



Emotional intelligence and leadership effectiveness

EI and
leadership
effectiveness

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Abstract

Purpose – This paper investigates the relationship between managerial emotional intelligence (EI) levels and a rating of leadership effectiveness (subordinate ratings).

Design/methodology/approach – The study involved administering the Mayer Salovey Caruso emotional intelligence test (MSCEIT) EI test to 38 supervisors within a large manufacturing organisation. Ratings of supervisory leadership effectiveness were assessed via subordinate ratings on an attitude survey detailing questions relating to supervisor performance. Altogether data were collated from a total of 1,258 survey responses.

Findings – The overall results of the data analysis suggest that half of the MSCEIT scores may act as a strong predictor of leadership effectiveness, particularly the branches within the experiential EI domain ($r = 0.50$, $p < 0.001$). Interestingly, the relationship between supervisor ratings and the reasoning EI domain ($r = -0.12$) was not as expected.

Practical implications – These findings endorse the validity of incorporating EI interventions alongside the recruitment and selection process and the training and development process of managerial personnel. However, they also question the conceptual validity of a key branch (managing emotions) of the MSCEIT.

Originality/value – Although EI is viewed as a key determinant of effective leadership within leadership literature there is a relative dearth of supporting research that has not used student sample populations or a conceptually suspect model of EI within their research methodology.

Keywords Emotional intelligence, Leadership, Management effectiveness, Intelligence tests

Paper type Research paper

What is emotional intelligence?

Salovey and Mayer (1990) first established the term “emotional intelligence”(EI). They hypothesized a framework describing a set of skills:

... relevant to the accurate appraisal and expression of emotion in oneself and in others, the effective regulation of emotion in self and others, and the use of feeling to motivate, plan, and achieve in one's life (Salovey and Mayer, 1990, p. 185).

Thus, they implied that the two distinct mental processes, thinking and feeling, actually work together. Their theory of EI focuses on the extent to which people's cognitive capabilities are informed by emotions and the extent to which emotions are cognitively managed (George, 2000). Since, Salovey and Mayer's (1990) conceptualization of EI the field has become inundated with a deluge of different tests all purporting to be effective assessments of an individual's EI.

The main models of EI currently available include the multifactor emotional intelligence scale (MEIS; Mayer *et al.*, 1999), the Mayer Salovey Caruso emotional intelligence test (MSCEIT; Mayer *et al.*, 2000) the emotional competency inventory



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(ECI; Goleman, 1998), the emotion-quotient inventory (EQ-i; Bar-On, 1997), the emotional intelligence quotient (EIQ; Dulewicz and Higgs, 1999), the emotional quotient map (EQ-MAP; Cooper and Sawaf, 1997), the self-report emotional intelligence test (SREIT; Schutte *et al.*, 1998), the Swinburne emotional intelligence test (SUEIT/Genos EI Assessment; Palmer and Stough, 2001), the trait meta mood scale (TMMS; Salovey *et al.*, 1995), and the workgroup emotional intelligence profile (WEIP; Jordan *et al.*, 2002).

The more established categorization of EI models involves the segregation of current models into mixed and ability camps (Caruso *et al.*, 2002; Day and Carroll, 2004; Hedlund and Sternberg, 2000). Models that focus exclusively on cognitive aptitudes, referring to EI as a form of intelligence reflecting the ability to process emotional information, are classified as ability models of EI (Caruso *et al.*, 2002; Day and Carroll, 2004). Models that incorporate a diverse range of abilities, behaviours, and personality traits within their EI framework are classified as mixed models of EI (Mayer *et al.*, 2000a). Daus and Ashkanasy (2005) further refine the different models of EI into three streams. Stream 1 is based on the ability model of EI as measured by rating an individual's ability to perform EI related tasks. Stream 2 is also based on the ability model of EI but adopts a self or peer report format. Stream 3 comprises broader mixed models that include components not identified in the original definition of EI and also adopt a self or peer report format. Mayer (2000, p. 415) argues that mixed models (more accurately stream 3 models):

... contain variables beyond what is meant by the terms "emotion" or "intelligence" or what reasonable people would infer from the phrase, "Emotional Intelligence".

