



Pergamon

The Leadership Quarterly 13 (2002) 243–274

The
Leadership
Quarterly

The effects of leader and follower emotional intelligence on performance and attitude: An exploratory study

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Abstract

Recently, increasing numbers of scholars have argued that emotional intelligence (EI) is a core variable that affects the performance of leaders. In this study, we develop a psychometrically sound and practically short EI measure that can be used in leadership and management studies. We also provide exploratory evidence for the effects of the EI of both leaders and followers on job outcomes. Applying Gross' emotion regulation model, we argue that the EI of leaders and followers should have positive effects on job performance and attitudes. We also propose that the emotional labor of the job moderates the EI–job outcome relationship. Our results show that the EI of followers affects job performance and job satisfaction, while the EI of leaders affects their satisfaction and extra-role behavior. For followers, the proposed interaction effects between EI and emotional labor on job performance, organizational commitment, and turnover intention are also supported. © 2002 Elsevier Science Inc. All rights reserved.

1. Introduction

Emotional intelligence (EI) is an emerging topic for psychological, educational, and management researchers and consultants (see, e.g., Shapiro, 1997; Weisinger, 1998). Many organizations have sent their employees to various EI training courses offered by manage-

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ment consultants. Proponents of the EI concept argue that EI affects one's physical and mental health as well as one's career achievements (e.g., Goleman, 1995). Some emerging leadership theories also imply that emotional and social intelligence are even more important for leaders and managers because cognitive and behavioral complexity and flexibility are important characteristics of competent leaders (Boal & Whitehead, 1992). However, there is little empirical evidence in the literature about the relationship between the EI of both leaders and followers and their job outcomes. One of the reasons for this gap may be the lack of a psychologically sound yet practically short measure of EI that can be used in leadership and management studies. The project reported in this paper was designed to develop such a measure and provide exploratory evidence concerning the effect of the EI of both leaders and followers on job outcomes.

The purpose of this multisample, multistudy project is threefold. Firstly, the core concepts of EI and emotional labor are discussed and hypotheses are developed concerning their role in leadership and management research. EI is referred to as a set of interrelated abilities possessed by individuals to deal with emotions, while emotional labor is referred to as emotion-related job requirements imposed by organizations. Thus, EI is a particular set of an individual's abilities, while emotional labor represents a particular type of job demand.

Secondly, we develop a short but psychologically sound measure of EI for research on leadership and management in our first empirical study. Finally, in the second and third studies, we test the relationships between the EI of followers and leaders and their job outcomes, and the proposed moderating effects of emotional labor on the EI–job outcome relationship of followers.

This article is organized as follows. We first discuss the importance of EI for leaders as suggested in the leadership literature, and review the constructs of EI and emotional labor. Then, the potential moderating effect of emotional labor on the EI–job outcome relationship is discussed within the framework of the emotion regulation model. After proposing our hypotheses, we report Study 1 in which a 16-item EI scale is developed. In Study 2, this EI scale is applied to 149 supervisor–subordinate dyads and the follower EI–job outcome relationship and the moderating effects of emotional labor are tested. In Study 3, the EI scale is applied to another supervisor–subordinate dyad to examine the effect of leader EI on follower job outcomes. The article concludes with a discussion of the general contribution of this study to the management and leadership literature on EI.

1.1. EI as a leadership quality

Leadership concerns the interaction of leaders with other individuals. Once social interactions are involved, emotional awareness and emotional regulation become important factors affecting the quality of the interactions. As House and Aditya (1997) summarized, “contemporary research on intelligence offers renewed potential for leadership trait research. The notion of multiple intelligence and Sternberg's theory of triarchic intelligence have implications for managerial roles. Leadership is embedded in a social context, and the idea of social intelligence as a required leadership trait is a powerful one” (p. 418). Sternberg (1997) echoed House and Aditya's viewpoint by providing vivid examples to

illustrate why social intelligence may be even more important in affecting the job success of managers and leaders than traditional general mental intelligence. Many leadership researchers have also argued that effective leadership behavior fundamentally depends upon the leader's ability to solve complex social problems that arise in organizations (e.g., Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000; Zaccaro, Mumford, Connelly, Marks, & Gilbert, 2000).

By integrating EI into modern theories of leadership, Hooijberg, Hunt, and Dodge (1997) presented a framework of the cognitive, social, and behavioral complexities of leadership. They argued that the social aspect of a leader's capacity consisted of two components—social differentiation and social integration. Social differentiation was defined as “the ability of a managerial leader to discriminate and recognize the various facets, aspects, and significances of a given social situation over time. Social differentiation is a function of the leader's ability to discern existing and potential patterns of social relationships; the leader's ability to regulate emotions within self and recognize emotions in others; the number and degree of independence of a leaders' value preferences; and the leader's level of self-complexity” (p. 382). In other words, good leaders need to have a good understanding of their own emotions as well as those of others, and are able to regulate their own emotions when interacting with others.

This idea is reinforced by Boal and Hooijberg (2000) who highlighted the argument that behavioral complexity is a core element of leader effectiveness. Leaders needed to play different roles at different times, and more importantly, good leaders had the ability to select the right roles for the situation. Boal and Hooijberg argued that social intelligence was the underlying ability that governed the behavioral complexity of leaders.

Day (2000) also reinforced the importance of EI in leader effectiveness. While discussing the training and development of leaders in organizations, Day emphasized that “specific examples of the type of intrapersonal competence associated with leader development initiatives include self-awareness (e.g., emotional awareness, self confidence), self regulation (e.g., self-control, trustworthiness, adaptability), and self-motivation (e.g., commitment, initiative, optimism).” As we explain in the next section, emotional awareness, emotional control, and self-motivation are the basic dimensions of the EI construct. Based on the above discussion, it may be seen that EI is viewed in the leadership literature as a core variable that affects leader effectiveness. Before we actually test the effect of leader EI on the performance of followers and their attitudes, it is necessary to introduce the definition of EI used in this article.

1.2. The definition and domain of EI

EI has its roots in the concept of “social intelligence” that was first identified by Thorndike in 1920. Thorndike defined social intelligence as “the ability to understand and manage men and women, boys and girls—to act wisely in human relations.” Following Thorndike, Gardner (1993) included social intelligence as one of the seven intelligence domains in his theory of multiple intelligences. According to Gardner, social intelligence is comprised of a person's interpersonal and intrapersonal intelligences. Intrapersonal intel-

ligence relates to one's intelligence in dealing with oneself, and is the ability to "symbolize complex and highly differentiated sets of feelings." In contrast, interpersonal intelligence relates to one's intelligence in dealing with others and is the ability to "notice and make distinctions among other individuals and, in particular, among their moods, temperaments, motivations and intentions" (p. 239).

Salovey and Mayer (1990) were among the earliest to propose the name "emotional intelligence" to represent the ability of people to deal with their emotions. They defined emotional intelligence 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). Recently, Goleman (1995) adopted Salovey and Mayer's definition, and proposed that EI involves abilities that can be categorized as self-awareness, managing emotions, motivating oneself, empathy, and handling relationships.

In this study, we have used the Mayer and Salovey (1997) definition of EI as a set of interrelated skills concerning "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" (p. 10). Salovey and Mayer (1990) and Mayer and Salovey conceptualized EI as composed of four distinct dimensions:

1. *Appraisal and expression of emotion in the self (self emotional appraisal [SEA])*. This relates to the individual's ability to understand their deep emotions and be able to express these emotions naturally. People who have great ability in this area will sense and acknowledge their emotions well before most people.

2. *Appraisal and recognition of emotion in others (others' emotional appraisal [OEA])*. This relates to peoples' ability to perceive and understand the emotions of those people around them. People who are high in this ability will be much more sensitive to the feelings and emotions of others as well as reading their minds.

3. *Regulation of emotion in the self (regulation of emotion [ROE])*. This relates to the ability of people to regulate their emotions, which will enable a more rapid recovery from psychological distress.

4. *Use of emotion to facilitate performance (use of emotion [UOE])*. This relates to the ability of individuals to make use of their emotions by directing them towards constructive activities and personal performance.

1.3. The conceptual and theoretical basis of EI

While there has been much theoretical discussion about, and empirical evidence of, the interaction of the cognitive and noncognitive neural systems in the human brain, as well as how that affects emotions (see, e.g., Fischer, Shaver, & Carnochan, 1990; Izard, 1992, 1993), there is no theory that specifically discusses the role of EI and how it affects work outcomes. To understand the effect of EI on organizational outcomes, we borrow from Gross' model of emotion regulation (Gross, 1998a, 1998b) and develop possible hypotheses to be tested in our study.

Gross defines emotions as “adaptive behavioral and physiological response tendencies that are called forth directly by evolutionarily significant situations” (Gross, 1998b, p. 272). As emotions are response tendencies and may be modulated, they can be regulated and managed. Emotion regulation refers to “the processes by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions” (Gross, 1998b, p. 275).

