Chan, A. Y. C., & Caputi, P. (2000). A critical evaluation of the emotional intelligence construct. *Personality and Individual Differences, 28*(3), 539–561.

Costa, P. T., & McCrae, R. R. (1985). *The NEO Personality Inventory manual.* Odessa, FL: Psychological Assessment Resources.

Davies, M., Stankov, L., & Roberts, R. D. (1998). Emotional intelligence: In search of an elusive construct. *Journal of Personality and Social Psychology, 75,* 989–1015.

Dulewicz, V., & Higgs, M. (2000). Emotional intelligence: A review and evaluation study. *Journal of Managerial Psychology, 15*(4), 341–372.

Farh, J. L., & Cheng, B. S. (1997). Modesty bias in self-ratings in Taiwan: Impact of item wording, modesty value, and self-esteem. *Chinese Journal of Psychology, 39*(2), 103–118.

Fineman, S. (Ed.). (1993). *Emotion in organizations.* London: Sage.

Friedman, H. S., Prince, L. M., Riggio, R. E., & Dimatteo, M. R. (1980). Understanding and assessing nonverbal expressiveness: The Affective Communication Test. *Journal of Personality and Social Psychology, 39,* 333–351.

Gardner, H. (1993). *Multiple intelligences: The theory in practice.* New York: Basic Books.

George, J. M. (2000). Emotions and leadership: The role of emotional intelligence. *Human Relations, 53*(8), 1027–1055.

Hochschild, A. R. (1983). *The managed heart: Commercialization of human feeling.* Berkeley: University of California Press.

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. *The Journal of Social Psychology, 142*(1), 133–143.

Marsh, H. W., & Hocevar, D. (1983). Confirmatory factor analysis of multitrait–multimethod matrices. *Journal of Educational Measurement, 20*(3), 231–248.

Mathieu, J. E., & Farr, J. L. (1991). Further evidence for the discriminant validity of measures of organizational commitment, job involvement, and job satisfaction. *Journal of Applied Psychology, 76,* 127–133.

Mathieu, J. E., Hofmann, D. A., & Farr, J. L. (1993). Job perception–job satisfaction relations: An empirical comparison of three competing theories. *Organizational Behavior and Human Decision Processes, 56,* 370–387.

Mayer, J. D., Caruso, D. R., & Salovey, P. (2000a). Emotional intelligence meets traditional standards for an intelligence. *Intelligence, 27*(4), 267–298.

Mayer, J. D., Caruso, D. R., & Salovey, P. (2000b). Selecting a measure of emotional intelligence: The case for ability testing. In R. Bar-On &

J. D. A. Parker (Eds.), *Handbook of emotional intelligence* (pp. 320–342). San Francisco: Jossey-Bass.

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

McCrae, R. R., & Costa, P. T., Jr. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology, 52,* 81–90.

Mehrabian, A., & Epstein, N. (1970). A measure of emotional empathy. *Journal of Personality, 40,* 525–543.

Pearlin, L., & Schooler, C. (1978). The structure of coping. *Journal of Health and Social Behavior, 19,* 2–21.

Petrides, K. V., & Furnham, A. (2000). On the dimensional structure of emotional intelligence. *Personality and Individual Differences, 29,* 313–320.

Roger, D., & Najarian, B. (1989). The construction and validation of a new scale for measuring emotion control. *Personality and Individual Differences, 10,* 845–853.

Roseman, I. J., Dhawan, N., Rettek, S. I., & Naidu, R. K. (1995). Cultural differences and cross-cultural similarities in appraisals and emotional responses. *Journal of Cross-Cultural Psychology, 26*(1), 23–48.

Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition and Personality, 9*(3), 185–211.

Salovey, P., Mayer, J. D., Caruso, D., & Lopes, P. N. (in press). Measuring emotional intelligence as a set of abilities with the MSCEIT. In S. J. Lopez & C. R. Snyder (Eds.), *Handbook of positive psychology assessment.* Washington, DC: American Psychological Association.