Table I provides a breakdown of the main models of EI currently available under the above categorizations.

Daus and Ashkanasy's (2005) three stream approach is the most sensitive to variations in the theoretical foundations of different models of EI. They acknowledge models that prescribe to the original ability definition of EI (Salovey and Mayer, 1990) but stray from the core ideology by adopting a self-report/peer-report measurement format. Interestingly Petrides and Furnham (2000) seem quite happy to ignore this distinction. They group all self-report measures of EI into one generic category (trait EI), arguing that it is the type of measurement rather than the theory *per se* that determines the nature of the model. This proposition has been lent a degree of support by recent research findings indicating that stream 2 models have a greater construct affinity with stream 3 models than the theoretically related stream 1 category (Brackett and Mayer, 2003; Davies *et al.*, 1998; Petrides and Furnham, 2000; Rosete and Ciarrochi, 2005; Warwick and Nettelbeck, 2004). The distinct conceptual differences between the stream 1 and stream 3 models have led some to propose that the term EI be reserved for ability based (stream 1) models only, thus excluding the stream 3 models from the EI paradigm altogether (Brackett and Mayer, 2003). Davies *et al.* (1998, p. 1012) specify that if EI is to qualify as intelligence, it must be independent from personality traits. They go on to state that self-report EI scales (streams 2 and 3) tend to be "indistinguishable from established personality traits". MacCann *et al.* (2004) argue that the near zero correlations found between self-reported EI and traditional forms of intelligence (Derksen *et al.*, 2002; Rooy and Viswesvaran, 2004), suggest that self-report EI cannot legitimately constitute a form of intelligence.

Mayer <i>et al.</i> (2000)	Petrides and Furnham (2000)	Daus and Ashkanasy (2005)	Measurement method	Theoretical foundations	Tests of emotional intelligence
Ability models	Information processing EI	Stream 1	Ability	Original ability model focus	MEIS; Mayer <i>et al.</i> (1999) MSCEIT; Mayer <i>et al.</i> (2000)
Mixed models	Trait EI	Stream 2	Self-report /peer-report	Additional EI concepts	SREIT; Schutte <i>et al.</i> (1998) SUEIT; Palmer and Stough (2001) TMMS; Salovey <i>et al.</i> (1995) WEIP; Jordan <i>et al.</i> (2002) ECI; Goleman (1998) EQ-i; Bar-On (1997) EQ; Dulewicz and Higgs (1999) EQ-MAP; Cooper and Sawaf (1997)
		Stream 3			

Table I.
Classification of the main models and tests of EI within different parameters

One of the most popular ability models of EI was conceived by Mayer and Salovey (1997) as a four branch hierarchical model ranging from basic psychological processes to those that are more advanced. The four branches of their model are:

- (1) *Identifying emotions*. The ability to recognise how you and those around you are feeling.
- (2) *Using emotions to facilitate thought*. The ability to generate an emotion, and then reason with this emotion.
- (3) *Understanding emotions*. The ability to understand complex emotions and emotional “chains” how emotions shift from one stage to another.
- (4) *Managing emotions*. The ability to manage emotions in your self and in others.

Emotional intelligence and the leadership process

Leadership is a process of social interaction where the leader’s ability to influence the behaviour of their followers can strongly influence performance outcomes (Humphrey, 2002; Pirola-Merlo *et al.*, 2002). Leadership is intrinsically an emotional process, whereby leaders recognise followers’ emotional states, attempt to evoke emotions in followers, and then seek to manage followers’ emotional states accordingly (Humphrey, 2002). Pescosolido (2002) argues that leaders increase group solidarity and morale by creating shared emotional experiences. The ability of leaders to influence the emotional climate can strongly influence performance (Humphrey, 2002).