Gross’ definition of emotion regulation matches our definition of EI. Before people can regulate their emotions, they should have a good understanding of these emotions (SEA). As many of our emotional responses are stimulated by the emotions of other individuals, our understanding of our own emotions is related to our ability to understand the emotions of others (OEA). Gross’ emotion regulation model prescribes that one can modulate how one experiences these emotions (ROE) as well as how one expresses them (UOE). Therefore, according to the definitions of EI and emotional regulation, persons with high EI should be more able to modulate their response tendencies and have more effective emotion regulation processes. As a result, Gross’ model of emotional regulation appears to be a reasonable theoretical basis for our investigation of the effects of EI in the workplace.

According to Gross (1988a, p. 225), emotional response tendencies can be regulated either by manipulating “the input to the system” (*antecedent-focused emotion regulation*) or by “its output” (*response-focused emotion regulation*). Antecedent-focused emotion regulation is accomplished by four steps: *situation selection*, in which one approaches or avoids certain people or situations on the basis of their likely emotional impact; *situation modification*, in which one modifies an environment so as to alter its emotional impact; *attention deployment*, in which one turns attention toward or away from something in order to influence one’s emotions; and *cognitive change*, in which one reevaluates either the situation one is in or one’s capacity to manage the situation so as to alter one’s emotions. Similarly, response-focused emotion regulation also includes multiple steps. One may *intensify*, *diminish*, *prolong*, or *curtail* ongoing emotional experiences for specific purposes.

When this model is applied to EI in the organizational setting, employees will be able to modulate their perception of the work environment. Such perception affects their emotions, through antecedent-focused emotion regulation by being selective about the people they interact with, modifying the work environment, focusing on specific aspects of their work environment, or changing their evaluation of the work environment. These employees can also modulate the impact of emotional stimuli from the work environment after the fact through response-focused emotion regulation by intensifying, diminishing, prolonging, or curtailing certain emotions. People with high levels of EI can make use of this emotion regulation mechanism effectively to create positive emotions as well as to promote emotional and intellectual growth. In contrast, people with low levels of EI are not able to use antecedent- and response-focused emotion regulation effectively, and they have slower emotional growth.

1.4. *The effects of EI on work outcomes in the workplace*

Organizations are settings that require interpersonal interaction. Most of these interactions are related to the performance of job duties, for example, serving customers, receiving

instructions and reporting to supervisors, or cooperating and coordinating with colleagues. Employees with high levels of EI are those who can make use of the antecedent- and response-focused emotional regulation effectively, and master their interactions with others in a more effective manner. Ashkanasy and Hooper (1999) utilized the proposition that affective commitment towards other people is a necessary component of social interaction and argued that the showing of positive emotions is associated with a high likelihood of success at work. Abraham (1999), based on her own earlier observation that optimistic insurance salesmen would perform better than pessimistic salesmen, proposed that EI is directly related to performance. These studies, together with the Goleman (1998) observation that EI is related to job performance, lead to our first hypothesis:

Hypothesis 1: Emotional intelligence is positively related to job performance.

EI should also be related to other affective job outcomes such as job satisfaction, organizational commitment, and turnover intention. The ability to apply antecedent- and response-focused emotion regulation should enable employees to have better relationships with coworkers and supervisors, as well as greater satisfaction in their jobs. The continual presence of positive emotional states of the employees will also lead to positive affection towards the work environment and the organization. As a result, the positive experience on the job and positive affective emotions also should make employees more committed to the organization and less likely to leave their jobs. Therefore, following the arguments of Abraham (1999), Ashkanasy and Hooper (1999), and Goleman (1998) we hypothesize that:

Hypothesis 2: Emotional intelligence is positively related to job satisfaction.

Hypothesis 3: Emotional intelligence is positively related to organizational commitment.

Hypothesis 4: Emotional intelligence is negatively related to turnover intention.

1.5. The EI–job outcome relationships of followers as moderated by emotional labor

While the above arguments about the effects of EI on job outcomes may be reasonable, it is difficult to argue that the effects of EI on job outcomes will be the same across job categories. There are many jobs that require extensive interaction with customers (e.g., in service industries) or coworkers (e.g., team-oriented jobs). In contrast, job incumbents in other occupations may undertake minimal interaction with others (e.g., production-line workers). We borrow the idea of “emotional labor” to represent the extent to which the job requires the management of emotions to achieve positive job outcomes and study the moderating effects of emotional labor on the EI–job outcome relationships.

Many scholars view emotions in the workplace as a commodity provided by the employees in exchange for individual rewards (e.g., Hochschild, 1983; Morris & Feldman, 1996, 1997; Sutton, 1991; Sutton & Rafaeli, 1988; Turner, 1986; Van Mannen & Kunda, 1989; Wharton & Erickson, 1995). According to these scholars, there are at least three types of “labor” to be

offered to the organization in exchange for rewards. “Mental labor” refers to the cognitive skills and knowledge as well as the expertise of employees. “Physical labor” refers to the physical efforts of employees to achieve organizational goals. “Emotional labor” refers to the extent to which an employee is required to present an appropriate emotion in order to perform the job in an efficient and effective manner. Examples of jobs requiring a high level of emotional labor are flight attendants, who are required to be friendly to the customers even when the attendants are in a bad mood, or bill collectors, who have to be tough with debtors despite their inclination to sympathize with them.

Scholars have argued that the extent of emotional labor required may vary across occupations. Hochschild (1983, Appendix C) identified a set of 44 census occupations that involve important amounts of emotional labor. However, this view of emotional labor is not universally accepted. For example, Grandey (2000) defines emotional labor as “the process of regulating both feelings and expressions for the organizational goals” (p. 97). We do not use this definition of emotional labor for two reasons. Firstly, it is distinct from the original definition as proposed by Hochschild (1983). Secondly, this process definition of emotional labor intertwines it with EI. Therefore, we follow Hochschild and use of the concept of emotional labor to distinguish those jobs that require employees to manage their emotions for job performance. The above discussion leads to our fifth hypothesis:

Hypothesis 5: The emotional intelligence–job performance relationship is moderated by the extent of emotional labor required by the job. Specifically, the relationship is stronger for jobs that require high emotional labor.

Hypothesis 5 concerns the EI–job performance relationship. Based on our earlier discussion, the job satisfaction of incumbents, their organizational commitment, and their turnover intention are all directly affected by their ability to effectively regulate antecedent- and response-focused emotion. If that is the case, the EI of job incumbents in jobs that require them to manage their emotions frequently and extensively will have greater effect on their job satisfaction, commitment, and turnover intention than incumbents performing low emotional labor jobs. For example, social workers (whose jobs require great emotional labor) would hardly be satisfied with their jobs should they have low levels of EI, because they would have less chance of doing their jobs well. As a result, organizational commitment and turnover intention would be affected. In contrast, auto mechanics (whose jobs involve little emotional labor) could still be reasonably satisfied with their job despite a low level of EI. We, therefore, propose the following hypotheses:

Hypothesis 6: The emotional intelligence–job satisfaction relationship is moderated by the extent of emotional labor required by the job. This relationship will be stronger for jobs that require a high level of emotional labor.

Hypothesis 7: The emotional intelligence–organizational commitment relationship is moderated by the extent of emotional labor required by the job. This relationship will be stronger for jobs that require a high level of emotional labor.

Hypothesis 8: The emotional intelligence–turnover intention relationship is moderated by the extent of emotional labor required by the job. This relationship will be stronger for jobs that require a high level of emotional labor.

These eight hypotheses are summarized diagrammatically in Fig. 1.

1.6. Relationship between the EI of leaders and the job outcomes of followers

As already discussed, the literature indicates that the EI of leaders will influence their effectiveness. In addition, there is evidence (Fisher & Edwards, 1988) that the supportive behavior of leaders has a positive effect on the job satisfaction, and probably performance, of followers. Applying the social exchange theory to the area of leadership, some scholars have argued that followers will have stronger commitment and satisfaction should leaders treat them with psychological benefits such as approval, respect, esteem and affection (e.g., Hollander, 1979; Jacobs, 1970). Dansereau et al. (1995) have shown that leaders are able to affect the performance of their subordinates by supporting their feelings of self-worth. Furthermore, some leadership studies have shown that the emotional maturity of leaders is associated with their managerial effectiveness (Bass, 1990). From our definition of EI, supervisors with high EI and emotional maturity are more likely to use supportive behavior and treat their followers with psychological benefits, as they are more sensitive to feelings and emotions of themselves and their followers. This, high EI and emotional maturity should have a positive effect on the job outcomes of supervisors’ followers. Hence, we hypothesize:

Hypothesis 9: The emotional intelligence of supervisors is positively related to the in-role behaviors (i.e., job performance) of their subordinates.