Salovey, P., Mayer, J. D., Goldman, S. L., Turvey, C., & Palfai, T. (1995). Emotional attention, clarity, and repair: Exploring emotional intelligence using the Trait Meta-Mood Scale. In J. W. Pennebaker (Ed.), *Emotion, disclosure, and health* (pp. 125-154). Washington, DC: American Psychological Association.

Schutte, N. S., Malouff, J. M., Bobik, C., Coston, T. D., Greeson, C., Jedlicka, C., et al. (2001). Emotional intelligence and interpersonal relations. *The Journal of Social Psychology, 141*(4), 523–536.

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

Sosik, J. J., & Megerian, L. E. (1999). Understanding leader emotional intelligence and performance: The role of self–other agreement on transformational leadership perceptions. *Group and Organization Management, 24*(3), 367–390.

Stough, C., & Palmer, B. R. (2002, July). *The development of a workplace measure of emotional intelligence—The Swinburne University Emotional Intelligence Test* (SUEIT). Paper presented at the third international conference on Emotions and Organizational Life, Gold Coast, Queensland, Australia.

Thorndike, E. L. (1920, March). Intelligence and its uses. *Harper's Magazine, 140,* 227–235.

Van Scotter, J. R., & Motowidlo, S. J. (1996). Interpersonal facilitation and job dedication as separate facets of contextual peformance. *Journal of Applied Psychology, 81,* 525–531.

Williams, L. J., & Brown, B. K. (1994). Method variance in organizational behavior and human resources research: Effects on correlations, path coefficients, and hypothesis testing. *Organizational Behavior And Human Decision Processes, 57*(2), 185.

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

Wong, C. S., Wong, P. M., & Law, K. S. (2002, July). *The interaction effect of emotional intelligence and emotional labor on job satisfaction: A test of Holland's classification of occupations in Hong Kong.* Paper presented at the third international conference on Emotions and Organizational Life, Gold Coast, Queensland, Australia.

Appendix

Development Process and Items in the the Wong and Law EI Scale (WLEIS)

Items in the WLEIS were generated, tested and cross-validated through a rigorous development process. The process started with three groups of MBA and undergraduate students trained on the EI construct generating items according to the four-dimensional definition of EI as proposed by Davies et al. (1998). Inappropriate items were deleted according to three criteria, resulting in a total of 9 items for each dimension. Items were further eliminated on the basis of their factor loadings on their respective factors as well as their correlations with selected criterion variables using a sample of 189 university students. Sixteen items (four items per dimension) were selected as a result. This 16-item scale was cross-validated with three additional student samples ($N_1 = 72$, $N_2 = 146$, $N_3 = 110$), 116 nonteaching employees from a university, and 149 supervisor–subordinate dyads (60 middle- and upper-level managers). The entire development process is described in Wong and Law (2002) in detail.

The 16 items in WLEIS are as follows:

Self-Emotions Appraisal (SEA)
1. I have a good sense of why I have certain feelings most of the time.
2. I have good understanding of my own emotions.
3. I really understand what I feel.
4. I always know whether or not I am happy.

Others-Emotions Appraisal (OEA)
5. I always know my friends' emotions from their behavior.
6. I am a good observer of others' emotions.
7. I am sensitive to the feelings and emotions of others.
8. I have good understanding of the emotions of people around me.

Use of Emotion (UOE)
9. I always set goals for myself and then try my best to achieve them.
10. I always tell myself I am a competent person.
11. I am a self-motivating person.
12. I would always encourage myself to try my best.

Regulation of Emotion (ROE)
13. I am able to control my temper so that I can handle difficulties rationally.
14. I am quite capable of controlling my own emotions.
15. I can always calm down quickly when I am very angry.
16. I have good control of my own emotions.

Note. The 16 items in WLEIS are reprinted for *The Leadership Quarterly, 13,* C. S. Wong and K. S. Law, The effects of leader and follower emotional intelligence on performance and attitude: An exploratory study, 243–274, Copyright (2002), with permission from Elsevier.