EI is a key factor in an individual’s ability to be socially effective (George, 2000; Mayer *et al.*, 2000b) and is viewed in leadership literature as a key determinant of effective leadership (Ashkanasy and Tse, 2000; Boal and Hooijberg, 2000; George, 2000). George (2000) argues that emotionally intelligent leaders can promote effectiveness at all levels in organisations. The EI of the leader plays an important role in the quality and effectiveness of social interactions with other individuals (House and Aditya, 1996). Mayer *et al.* (2000a) hypothesized that employees who have high levels of EI may have smoother interactions with members of their work teams. Salovey *et al.* (1999), found that individuals who rated highly in the ability to perceive accurately, understand, and appraise others’ emotions were better able to respond flexibly to changes in their social environments and build supportive networks. Mayer *et al.* (2000b) proposed that a high level of EI might enable a leader to be better able to monitor how work group members are feeling, and take the appropriate action.

Surprisingly, given the popularity of the concept, most of the published research investigating EI and performance outcomes has been conducted in laboratory conditions, using student sample populations (Lopes *et al.*, 2004), or has adopted a mixed model (streams 1 or 2) of EI within their research methodology. The studies that have applied the ability model within organisational contexts have found mixed results. Weinberger’s (2002) investigation of the relationship between EI and transformational leadership, using the MSCEIT, and the multifactor leadership questionnaire (Bass and Avolio, 1995), found no significant correlations within a sample group of 138 managers. Rosete and Ciarrochi (2005) studied 41 Australian public service managers to explore the relationship between ability based EI (MSCEIT), personality (16PF), cognitive intelligence (WASI) and leadership effectiveness. He found that higher EI scores were associated with higher leadership effectiveness. The present study intends to compensate for the relative dearth of

research focusing on the relationship between managerial EI and team performance outcomes within an actual workplace setting.

Method

Participants

A total of 38 supervisors (37 males and 1 female) and 1,258 employees from one organisation participated in the investigation. The participants' ages ranged from 24 to 62 ($M = 39$, $SD = 10.05$).

Measures

The MSCEIT. The MSCEIT is the latest attempt to operationalise the ability model of EI. The focus is on the assessment of ability. Caruso (2001, p. 40) notes that the MSCEIT:

... depends neither upon an individual's self-report nor on the ratings of other people, which [are] inaccurate measures of EI.

The MSCEIT measures an individual's overall level of EI and their ability levels in relation to the four branches of the model: perceiving emotions, using emotions, understanding emotions, and managing emotions. The perceiving emotions branch consists of two tasks concerned with the ability to perceive and identify the emotional content of four different faces (faces task) and also of six artistic images and photos (pictures task). The using emotions branch of the MSCEIT measures how much a respondent's thoughts and other cognitive activities are informed by their experience of emotions. This branch consists of two tasks: the facilitation task, which involves identifying which emotions may be useful to perform five different activities, and the sensations task, which requires the participant to relate emotions to other mental sensations such as taste and colour. The understanding emotions branch consists of two tasks: the changes task and the blends task. The changes task looks at the progression of emotions and measures the ability to understand how emotions may change and alter over time. For example, fear often changes to relief and anger often changes to sadness. The blends task measures a respondent's ability to identify the individual emotional constituents of complex feelings. The managing emotions branch consists of two tasks, emotional management and social management. The emotional management task measures the respondent's ability to incorporate his or her own emotions into decision making. The test taker is required to rate the effectiveness of alternative actions in achieving a certain result in five situations where a person must regulate his or her own emotions. The social management is similar to the emotional management task but measures the respondent's ability to incorporate emotions into decision making involving other people. The MSCEIT also generates two domain scores; experiential emotional intelligence (EEI), assessing an individuals' ability to experience emotion (the cumulative score of the first two branches, perceiving and using emotions); and reasoning emotional intelligence (REI), assessing an individual's ability to strategise about emotion (the cumulative score of the last two branches, understanding and managing emotions). The MSCEIT consists of 141 items that provide 15 scores: total EI score, two area scores, four branch scores and eight task scores. Research has suggested the MSCEIT has good reliability (Brackett and Mayer, 2003; Lopes *et al.*, 2003; Mayer *et al.*, 2004) and a supported factor structure (Day and Carroll, 2004; Mayer *et al.*, 2000b).