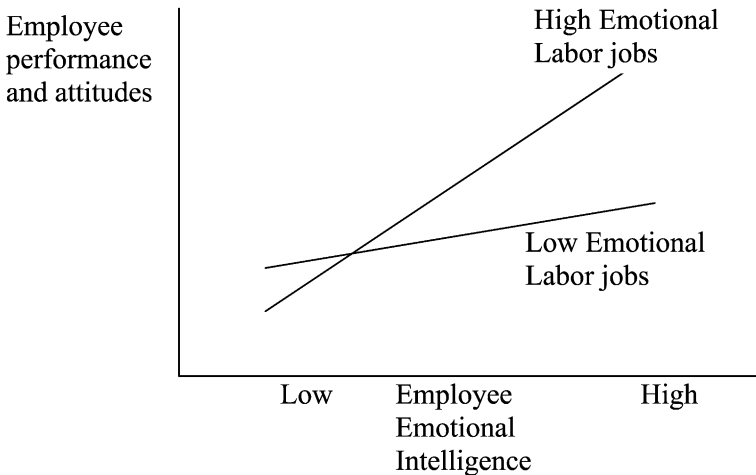


Fig. 1. The proposed moderating effect of emotional labor on the relationship between EI and job outcomes.

Hypothesis 10: The emotional intelligence of supervisors is positively related to the job satisfaction of their subordinates.

Hypothesis 11: The emotional intelligence of supervisors is positively related to the extra-role behavior (i.e., organizational citizenship behavior) of their subordinates.

2. Study 1: development of measurement items for EI

2.1. Development of an EI measure for research purposes

There are some existing measures of EI, but they are not suitable for research on the workplace. For example, Carson, Carson, and Philips (1997) developed a 14-item measure of EI, and Carson and Carson (1998) used this measure to examine the relationship between EI and career commitment in a sample of 75 nurses. However, the authors only reported the coefficient alpha of all 14 items as .79, without mentioning any other psychometric properties of the measure. Salovey, Mayer, Goldman, Turvey, and Palfai (1995) developed a 30-item Trait Meta-Mood Scale to measure EI. Martinez-Pons (1997) used this measure on 108 parents, teachers, and administrators in two public elementary schools. Unfortunately, the measure was designed to capture three components: attention to one's moods and emotions, emotional clarity (one's tendency to discriminate among one's emotions and moods), and emotional repair (or one's tendency to regulate one's feelings). These three components do not capture all of the EI dimensions as defined in this article.

BarOn (1997) introduced the BarOn EQ-i instrument, which contains 133 items. However, there is only validation evidence provided by the developer. BarOn's definition of EI also is slightly different from our own, which seems to be the current view of the EI construct, and the scale includes a number of dimensions that may not relate to EI directly (e.g., problem solving, social responsibility, etc.). Goleman (1995) developed a 10-item measure of EI without any validation evidence. Similarly, Weisinger (1998) developed a short EI instrument without any validation evidence. Mayer, Salovey, and Caruso (1997) developed the Multifacet Emotional Intelligence Scale (MEIS), which requires responses to more than 400 items and takes 1 to 2 hours to complete. Moreover, the psychometric properties of this measure have not been reported. The MEIS is also scored by a norm-referenced method. Respondents are considered high in EI when a majority of the subjects in the norm samples choose the same answer. The developer highlighted that the expert-referenced scoring method did not work as well as the norm-referenced method for this scale. Sosik and Megerian (1999) did not develop an EI measure, but considered various measures that appeared to capture some dimensions of EI. However, it is not clear whether these dimensions (e.g., self-monitoring and personal efficacy) can actually capture the dimensions summarized in our discussion. Although there are some measures of EI in the literature, it appears necessary for us to develop a simple, practical, and psychometrically sound measure of EI for organizational research purposes.

To develop a reasonable EI measure, we used three groups of independent samples to develop the items and test their psychometric properties. In the first group, one sample ($n=120$)

generated items, while quantitative evidence was gathered in the other sample ($n=189$) to select the appropriate items. In the second group, two cross-validated samples ($n=72$ and $n=146$) provided quantitative evidence to confirm the factorial structure of the four EI dimensions and their relationships with the external criterion variables. In the third group, another two samples ($n=110$ and $n=116$) were used to test the convergent, discriminant, and incremental validity of the measure by examining its relationships with some existing EI personality measures and the criterion variable.

2.2. Samples for item generation and selection

2.2.1. Samples and sampling procedures

We started the process of developing our own EI instrument by asking managers and students to generate items to capture the construct. Three groups of part-time MBA and undergraduate students ($n=120$) in a large Hong Kong university were first introduced to the four dimensions of EI defined in this study. They were then asked to generate self-reported items on each dimension that would describe a person with a high level of EI. Three types of items were deleted from the item pool based on the judgment of the two authors. They were: (1) overlapping or similar items suggested by different respondents; (2) items with unclear meaning; and (3) items that did not match the definition of EI due to misunderstandings of the students. We finally extracted nine items for each of the four EI dimensions, which resulted in a 36-item preliminary measure of EI.

These 36 items were then tested on a sample of 189 undergraduate students in Hong Kong by using a 7-point Likert-type scale ranging from strongly agree to strongly disagree. These students were second- and third-year business majors who were required to participate in an experiment to fulfill the basic requirement of a course on organizational behavior. On top of the 36 EI items, we also collected data on two groups of variables as external evidence of the validity of our EI measure. As indicated before, proponents of the EI construct have argued that one's EI level should have little relationship with one's general mental intelligence. Empirically, Ciarrochi, Chan, and Caputi (2000) and Pellitteri (1999) found a very low correlation between EI and IQ in their college student samples. We used a test developed by Eysenck (1990) to measure IQ.

We also examined the correlation between our EI measure and two constructs that are, conceptually, highly related to EI. These constructs are life satisfaction and feeling of powerlessness. Proponents of EI have argued that life satisfaction should be positively related to EI. Several empirical studies have provided evidence of this positive relationship (e.g., Ciarrochi et al., 2000; Martinez-Pons, 1997). We also argue that EI should be negatively related to a feeling of powerlessness. As described by Pearlin and Schooler (1978), powerlessness is the extent to which one regards one's life chances as being fatalistically ruled in contrast to being under one's own control. Theoretically, people with high EI will enjoy better relationships with others, have better control over their own lives, and be able to control negative emotions. Although no empirical study has investigated this relationship, it has been shown that a feeling of powerlessness is related to negative emotions such as sadness and fear (e.g., Roseman, Dhawan, Rettek, & Naidu, 1995). Thus, any EI measure developed should

have a negligible relationship with IQ, a positive relationship with life satisfaction, and a negative relationship with powerlessness.

2.2.2. *Measures*

Life satisfaction was measured with the nine items constructed by Campbell, Converse, and Rodgers (1976). The first eight items of this scale are pairs of opposite adjectives (e.g., interesting vs. boring, enjoyable vs. miserable) with a 7-point Likert-type scale of numbers between them. Respondents were requested to circle the number that best described their feelings towards their lives. The last item was a direct question asking about the level of satisfaction in life, namely: “how satisfied or dissatisfied are you with your life as a whole?” Internal consistency reliability (i.e., the coefficient alpha) was .91 for this sample. Powerlessness in life mastery was measured with the seven items constructed by Pearlin and Schooler (1978). The response format was a 7-point Likert type scale ranging from strongly disagree to strongly agree. Examples of these items include: “I have little control over the things that happen to me” and “there is really no way I can solve some of the problems I have.” The internal consistency reliability was .67 for this sample.

IQ was measured by the fourth test devised by Eysenck (1990). This test consisted of 40 items. Respondents were required to finish the test within 30 minutes. A correct response to an item scored one point, and so the maximum possible score for the test was 40. The minimum score in our sample of 189 students was 6, and the maximum was 26. The average score was 15.3 and the standard deviation was 4.12.

2.2.3. *Results of item selection and factorial structure*

The major purpose of this first study was to develop a psychometrically sound self-report EI scale. As a result, our first job was to test the factorial structure of the instrument. We conducted an exploratory factor analysis of the 36 items using the maximum likelihood method with varimax rotation. A total of eight factors was identified with an eigenvalue greater than unity. From a detailed look at the factor loadings of these eight factors, it was found that the first four factors with the largest eigenvalues basically represented the four hypothesized EI dimensions. For example, seven out of the nine items measuring the first EI dimension of SEA loaded on the same factor with loadings larger than .50. Similarly, for the other three EI dimensions, at least six of the nine items loaded on their respective factor with loadings greater than .50. The remaining four factors captured only some random or error variances of individual items. All of the remaining four factors only consisted of a maximum of one item with a loading greater than .50.