The MSCEIT is scored via “consensus” scoring and “expert” scoring methods. Both systems operate under the principal of consensus scoring to the effect that if an individual indicated that anger was “definitely present” in a face and the same alternative was selected by 45 per cent of the “consensus” scoring sample, then the individual’s score would be incremented by 0.45, as their “consensus” score for that item. MacCann *et al.* (2004) argue that consensual scoring suffers from a major weakness in that the distribution of test scores will have a negative skew and a high degree of kurtosis. As most of the scores will form a highly peaked cluster at the top end of the distribution, individuals who scored very highly in EI will fall close to someone who scored adequately in EI. This may result in difficulties in discriminating between the two (MacCann *et al.*, 2004). The “expert” scoring method, selected for this investigation, is more robust against these criticisms due to its relatively small sample size of 21. Research has provided discriminant validity from the big five personality traits (Brackett and Mayer, 2003; Ciarrochi *et al.*, 2000; Day and Carroll, 2004; Lopes *et al.*, 2003; Salovey *et al.*, 2003) and other personality measures (Caruso *et al.*, 2002; Rosete and Ciarrochi, 2005).

Leadership effectiveness

The organisation in question was currently in the process of deploying attitude surveys to assess employee perceptions of among other things managerial performance for direct line management. The survey was tailor-made by a third party consultancy for application within the organisation. Validity and reliability evidence was provided by a pilot test before full-scale organisation wide implementation occurred. Each survey was identical and contained 24 questions under the section headings of “supervisory leadership” “working conditions” and “training”. A key advantage of having managerially instigated attitude surveys was the extremely high response rates that followed (over 93 per cent). This high response rate reduces potential bias due to non-respondents. The attitudinal survey adopted a 10-point Likert-type scale (e.g. “1 = strongly disagree” to “10 = strongly agree”), and consisted of several questions relating to the perceived performance effectiveness of their respective supervisor. They were completed anonymously on-site during office working hours.

The “supervisor rating” was determined by isolating the nine survey questions under the “supervisory leadership” heading. The questions selected for analysis were as follows:

- (1) I feel at ease with my supervisor when asking questions.
- (2) My supervisor asks me how I am doing on a regular basis.
- (3) I feel I am treated in a fair manner.
- (4) My supervisor supports me when I need help.
- (5) Keeping my supervisor informed, I can take initiatives.
- (6) We are involved as a team in solving problems related to our work.
- (7) We are involved as a team in decisions made that affect our work.
- (8) I am involved as an individual in solving problems related to our work.
- (9) I am involved as an individual in decisions made that affect my work.

Factor analysis was performed to determine the number of underlying factors behind the nine survey questions and whether it is a valid proposition to treat the survey questions as a homogenous grouping. A Kaiser-Meyer-Olkin (KMO) measure of 0.89 indicated that the data was highly correlated and well suited for factor analysis (Norusis, 1994). The method of extraction chosen was principal components analysis, investigating a possible nine factors to reflect the nine survey questions. Latent root criterion was used to determine the number of factors to be extracted (Hair *et al.*, 1995). Only one factor, accounting for 81.7 per cent of the variance in responses, was found to have a latent root greater than one. This uni-factor solution is shown clearly within Figure 1 by the scree line levelling off sharply after factor 1.

All of the loadings on this single factor were high (ranging from 0.80 to 0.96). The intensity of the factor loadings indicates that the question responses can be aggregated together to form a single “supervisor rating” figure for each supervisor. In regards to the reliability of the survey as a measurement instrument, the Cronbach’s coefficient value was 0.97, suggesting an acceptable degree of item homogeneity. To determine an average supervisor score for each of the nine questions all employee responses for each question would be grouped and averaged (mean) for each individual supervisor.