To improve the psychometric properties of our EI scale, we selected only the four items with the largest factor loadings from each of the first four factors to represent the four EI dimensions. When a second factor analysis was conducted with only these 16 items, a clear four-factor structure emerged. The first part of Table 1 shows the results of this factor analysis. The average loadings of the 16 items on their respective EI dimensions was .80. Cross loadings were negligible. Internal consistency reliability for the four factors (each with four items) ranged from .83 to .90. The distribution of each item appeared to be

Table 1
Factor analysis and correlations for the item selection sample

(a) Factor analysis				
Items	Factor 1	Factor 2	Factor 3	Factor 4
SEA1	.05	.89	.13	.06
SEA2	.04	.86	.01	.16
SEA3	.10	.74	.11	.07
SEA4	-.01	.87	.05	.17
ROE1	.07	-.01	.82	.20
ROE2	.10	.15	.76	.04
ROE3	.11	.08	.76	.13
ROE4	.04	.08	.80	.26
UOE1	.17	.22	.09	.76
UOE2	.12	.37	.09	.76
UOE3	.06	.08	.19	.83
UOE4	.03	-.06	.33	.66
OEA1	.85	.09	.15	.10
OEA2	.91	.03	.07	.07
OEA3	.88	.01	.05	-.04
OEA4	.83	.07	.08	.26
Eigenvalue	5.01	2.70	2.27	1.46
% of variance explained	31.3	16.9	14.2	9.1

(b) Correlation coefficients

	1	2	3	4	5	6	7	8
1. SEA	(.87)							
2. ROE	.20**	(.83)						
3. UOE	.34**	.42**	(.84)					
4. OEA	.13 ⁺	.21**	.25**	(.90)				
5. LS	.38**	.46**	.33**	.16*	(.91)			
6. PWL	-.31**	-.29**	-.39**	-.13 ⁺	-.38**	(.67)		
7. IQ	.06	-.16*	-.05	-.19*	-.06	.03	-	

SEA, OEA, ROE, UOE, LS, PWL, IQ stand for self-emotion appraisal, others' emotion appraisal, regulation of emotion, uses of emotion, life satisfaction, powerlessness, and intelligence as measured by Eysneck's test, respectively.

Numbers in the diagonal are coefficient alphas.

$n=189$.

* $P < .05$ (two-tailed tests).

** $P < .01$ (two-tailed tests).

⁺ $< .10$.

similar. The means ranged from 4.25 to 4.94, with standard deviations ranging from 1.20 to 1.43.

2.2.4. Results of scale correlation

The correlations among the four EI factors and the criterion variables were all within reasonable limits. The second part of Table 1 shows the correlation coefficients. The EI

dimensions were all mildly correlated (ranging from $r = .13$ to $.42$), which indicated that they were related but not identical dimensions. All EI dimensions correlated significantly with life satisfaction. The correlation ranged from $.16$ to $.46$. All EI dimensions correlated moderately and negatively with the powerlessness measures. The correlation ranged from $-.13$ to $-.39$. Individuals with a high level of EI should have a low chance of experiencing powerlessness. Finally, as expected, the EI dimensions had minimal correlations with the IQ estimate. It is notable that OEA and ROE actually correlated negatively and significantly with Eysenck's IQ measure. In other words, individuals with a higher level of cognitive intelligence will be less able to recognize others' emotions.

2.3. Cross-validation samples on factor structure and relationship with criteria

2.3.1. Samples, sampling procedures, and measures

To assure that the factorial structure of the 16 EI items and the correlations of the EI dimensions with the criterion variables could be generalized to other samples, we collected data from two independent undergraduate samples in Hong Kong. The first sample consisted of 72 students. They were asked to respond to a questionnaire containing the 16 EI items as well as the powerlessness and life satisfaction items. The second sample consisted of another 146 undergraduate students who were asked to respond to the same measurement items.

2.3.2. Results of the first cross-validation sample

We conducted a confirmatory factor analysis of the EI items using the computer program LISREL (Jöreskog & Sörbom, 1993). With the specified four items loading on their respective EI dimensions, the model χ^2 of the confirmatory factor analysis was 132.41 ($df=98$). The standardized RMR of the model was $.08$, the comparative fit index (CFI, Bentler, 1990) was $.95$, and the Tucker–Lewis Index (TLI, Tucker & Lewis, 1973) was $.93$. All model fit indices showed that the four-factor model fitted the data reasonably well. Correlations among the four EI dimensions, as well as their correlations with powerlessness and life satisfaction, are shown below the diagonal in Table 2.

All of the observed correlations matched well with our hypotheses. All EI dimensions were negatively correlated with powerlessness, and positively correlated with life satisfaction. In addition, the size of the correlations were similar to those found in the item-selection sample.

2.3.3. Results of the second cross-validation sample

The confirmatory factor analysis results for this cross-validation sample were similar to the first cross-validation sample. Model χ^2 for the four-factor model for the 16 EI items was 179.33 ($df=98$). The standardized RMR was $.07$, the CFI was $.91$, and the TLI was $.89$. Again, all model fit indices showed that the four-factor model fitted the data reasonably well. Correlations of the four EI dimensions with powerlessness and life satisfaction are shown in the upper half of Table 2. The magnitudes of these correlations were extremely similar to those found in the first cross-validation sample, and quite similar to those in the first developmental sample. We concluded that the 16-item EI scale effectively captured the EI dimensions. The resulting 16 EI items are shown in Appendix A.

Table 2

Correlations among the EI dimensions and criterion variables for the cross-validation samples

	SEA	ROE	USE	OEA	PWL	LS
SEA	(.89/.87)	.45**	.28**	.34**	-.14	.23*
ROE	.35**	(.74/.71)	.33**	.29**	-.26**	.29**
UOE	.34**	.24*	(.87/.87)	.31**	-.29**	.40**
OEA	.34**	.34**	.37**	(.89/.88)	-.08	.12
PWL	-.27	-.14	-.28*	.03	(.91/.90)	-.37**
LS	.29*	.18	.31**	.26*	-.36**	(.71/.73)

$n=72$ for the first validation sample (lower triangle); $n=146$ for the second validation sample (upper triangle). Numbers in the diagonal are coefficient alphas and the first and second numbers are from the first and second validation sample, respectively.

SEA, OEA, ROE, UOE, LS, and PWL stand for self-emotion appraisal, others' emotion appraisal, regulation of emotion, uses of emotion, life satisfaction, powerlessness, respectively.

* $P < .05$ (two-tailed test).

** $P < .01$ (two-tailed test).

2.4. Samples testing convergent, discriminant, and incremental validity

2.4.1. Samples, sampling procedures, and measures

Davies, Stankov, and Roberts (1998) argued that the construct of EI was illusive because self-reported EI measures had salient loadings on well-established Big Five personality factors. To test the convergent and discriminant validities of the 16-item EI scale developed, we collected additional data from two independent samples. The first sample consisted of 110 undergraduate business students. These students completed a questionnaire containing the 16 EI items, another existing measure of EI (the 30-item Trait Meta-Mood Scale by Salovey et al., 1995), the 80-item Big Five personality measure (McCrae & Costa, 1987), and the same life satisfaction scale as in our earlier samples. As with the previous samples, the response format for all measures was a 7-point scale.

The second sample consisted of 116 nonteaching employees from a Hong Kong university. To include a variety of employees from various jobs, questionnaires were distributed to different units to include administrative, clerical, and technical staff. These employees were selected from the telephone directory. They were contacted by telephone, and those who agreed to participate received, in person, a copy of the questionnaire from a research assistant. Respondents were instructed to complete the questionnaire within 1 week, and the research assistant collected the questionnaire in person. Two personality and EI measures were included in the questionnaire. The first personality scale consisted of the 60-item short form of the NEO Personality Inventory (Costa & McCrae, 1985) and the second was the adjective scale used in the previous sample.

To avoid a long questionnaire, we randomly selected six items for each Big Five personality dimension from the 80-item adjective scale used in the previous sample. The first EI scale was the 16-item developed in previous samples. The second scale consisted of 20 items from BarOn's EQ-i. Specifically, we randomly selected five items for each of the four dimensions of BarOn's EQ-i (i.e., emotional self-awareness, empathy, impulse

control, and optimism), which appeared to be most relevant to our EI definition. Reliability estimates (coefficient alphas) for the four dimensions of self-emotion appraisal, uses of emotion, regulation of emotion, and others' emotion appraisal were .92, .91, .84, and .93, respectively.