The intensity of the unidimensional factor loadings is interesting when considering the theoretical diversity of some of the survey questions. This may indicate that when an individual is asked a question pertaining to their supervisor, their overall impression of the supervisor may determine their subsequent answer more strongly than the actual question content itself.

Procedure

Altogether 38 supervisors took the MSCEIT in a pencil and paper format. A total of 1,197 employee survey responses were accumulated for data analysis. The employee response per supervisor ranged from 9 to 53 ($M = 32$, $SD = 13.5$).

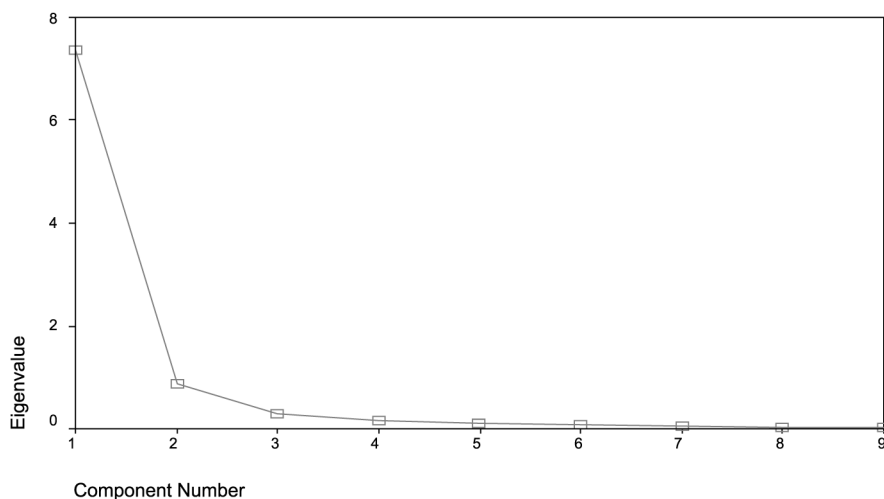


Figure 1.
Scree plot of eigenvalues
for nine survey questions

Results

A stratification of the MSCEIT scores is necessary to allow for the hierarchical nature of the construct. For example, experiential EI comprises both the perceiving emotions and using emotions branches. Figure 2 shows the hierarchical levels of the MSCEIT factor structure.

The Pearson product-moment correlation coefficient is a measure of the linear relationship between two variables and is the most frequently used measure of association between variables. Table II displays a correlation matrix for the main supervisory EI scores and the employees' ratings of supervisor effectiveness.

As expected a number of positive correlations were found between MSCEIT scores and supervisor ratings (e.g. perceiving emotions, $r = 0.43, p < 0.01$; using emotions branch, $r = 0.52, p < 0.001$). Surprisingly both the understanding and managing emotions branch scores, and their corresponding reasoning EI domain, did not display a significant relationship with supervisor ratings.

Discussion

Data analysis found that the total EI score displayed a strong positive correlation with supervisor ratings ($r = 0.39, p < 0.001$). The results indicate that 15.2 per cent of the

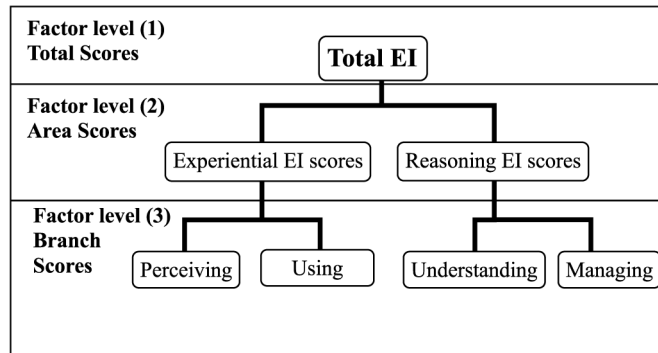


Figure 2.
Regression analysis levels
for the MSCEIT factor
structure

MSCEIT scores	<i>r</i>	<i>r</i> ²
Total EI	0.39 ***	0.152
<i>Area scores</i>		
Experiential EI	0.50 ***	0.252
Reasoning EI	0.09	-0.008
<i>Branch scores</i>		
Perceiving emotions	0.43 **	0.185
Using emotions	0.52 ***	0.271
Understanding emotions	0.25	0.063
Managing emotions	-0.12	-0.014