2.4.2. Results of the first convergent, discriminant, and incremental validity sample

To test the convergent and discriminant validities of our measure, we conducted exploratory factor analysis on the EI and personality measures. Because of the large number of Big Five personality items compared to the sample size, we randomly averaged the items and formed two indicators for each personality dimension. Table 3 shows the results of the

Table 3

Exploratory factor analysis of Big-Five and EI indicators of the convergent, discriminant, and incremental validity sample

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
NEURO1	-.18	-.57	-.18	-.26	-.21	-.05	.31
NEURO2	-.19	-.50	-.14	-.38	.01	-.03	.53
EXTRA1	.07	-.25	-.21	.29	.53	-.16	.31
EXTRA2	.11	.07	.09	.43	.46	.06	.03
OPEN1	.13	.02	-.06	-.07	.89	.13	.00
OPEN2	.09	.15	.16	.02	.85	.01	-.14
AGREE1	.14	.06	.04	.76	-.03	.15	-.17
AGREE2	.00	.07	.09	.87	.03	.04	.00
CONSC1	.21	.13	.64	.16	-.12	.07	-.59
CONSC2	.23	.25	.65	.26	.21	.07	-.44
ATTEND	.36	.40	.30	.36	.12	.04	.15
ATTEND	.28	.25	.24	.49	.17	.16	.17
CLARITY	.26	.00	.05	.02	-.02	.18	.42
CLARITY	.33	-.03	.02	.09	-.06	.30	.34
REPAIR	.71	.02	.09	-.04	.25	.15	-.07
REPAIR	.69	.14	.16	.06	.06	.17	-.01
SEA1	.71	.15	.15	.19	.01	.08	.14
SEA2	.77	.12	.05	.13	.08	.16	.01
UOE1	.09	.89	.23	.10	.02	-.03	-.07
UOE2	.11	.93	.05	-.01	-.01	.06	.02
ROE1	.12	.19	.82	.12	-.11	.02	.10
ROE2	.12	.10	.86	.03	.14	.04	-.02
OEA1	.32	.03	.07	.13	.02	.76	.05
OEA2	.22	.04	.03	.12	.12	.96	.08
Eigenvalue	2.79	5.33	1.96	1.79	1.68	1.72	.95
% of variance explained	11.6	22.2	8.2	7.5	7.0	7.2	4.0

ATTEND, CLARITY, and REPAIR are the three EI dimensions of the Trait–Meta Mood Scale. NEURO, EXTRA, OPEN, AGREE, CONSC stand for neuroticism, extraversion, openness, agreeableness, and conscientiousness of the Big five personality dimensions. SEA, OEA, ROE, VOE stands for self emotion appraisal, other's emotion appraisal, regulation of emotion. The number after each dimension represents the indicator used for the latent construct. For example, NEURO1 represents the first indicator of the Conscientiousness dimension of Big Five personality.

$n=110$.

exploratory factor analysis. The Big Five personality indicators loaded heavily on their respective dimensions except for neuroticism and conscientiousness. The UOE dimension of EI and neuroticism both loaded on Factor 2. The ROE dimension of EI and conscientiousness loaded on the same Factor 3. The other two EI dimensions of SEA and OEA did not cross-load with the Big Five factors.

To show the incremental validity of our EI measure as compared with the Trait Meta-Mood Scale, we conducted hierarchical regression using life satisfaction and powerlessness as criterion variables. We first entered the Big Five personality dimensions as control variables. These were followed by the three Trait Meta-Mood dimensions. Finally, our four EI dimensions were entered into the regression equation as predictors. For life satisfaction as the dependent measure, the change in model R^2 when the three sets of predictors were entered hierarchically were .466 ($P < .01$), .029 ($P > .10$), and .077 ($P < .01$), respectively. The Big Five dimensions shared a statistically significant portion of the variances of life satisfaction. The Trait Meta-Mood dimensions did not explain incremental variances of life satisfaction on top of the Big Five dimensions. In contrast, our EI dimensions provided significant incremental contributions in predicting life satisfaction on top of the Big Five dimensions.

When powerlessness was used as the dependent measure, the change in the model R^2 s when the three sets of predictors were entered hierarchically were .247 ($P < .01$), .077 ($P < .05$), and .059 ($P < .10$), respectively. Our EI measure still provided incremental variance explanation marginally on top of the Big Five dimensions and the Trait Meta-Mood scale. The first two columns in Table 4 show the beta coefficients for the final step of regression when life satisfaction and powerlessness were analyzed as dependent variables.

Table 4
Regression results for the discriminant, convergence, and incremental validity samples of study 1

	Sample 1 ($n=110$)		Sample 2 ($n=116$)
	Life satisfaction	Powerlessness	Life satisfaction
NEURO	-.13	.12	-.01
EXTRA	.19*	.00	-.03
OPEN	.06	-.10	-.00
AGREE	.20*	.09	-.01
CONSC	.20*	-.15	-.08
ATTEND	.05	-.28*	-
CLARITY	.03	.06	-
REPAIR	-.17*	.08	-
EQ-i	-	-	.22 ⁺
EI	.35**	-.22 ⁺	.23 ⁺
R^2	.57**	.38**	.20**

NEURO, EXTRA, OPEN, AGREE, CONSC stand for neuroticism, extraversion, openness, agreeableness, and conscientiousness of the Big Five personality dimensions. ATTEND, CLARITY, and REPAIR are the three EI dimensions of the Trait–Meta Mood Scale. EQ-i stands for the estimate of emotional intelligence by the Bar-On EQ-i items. EI stands for the estimate of emotional intelligence by the 16 items developed in this study.

* $P < .05$ (two-tailed tests).

** $P < .01$ (two-tailed tests).

⁺ $< .10$.

2.4.3. Results of the second convergent, discriminant, and incremental validity sample

We conducted a confirmatory factor analysis with our 16 EI items and the Big Five personality dimensions. To avoid too many indicators for the Big Five measures, we formed three indicators for each dimension by randomly averaging two items from the respective dimension. Results show reasonably good fit for the nine-factor model (i.e., four EI and five personality factors). The model χ^2 was 591.59 ($df=398$), the standardized RMR was .08, the CFI was .90, and the TLI was .89. These results indicate good convergent and discriminant validity between our EI and the Big Five personality dimensions.

To cross-validate the incremental predictive validity of our EI measure on the Big Five personality dimensions and the EQ-i, hierarchical regression was conducted on life satisfaction by entering the Big Five personality dimensions and EQ-i in the first step, and our EI measure in the second step. The change in model R^2 s when the two sets of predictors were entered hierarchically were .099 ($P<.01$), and .023 ($P<.10$), respectively. Thus, the incremental validity was cross-validated in this non-student sample. The third column in Table 4 shows the beta coefficients for the final step of this regression analysis.

Finally, descriptive statistics and correlation among the measures for this sample are shown in Table 5. Table 5 may be regarded as a Multitrait Multimethod (MTMM) cor-

Table 5

Correlation matrix for the second convergent, discriminant and incremental validity sample (non-student sample with $n=116$)

	Mean (S.D.)	1	2	3	4	5	6	7	8	9	10	11	12
1. NEURO1	3.06 (.57)	(.83)											
2. NEURO2	3.52 (.76)	.64	(.79)										
3. EXTRA1	3.17 (.42)	-.40	-.21	(.68)									
4. EXTRA2	3.91 (.68)	-.21	-.03	.69	(.77)								
5. OPEN1	3.17 (.40)	.14	.21	.08	.25	(.62)							
6. OPEN2	3.79 (.64)	-.01	.04	.18	.44	.36	(.72)						
7. AGREE1	3.26 (.42)	-.06	-.02	.14	.08	.16	-.02	(.67)					
8. AGREE2	4.31 (.63)	.09	.20	.18	.30	.06	.15	.58	(.78)				
9. CONSC1	3.33 (.46)	-.28	-.20	.15	.13	-.17	-.02	.32	.23	(.74)			
10. CONSC2	3.93 (.60)	-.27	-.17	.23	.34	-.01	.17	.27	.30	.59	(.70)		
11. EQ-i	4.86 (.54)	-.27	-.15	.22	.25	.04	.13	-.04	.04	.25	.30	(.78)	
12. LS	3.74 (.95)	-.17	-.08	.09	.10	.00	.05	.04	-.01	.25	.24	.39	(.92)
13. EI	4.95 (.79)	-.40	-.24	.24	.27	.07	.13	.17	.19	.50	.51	.63	.41

NEURO, EXTRA, OPEN, AGREE, CONSC stand for neuroticism, extraversion, openness, agreeableness, and conscientiousness of the Big Five personality dimensions. ATTEND, CLARITY, and REPAIR are the three EI dimensions of the Trait–Meta Mood Scale. The number after each dimension represents the indicator used for the latent construct. For example, NEURO1 represents the first indicator of the Conscientiousness dimension of Big Five personality. EQ-i stands for the estimate of EI by the BarOn EQ-i items. LS stands for life satisfaction. EI stands for the estimate intelligence by the 16 items developed in this study. Numbers in the diagonal are coefficient alphas; the first and second personality measures are the NEO Personality Inventory and the adjective scales, respectively. NEO Personality Inventory is measured by 5-point scale, and EQ-i and EI are measured by 7-point scales, while all others are measured by 6-point scales.

$n=116$.

relation matrix, as we have two measures on both the Big Five personality dimensions and EI. The results clearly indicate the convergence between our EI measure and the EQ-i ($r = .63$) and its discriminant validity with the Big Five personality dimensions. The patterns of correlations between our EI measure and the EQ-i with the big-five personality dimensions were very similar, and they were all smaller than the correlation between the EI and EQ-i measures.

2.5. Estimation of the EI construct from its dimensions

Based on the above analyses of the three groups of samples showing evidence of factor structure, internal consistency, convergence, and discriminant and incremental validity, we concluded that our EI measure should be of reasonable reliability and validity to be adopted for further studies. However, as EI is a multidimensional construct, one final issue is the estimation of the overall EI construct from its dimensions. Law, Wong, and Mobley (1998) pointed out that there are three types of multidimensional constructs, namely: profile, aggregate, and latent. For the profile and aggregate types, individual dimensions of the multidimensional construct may be unrelated to each other. As the EI construct represent interrelated sets (dimensions) of abilities, it fits mostly the latent type. That is, the EI construct exists at a deeper level than its dimensions, and the dimensions should be interrelated because they are manifestations of the EI construct. This definition is also comparable to the traditional intelligence construct, which is defined as the common factor behind various sets (dimensions) of abilities in verbal comprehension, word fluency, space, number, memory, and reasoning (Eysenck, 1964).

To test whether the EI items that were developed fit this description, we followed the recommendation of Law et al. (1998) to perform a second-order confirmatory factor analysis on the EI items. Specifically, we compared the results of two confirmatory factor analyses. The first specified a single factor behind all the 16 items, while the second specified the four dimensions from their respective items and then a second-order factor behind the four EI dimensions. For all of the samples in Study 1, the results of the single-factor model were unacceptable, while the second-order model fitted the data reasonably well. For example, the non-student sample (i.e., the second convergent, discriminant, and incremental validity sample with $n = 116$) had an extremely poor fit for the single-factor model ($\chi^2 = 942.95$ with $df = 104$; CFI = .44; TLI = .35; standardized RMR = .20), while it fitted well the second-factor model ($\chi^2 = 211.85$ with $df = 100$; CFI = .93; TLI = .91; standardized RMR = .08). From these results, we conclude that the EI items developed in Study 1 can serve as a reasonable estimate of their dimensions, and that the dimensions in turn can represent an underlying multidimensional EI construct.

3. Study 2: testing the interaction between the EI of followers and their emotional labor

There are two limitations of the design in the series of analyses conducted in Study 1. Firstly, all of the dependent and independent variables are self-reported by the same

respondents. It is difficult to tell how much of the covariance between EI and the criterion variables (life satisfaction and powerlessness) are caused by the problem of common method variance. Secondly, all the samples except the last one used to test the EI scale developed are from undergraduate students. The results may not be generalizable to experienced workers in an organization. To deal with these two concerns, we conducted our second study with practicing managers to test the hypothesis that the EI of followers affects their job performance, and that the relationship is moderated by emotional labor.

3.1. Sample and procedures

The sample for this study consisted of 149 supervisor–subordinate dyads. The supervisors were 60 middle and upper-level managers enrolled in a part-time management diploma course at a large Hong Kong university. These managers were asked to evaluate the emotional labor and job performance of four of their subordinates. Respondents with less than four subordinates were asked to evaluate as many subordinates as they had. After completing the evaluations, the managers were asked to give a sealed envelope to each of their subordinates. The envelope contained: (1) a cover letter explaining the objectives of the study and a statement ensuring that responses would be confidential; (2) a stamped reply envelope addressed to the authors of this study; and (3) a short questionnaire containing our 16-item EI scale, and scales designed to measure emotional labor, job satisfaction, organizational commitment, and turnover intention. Each subordinate questionnaire was marked with an identification code so that the evaluation of the supervisors could be matched with the responses of their subordinates. The mean age of these subordinates was 29.02 (with a standard deviation of 6.97), and 52.8% were female.

3.2. Measures

3.2.1. Emotional intelligence

The 16 items developed from Study 1 were used to measure the EI of the incumbents. The response format was a 7-point Likert-type scale. Reliability estimates (coefficient alphas) for the four dimensions of self-emotion appraisal, uses of emotion, regulation of emotion, and others' emotion appraisal were .89, .88, .76, and .85, respectively.

3.2.2. Emotional labor: supervisor judgments

Because emotional labor is a requirement of the organization, and supervisors are responsible to ensure that their subordinates fulfill this requirement, we believe that supervisors should be the most reasonable people to judge the emotional labor of subordinates. Therefore, we trained the supervisors for about an hour in the concept of emotional labor.

After introducing the concept, we showed the supervisors the Adelman (1989, pp. 22–24) tables, which contrast high and low emotional labor jobs in different occupations. The classification system was explained. Then samples of job descriptions were presented and the supervisors were asked to judge whether these jobs should be classified as high or low in

emotional labor. The training session ended when the supervisors reached a consensus on the classification of these jobs. The supervisors were asked to judge whether the jobs of their subordinates should be classified as requiring a *high* (coded as 1) or *low* degree of emotional labor (coded as 0) before they evaluated the performance and organizational citizenship behavior of their subordinates. They were instructed to select subordinates with both high and low emotional labor jobs whenever possible.

3.2.3. *Emotional labor: incumbent ratings*

Past studies were either case studies (e.g., Rafaeli & Sutton, 1987; Sutton, 1991; Van Maanen & Kunda, 1989) or used an ad hoc measure that was suitable only for a particular occupation or sample (e.g., Morris & Feldman, 1997; Wharton, 1993; Wharton & Erickson, 1995). To provide cross-validation evidence for the supervisor judgments, we also included five emotional labor items in the incumbent questionnaire. We designed these items according to the Hochschild (1983) characteristics of jobs with a high degree of emotional labor, and the items used by Adelman (1989). These five items are shown in Appendix A. The response format was a 7-point Likert-type scale, and the coefficient alpha of these five items was .69.

3.2.4. *Job satisfaction*

The four items from the Job Diagnostic Survey (Hackman & Oldham, 1976), which measure satisfaction with the work itself, were adopted. These items asked respondents to evaluate the extent of satisfaction in four dimensions of performing their jobs (including, for example, the amount of personal growth and development, and the feeling of worthwhile accomplishment). The response format was a 5-point Likert-type scale. The coefficient alpha of these four items was .77.

3.2.5. *Organizational commitment*

The six items measuring the affective commitment to the organization as developed by Meyer, Allen, and Smith (1993) were adopted. An example of such items is: "I really feel as if this organization's problems are my own." The response format was a 5-point Likert-type scale. The coefficient alpha of the six items was .74.

3.2.6. *Turnover intention*

The three items from Cammann, Fichman, Jenkins, and Klesh (1979) were modified so that a Likert-type response scale could be used. An example of such items is: "I will probably look for a new job in the next year." The response format was a 5-point Likert-type scale, and the coefficient alpha of the three items was .81.

3.2.7. *Job performance*

The five items developed by Williams (1988) and used by Hui, Law, and Chen (1999) were adopted. An example of such items is: "This subordinate always completes the duties specified in his/her job description." The response format was a 7-point Likert-type scale, and the coefficient alpha of the three items was .81.

3.3. Results

Two preliminary analyses were conducted to check the appropriateness of the EI and emotional labor measures. Using the LISREL program, confirmatory factor analysis was conducted on the 16 EI items to determine whether they conformed to the four-factor model as designed. To maximize our sample size, we invited the 60 supervisors to evaluate their own EI level, and we included these 60 data points in the confirmatory factor analysis. In other words, the total sample size of the confirmatory factor analysis was 209.

The results of the analysis showed that the four-factor model fitted the data very well. The model χ^2 was 233.53 ($df=98$), the CFI was .94, the TLI was .92, and the standardized RMR was .05. The reliability estimates for each dimension (ranging from .76 to .89) were also acceptable. As with the samples in Study 1, the second-level model also resulted in a reasonably good fit ($\chi^2=243.59$, with $df=100$; CFI=.93; TLI=.92; and standardized RMR=.07), while the single-factor model was unacceptable ($\chi^2=488.20$, with $df=104$; CFI=.82; TLI=.80; and standardized RMR=.20). Thus, these dimensions may be combined to form an estimate of the underlying EI construct.

Moreover, the convergence of the supervisor judgments and incumbent ratings of emotional labor were examined. Since a supervisor's judgment is a dichotomous variable, the point-biserial correlation coefficient was calculated. It was .77 ($P<.01$) between the two ratings, which indicated strong agreement between the supervisors and incumbents concerning the emotional labor of incumbent jobs.

We conducted another preliminary analysis for the performance data because in our data, 41 supervisors rated the performance of more than one subordinate. Independence of the performance data may have created a problem in data analysis. Thus, we calculated the within-group interrater reliability for these 41 supervisors according to the formula provided by James and Demaree (1984). To be conservative, we did not consider any response bias and assumed a triangular null distribution. The mean interrater reliability for the 41 groups of performance ratings was .65 and its standard deviation was .31. Over half of these reliability coefficients (53.7%) were less than .70. George and Bettenhausen (1990) argued that an interrater reliability greater than .70 could be considered as an indicator of good within group agreement. From this result, we believe that the performance ratings may be regarded as independent and the results will not be affected significantly.