Table II.
Correlations of EI scores
and supervisor ratings

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

variation in supervisor ratings can be predicted by the supervisor's total emotional intelligence score. The American Psychological Association's (APA) taskforce on psychological testing concluded that psychologists studying highly complex human behaviour should be rather satisfied with correlations in the $r = 0.10$ to 0.20 range, and they should be generally pleased with correlations in the 0.25 - 0.35 area (Meyer *et al.*, 2001). Mayer *et al.* (2000, p. 412) comment, "the best new variables typically increase predictions, for instance, of job performance between 1% and 4%". Mayer and Salovey (1997, p. 17) also note, "a 10% contribution of emotional intelligence [to life outcomes] would be considered very large indeed".

With regard to the MSCEIT domain scores, the EEI score was found to be highly correlated with supervisor ratings ($r = 0.50$, $p < 0.001$), whereas the REI score displayed no significant correlation ($r = 0.09$). These results indicate that the EEI limb of the MSCEIT (Figure 1) accounts for almost all significance in the relationship between Total EI (TEI) and supervisor ratings. The r^2 value rises from 15.2 per cent for TEI at MSCEIT factor level 1, to 25.2 per cent for the EEI at MSCEIT factor level 2. This suggests that whereas the TEI score can predict 15.2 per cent of the variation in supervisor ratings the EEI score alone can predict 25.2 per cent of the variation. This increase, along with the lack of any significant statistical relationship found between REI scores and supervisor ratings (REI: $r = 0.09$), indicates that the REI value does not possess any significant predictive power in regards to supervisor ratings. Indeed, these findings suggest that when the REI score is added to the EEI score (to create the overall TEI value) the REI score dilutes the overall level of correlation with the dependent variable, thus we witness a reduction in the value of r^2 .

The perceiving emotions branch refers to the:

... ability to recognize how an individual and those around the individual are feeling ... this involves the capacity to perceive and to express feelings (Mayer *et al.*, 2002, p. 19).

Perceiving emotions branch scores displayed a high positive correlation with supervisor ratings ($r = 0.43$, $p < 0.001$). The r^2 value indicates that supervisors' respective perceiving emotions branch scores can account for 18.5 per cent of the variance in supervisor ratings. These findings indicate that the individuals they manage view supervisors who are adept at perceiving emotions as more effective in their supervisory role.

The using emotions branch of the MSCEIT involves using emotions to enhance reasoning (Mayer *et al.*, 2001). The branch aims to measure how much a respondent's thoughts and other cognitive activities are informed by their experience of emotions. Using emotions branch scores displayed a highly significant positive correlation with supervisor ratings ($r = 0.52$, $p < 0.001$). Indeed, the regression coefficient for the using branch was more significant than all other branches ($r^2 = 0.27$; Table I). Perceiving emotions and using emotions had the greatest overall impact on supervisor ratings.

The understanding emotions branch assesses an individual's ability to understand emotions and to reason with emotional knowledge (Mayer and Salovey, 1997). High levels of emotional understanding enable superior comprehension of the advantages and disadvantages of future actions (Mayer *et al.*, 2002), and more effective self-management of emotions, particularly negative emotions (Mischel and DeSmet, 2000). Surprisingly, understanding emotions branch scores had a non-significant positive correlation with supervisor ratings ($r = 0.25$). These findings indicate that the level of supervisory

emotional understanding, as measured by the MSCEIT, has little bearing on employee perceptions of supervisor effectiveness. Matthews *et al.* (2002) propose that expert knowledge of appropriate emotional behaviour does not necessarily translate into the actual application of emotionally appropriate behaviour. They argue that an emotionally inept scholar of emotion is not an oxymoronic amalgam of expertise and action. This study suggests that an individual's greater understanding of how emotions may change over time and a greater emotional vocabulary does not necessarily translate into superior emotional behaviour. Swift (2002) found that an individual's increased awareness of the potentially negative impact of their behaviour had little impact on the actual behaviour they subsequently displayed. Therefore, it seems an individual may be able to identify the most socially effective behaviour to engage in but may be unwilling or unable to pursue such a course of action.