To test the proposed interaction effect between emotional labor and the EI of followers on their job performance and attitudes, moderated regression analyses were conducted for each job outcome using both the measures of emotional labor (supervisor and subordinate assessment). Specifically, the main and interaction effects were entered into the regression equation step by step, and the change in R^2 s was examined when the interaction term was entered into the equation.

Descriptive statistics and correlations among variables are shown in Table 6. It should be noted that the judgments by supervisors of a low degree of emotional labor were coded as zero, and those of a high degree of emotional labor were coded as one. EI (as represented by the mean score across the four EI dimensions) had a significant correlation with job performance ($r=.21$, $P<.01$) and job satisfaction ($r=.40$, $P<.01$), but a nonsignificant

Table 6
Descriptive statistics and correlation among variables for Study 2

	\bar{X}	S.D.	1	2	3	4	5	6	7	8	9	10	11
1. SEA	4.70	.97	(.89)										
2. ROE	4.71	.91	.68**	(.76)									
3. UOE	4.50	.96	.73**	.60**	(.88)								
4. OEA	4.59	.96	.74**	.76**	.65**	(.85)							
5. EI	4.63	.83	.90**	.86**	.85**	.90**	(.94)						
6. EL (Sup)	.51	.50	.32**	.37**	.16	.39**	.35**	–					
7. EL (Incum)	4.42	.79	.44**	.47**	.33**	.49**	.49**	.77*	(.88)				
8. Job perf	5.00	.91	.15	.26**	.08	.27**	.21**	.31**	.25**	(.81)			
9. Job sat	3.27	.67	.34**	.45**	.27**	.36**	.40**	.29**	.44**	.27**	(.77)		
10. Orgl com	3.95	.78	.15	.17*	.14	.02	.14	.29**	.40**	.13	.45**	(.74)	
11. TI	3.78	1.31	–.00	–.01	.01	.11	.03	–.10	–.08	–.10	–.34**	–.53**	(.81)

SEA, OEA, ROE, UOE, LS, PWL, IQ stand for self-emotion appraisal, other’s emotion appraisal, regulation of emotion, uses of emotion. EI=mean score of the four EI dimensions. EL (Sup)=emotional labor estimated by supervisor. EL (Incum)=emotional labor estimated by incumbents. Job perf=job performance. Orgl com=organizational commitment. TI=turnover intention. *n* = 149.

* *P* < .05 (two-tailed tests).

** *P* < .01 (two-tailed tests).

correlation with organizational commitment (*r* = .14, *ns*) and turnover intention (*r* = .03, *ns*). As a result, we conclude that Hypotheses 1 and 2 are supported, while Hypotheses 3 and 4 are not. EI is related to job performance and job satisfaction, but not to organizational commitment and turnover intention.

The results of the moderated regression analyses are shown in Table 7. As an exploratory effort, we conducted these analyses both for the overall measure of EI and its individual dimensions. As the results are quite similar, we focus on the mean EI score as a representation of the EI construct to simplify our discussion. As shown in the two parts of Table 7, the interaction terms are significant when organizational commitment and turnover intention are used as the dependent variables. It does not matter whether supervisor or job incumbent assessments of emotional labor are used. Therefore, Hypotheses 7 and 8 are strongly supported. Emotional labor is a significant moderator of the EI–job performance relationship when incumbent assessments of emotional labor are used. When supervisor assessments of emotional labor are used, the moderating term is marginally significant.

As a whole, we conclude that Hypothesis 5 is generally supported. In contrast, the product term is marginally significant when job satisfaction is used as the dependent variable and emotional labor is assessed by the supervisor. When emotional labor is assessed by incumbents, the product term is not significant. Therefore, Hypothesis 6 is not supported.

To examine the direction of the interaction effect, we calculated the intercepts (*b*₀), slope (*b*₁), and the correlation coefficients for the high and low emotional labor subgroups according to supervisor judgments of emotional labor. The results are shown in Table 8. These results provide strong support for our hypotheses.

The correlation between EI and job performance was virtually zero in the low emotional labor group, while it was highly significant (*r* = .26) in the high emotional labor group. The

Table 7
Change in the model R^2 of the moderated regression analysis ($n=149$)

	Dependent variables			
	Job performance	Job satisfaction	Organizational commitment	Turnover intention
<i>(a) Using supervisor assessments of emotional labor</i>				
SEA×EL	.02 ⁺	.02 ⁺	.06**	.06**
OEA×EL	.01	.01	.06**	.08**
ROE×EL	.02 ⁺	.01	.05**	.04*
UOE×EL	.01	.01	.07**	.06**
EI×EL	.02 ⁺	.02 ⁺	.09**	.08**
<i>(b) Using job incumbent assessments of emotional labor</i>				
SEA×EL	.03*	.00	.03*	.04*
OEA×EL	.03*	.00	.02 ⁺	.06**
ROE×EL	.02	.00	.04*	.06**
UOE×EL	.00	.01	.04**	.04*
EI×EL	.03*	.01	.04 ⁺	.06**

SEA, OEA, ROE, UOE, LS, PWL, IQ stand for self-emotion appraisal, others' emotion appraisal, regulation of emotion, uses of emotion. EL stands for emotional labor; EI is the total score of the four EI dimensions. $n = 149$.

* $< .05$ (two-tailed tests).

** $P < .01$ (two-tailed tests).

⁺ $< .10$.

results for organizational commitment and turnover intention are stronger yet. EI showed the expected positive correlation with organizational commitment ($r = .34$) and a negative correlation with turnover intention ($r = -.22$) only in the high emotional labor group. In the low emotional labor group, the observed correlations are opposite to the expected relationships. These differences in correlation coefficients are all statistically significant ($P < .05$).

Table 8

Beta coefficients for the regression of job outcomes on EI for the groups with high and low levels of emotional labor as judged by supervisors

	Low-EL group ($n = 73$)			High-EL group ($n = 76$)		
	b_0	b_1	R_{xy}	b_0	b_1	R_{xy}
Job performance	4.71	.00	.00	3.70	.32	.26
Organizational commitment	4.61	-.21	-.26	2.17	.41	.34
Turnover intention	1.76	.50	.36	5.85	-.45	-.22

The low- and high-EL groups stand for the incumbent jobs that were judged to be of low and high emotional labor, respectively, by their supervisors. b_0 is the intercept of the regression line, and b_1 is the slope of the regression line; R_{xy} is the Pearson correlation between EI and the outcome variable.

4. Study 3: testing the influence of leader EI on followers' job outcomes

Study 2 demonstrated the influence of follower EI on job outcomes. In Study 3, we test the relationship between the EI of leaders and their effectiveness by examining the relationship between leader EI and follower job outcomes.

4.1. Sample and procedures

To control for organizational differences, the sample for this study consisted of 146 middle-level administrators in the Hong Kong Government. These administrators were asked to evaluate their own EI with the 16-item EI measure developed in Study 1, and the in-role and extra-role behaviors for one of their subordinates who reported to them directly. After completing the evaluations, these administrators were asked to give a short questionnaire containing the 16-item EI, job satisfaction, job characteristics, education level, and tenure with their organizations items to the subordinate that they evaluated. These subordinates were given the short questionnaire in a sealed envelop that contained a cover letter explaining the objectives of the study, a statement ensuring that responses would be confidential, and a stamped reply envelop addressed to the authors of this study. Respondents mailed the completed questionnaire directly to the authors. Each questionnaire was marked with an identification code so that supervisor evaluations could be matched with subordinate responses. The mean age of these subordinates was 28.90 (with a standard deviation of 6.30), and 61.9% were female.

4.2. Measures

4.2.1. Emotional intelligence

Reliability estimates (coefficient alphas) for the four dimensions of SEA, UOE, ROE, and OEA were .86, .85, .79, and .82, respectively, for the supervisor responses. These reliability estimates were .86, .85, .79, and .82, respectively, for the subordinate responses.

4.2.2. Job satisfaction

The 14 items from the Job Diagnostic Survey (Hackman & Oldham, 1976) that measures job satisfaction were adopted. The response format was a 5-point Likert-type scale, and coefficient alpha of these 14 items was .87.

4.2.3. Job perception

Although we chose a relatively homogenous sample in terms of organizational culture and reward systems, job characteristics were controlled because respondents came from different units of the government service. Thus, we measured their job characteristics by the 15 items of the Job Diagnostic Survey (Hackman & Oldham, 1976). The response format was a 7-point Likert-type scale, and the reliability for each dimension was: skills variety, 0.73; job identity, .85; job significance, .80; autonomy, .80; and feedback, .61.