The managing emotions branch is viewed as the most advanced emotional ability within the ability-based model (Mayer *et al.*, 2000), and therefore, has the potentially greatest impact on the management function (George, 2000). However, the actual results of the data analysis on the managing emotions branch scores are contrary to expectations. Correlation analysis identified no significant correlations between managing emotions branch scores and supervisor ratings ($r = -0.12$). The correlation, though non-significant, was also in an opposite direction than expected (negative instead of positive). The managing emotions branch and corresponding tasks were the only factorial components of the MSCEIT to display a negative relationship with supervisor ratings. Measuring an individual's ability to manage emotions is intrinsically more difficult than other branches of the ability model. Earlier branches of the MSCEIT are easier to assess as they have fewer parameters to consider (Mayer *et al.*, 2004) and are accompanied by an established body of related knowledge, such as coding emotional expressions for perceiving emotions (Ekman and Davidson, 1994), how emotions impact on cognition for using emotions (Salovey and Birnbaum, 1989) and delineating emotional understanding for understanding emotions (Ortony *et al.*, 1988). Mayer *et al.* (2004) believe that test items within the MSCEIT can be operationalised in such a fashion that there are more-or-less correct answers. However, Lopes *et al.* (2003) accede that ability tests of EI cannot encompass all the skills that contribute to people's capacity for emotional regulation. Emotional regulation includes both reactive and proactive coping requiring all sorts of skills, including analytical, creative, and practical competencies (Frijda, 1999). The managing emotions branch tasks are, in principal, closer to a self-reporting format than any other section of the MSCEIT. Whereas the other tasks focus on an individual determining what they thought was the "right" (i.e. correct) answer, the managing emotions tasks asked respondents to place themselves within a situation and identify which behaviour would be most socially effective to engage in. An individual's ability to regulate their emotions is not truly tested. The individual is to a large extent detached from the actual emotional stimulation the situation would invoke, allowing the individual to answer questions from an "emotional vacuum". Thus, the Managing Emotions branch seems vulnerable to similar criticisms applied to other self-report tests, that is, self-reported ability and actual ability are only minimally correlated in the realm of intelligence research (Davies *et al.*, 1998; Mayer *et al.*, 2000b). However, it must be noted that there is a lack of research supporting this proposition. Indeed, Salovey *et al.* (2003) found the MSCEIT to be unrelated to socially desirable responding.

Conclusion

The aim of this investigation was to determine the relationship between supervisory EI (as measured by the MSCEIT) and a rating of supervisor effectiveness (subordinate's scores). The overall results of the data analysis indicate that an individual's EI may indeed be a key determinant of effective leadership. Employee perceptions of supervisor effectiveness are strongly related to the EI of the supervisor. The results suggest that half of the MSCEIT scores may act as significantly large predictors of supervisor ratings (Mayer and Salovey, 1997; Mayer *et al.*, 2000; Meyer *et al.*, 2001). If this is indeed the case then these results support the inclusion and consideration of a manager's level of EI within the recruitment and selection process and the training and development process for managerial personnel.

The results from the data analysis also raise interesting queries into the validity of the understanding emotions and managing emotions branch scores within an organisational setting. The relationship found between both of these branch scores and ratings of supervisor effectiveness was not as expected. This may indicate that a supervisor's ability to understand and manage their emotions does not play a key role in determining how they are viewed and rated by their subordinates. With regard to understanding emotions and managing emotions it may well be that, as Matthews *et al.* (2002) propose, the ability to understand emotions and the ability to act effectually on this understanding may only be marginally related.

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