Table 9
Descriptive statistics and correlation among variables for Study 3

	Mean	S.D.	1	2	3	4	5	6	7
1. Incumbent's EI	4.84	.76	–						
2. Supervisor's EI	5.32	.72	.05	–					
3. Job perception	4.42	.93	.23**	.25**	–				
4. Job performance	5.07	.89	.05	.13	.14 ⁺	–			
5. Job satisfaction	3.25	.52	.22**	.26**	.55**	.16 ⁺	–		
6. Organizational citizenship behavior	4.39	.72	.15 ⁺	.21*	.29**	.63**	.21*	–	
7. Education level	2.35	.55	.19*	–.13	–.09	–.01	–.14	.03	–
8. Tenure	45.54	46.34	–.11	.10	.05	.10	.12	–.07	–.28**

EI stands for emotional intelligence measured by the 16 items developed in this study.

$n=146$.

* $P<.05$ (two-tailed tests).

** $P<.01$ (two-tailed tests).

⁺ $<.10$.

4.2.4. In-role and extra-role behavior

The five items used in Study 2 measuring in-role behavior (i.e., job performance) were adopted. The response format was a 7-point Likert-type scale, and the coefficient alpha in this sample was .81. Extra-role behavior (i.e., organizational citizenship behavior) was measured by items from Podsakoff, MacKenzie, Moorman, and Fetter (1990). These 36 items measured seven dimensions of organizational citizenship behaviors. The response format was a 7-point Likert-type scale, and the coefficient alphas were: altruism, .88; peace, .78; cheer leader, .92; cons, .84; civic virtue, .83; court, .83; and sportsmanship, .80.

Table 10
Results of regression analyses of leader EI on follower job outcomes

Independent variables	Dependent variables					
	Job performance		Job satisfaction		Organizational citizenship behavior	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Job perception	.13	.10	.51**	.48**	.23**	.21*
Subordinate's EI	.02	.01	.14 ⁺	.14 ⁺	.08	.08
Education level	.04	.05	–.09	–.07	.03	.04
Tenure	.10	.09	.09	.08	–.08	–.09
Job satisfaction	–	–	–	–	.07	.04
Supervisor's EI	–	.122	–	.13 ⁺	–	.18*
R^2	.026	.040	.333**	.348**	.100*	.128*
ΔR^2	–	.014	–	.015 ⁺	–	.028*

EI stands for emotional intelligence measured by the 16 items developed in this study.

$n=146$.

* $P<.05$ (two-tailed tests).

** $P<.01$ (two-tailed tests).

⁺ $<.10$.

4.2.5. Education and tenure with organization

Education level and job tenure were also controlled in this study. Education level was measured by a multiple-choice item. Primary, secondary, and tertiary education levels were coded as 1, 2, and 3. Tenure with organization was measured by an open question asking respondents to indicate their tenure with their organizations in terms of the number of months.

4.3. Results

Descriptive statistics and the correlations among measures are shown in Table 9. To test for the effects of leader EI on follower job outcomes, hierarchical regression was conducted. The results are shown in Table 10. After controlling for the subordinate job perceptions, EI, education level, and tenure with the organization, the EI of supervisors still has a marginal significant effect on the job satisfaction of subordinates and a significant effect on their extra-role behaviors. However, no effect was found with job performance. Thus, Hypothesis 9 was not supported, while Hypotheses 10 and 11 were supported.

5. Discussion and conclusion

Recently, increasing numbers of scholars have argued that EI is a core variable that affects the performance of leaders (see, e.g., Day, 2000; Sternberg, 1997). Unfortunately, there has been a lack of a psychometrically sound yet practically short EI measure for leadership and management research. There is also little evidence concerning the effects of leader and follower EI on job outcomes. The purpose of this study was to develop such a measure and provide evidence concerning the effects of EI on job outcomes to aid future leadership and management research.

Our study yielded some interesting results. Firstly, apart from acceptable reliability and validity, the EI measure developed shows good convergence with some of the past EI measures such as the Trait Meta-Mood and the EQ-i. However, our measure appears to perform better in predicting external criterion variables such as life satisfaction. As the EI measure developed is relatively simple, it may be beneficial for future leadership and management research.

For the EI of followers, our study has provided preliminary evidence that the EI–job outcome relationship is more complicated than recent proposals (e.g., Abraham, 1999; Ashkanasy & Hooper, 1999; Goleman, 1998). Specifically, job performance is significantly correlated with EI, and this relationship appears to be moderated by emotional labor, as proposed in Fig. 1. Job satisfaction is significantly correlated with EI, but emotional labor does not moderate the EI–job satisfaction relationship. In contrast, organizational commitment and turnover intention have a low and nonsignificant correlation with EI, but emotional labor strongly moderates the EI–commitment and EI–turnover intention relationship. In other words, EI has a strong positive effect on job satisfaction regardless of the nature of the job. In contrast, EI might only have a desirable effect on organizational commitment and turnover intention in jobs that require high emotional, labor while the effect is undesirable in

jobs that require low emotional labor. Perhaps this is because employees with high EI find it difficult to commit to a work place that is not conducive to the emotional impact they consider good. Alternatively, they may feel that their abilities are not appreciated or are utilized in low emotional labor jobs. These results are sensible on a post hoc basis, although they were unexpected then the study was designed.

Our study provides some preliminary support for researchers who have proposed the importance of leader EI (e.g., Boal & Hooijberg, 2000; Hooijberg et al., 1997; Sternberg, 1997). Our results show that the EI of leaders is positively related to the job satisfaction and extra-role behavior of followers, as expected. However, no relationship between the EI of leaders and the job performance of their followers has been found. This may be due to our sample, which consists of government administrators who have a culture of distorting the performance ratings of their subordinates. Future research should use different samples to cross-validate this finding.

Despite these unexpected findings and limitations, we believe there are both theoretical and practical implications of this study. Theoretically, we have applied the emotion regulation model to explain the importance of EI in the social interactions in the workplace. As some or most of the social interactions in the workplace may be related to job duties, we hypothesize a positive relationship between EI and job outcomes. As an exploratory effort, we focus on demonstrating these relationships. As the results of this study provide support for these relationships, it is worthwhile to investigate further the role of emotion regulation in the workplace. For example, the emotion regulation model has specified two types of actions to regulate emotions, namely antecedent- and response-focused emotion regulation. It is worthwhile to investigate the specific actions taken by both the leaders and the incumbents in the workplace. What are the factors affecting the choices of actions made by leaders and incumbents? Will some actions be more effective under certain circumstances? Will some actions be more effective for some jobs? These are interesting questions that future leadership and management research should address.

Furthermore, new studies should be conducted to investigate the role of EI in the workplace. Proponents have argued for the benefit of hiring employees with high levels of EI. However, few empirical studies have been conducted to test this argument. The results of this exploratory study provide evidence that EI tends to be related to important job outcomes that management desires.

Results of this study also have certain practical implications. Firstly, it is generally believed that individuals with a high level of EI are better employees. For example, Goleman (1995) contends that IE should become increasingly valued in the workplace in the future. The results of this study suggest that although it may be nice to have leaders and employees with a high level of EI because these employees tend to have higher job satisfaction, it is still important to ensure the match employee levels of EI to job requirements. It may be a waste of resources and time to stress the importance of the level of employee EI when it is not required in the job.

Secondly, in contrast to our expectations, strong interaction effects were observed for organizational commitment and turnover intention. That is, the effects of follower EI on organizational commitment and turnover intention is detrimental for low emotional labor

jobs. If this finding is further verified by future research, then it will mean that employees with high levels of EI who do not have the opportunity to use these skills in their jobs may be less committed to their organizations and have a higher chance of quitting. This finding is worthy of further research. It is also interesting that this strong interaction effect does not hold for other job outcomes such as job performance. Perhaps employees with a high level of EI are still able to concentrate on performing their jobs although they realize that their skills are underutilized. Thus, having employees with a high level of EI may be advantageous to the organization.

To conclude, this study has provided some preliminary evidence for the role of leader and follower EI, and for the interaction effect of employee EI and emotional labor on their job performance and attitudes towards their jobs. As an exploratory effort, we believe that we have provided sufficient evidence for future leadership and management research to investigate the role of emotions in the workplace. Thus, more research on the role of both leader and follower EI in the workplace is called for.

Acknowledgments

The work described in this paper was partially supported by a grant from the Research Grants Council of the Hong Kong Special Administrative Region (Project No. CUHK4038/00H).

Appendix A. Emotional intelligence and emotional labor items

A.1. Emotional intelligence items

Self-emotion 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' emotion 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-motivated person.
12. I would always encourage myself to try my best.

Regulation of emotion (ROE)

13. I am able to control my temper and 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.

A.2. Emotional labor items

To perform my job well, it is necessary for me to:

1. spend most of my work time interacting with people (e.g., customers, colleagues, and other workers in this organization).
2. spend a lot of time with every person whom I work with.
3. hide my actual feelings when acting and speaking with people.
4. be considerate and think from the point of view of others.
5. hide my negative feelings (e.g., anger and depression).

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