

Investigation the Relationship between Intelligence and Personality in Male and Female Students

Farnaz Dada

Lecturer in Payam-e-Noor University, Doolatabad, Isfahan

Abstract: The main purpose of this paper is to investigate the conceptual relation of intelligence and personality. Another purpose is to review empirical research on the relation of intelligence to other traits. Personality and intelligence have often been viewed as distinct domains that intersect only to a very limited degree. The sample consisted of 96 senior executives (Males = 36; Females = 50; mean age = 40.54). Regression analyses indicated medium to large relationships between ability EI scales and achieving business outcomes. Self-reported EI also was linked to business outcomes, but was no longer significant when controlling for personality. These results may have important implications for how we select and develop executives.

[Farnaz Dada. **Investigation the Relationship between Intelligence and Personality in Male and Female Students.** *Academ Arena* 2014;6(5):57-66] (ISSN 1553-992X). <http://www.sciencepub.net/academia>. 6

Key words: Intelligence, Personality, Psychology

1. Introduction

Research on both personality and intelligence over the last three decades suggests the possibility that, both conceptually and empirically, intelligence could be integrated with larger models of personality. Such integration may allow a more unified conception of the structure and sources of individual differences. In 1994, a group of 52 experts in the study of intelligence and related fields endorsed the following definition of intelligence (Gottfredson, 1997). Intelligence is a very general mental capability that, among other things, involves the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly and learn from experience. It is not merely book learning, a narrow academic skill, or test-taking smarts. Rather it reflects a broader and deeper capability for comprehending our surroundings—"catching on," "making sense" of things, or "figuring out" what to do.

In 1990, Salovey and Mayer drew together much of the material available on cognition (i.e., capacity to carry out abstract reasoning) and emotion (defined as signals that convey regular, discernable meanings about relationships) and developed a theory of EI. Their more recent refinement of their definition see EI as the "...ability to recognise the meanings of emotions and their relationships and to reason and problem-solve based on them" (Mayer, Caruso & Salovey, 1999, p. 267). EI is seen as the capacity to perceive emotions, assimilate emotion-related feelings, understand the information of those emotions, and manage them.

Between 1994 and 1997, EI was popularized by psychologist and journalist Daniel Goleman (1995) in his book "Emotional Intelligence". During this time, Goleman (1995) changed the definition quite substantially with the new definition appearing to equate EI with good social behavior. Since 1997 there

has been an explosion of activity in a new and now fuzzily-defined area. EI is now used popularly to mean various things, including motivation, empathy, sociability, warmth, and optimism (Mayer, 2001).

Mayer and Salovey (1997) argue that there are two major EI models that drive research: (1) ability models and (2) mixed models. Ability models conceptualise EI in a similar way to cognitive intelligence (i.e., Intelligence Quotient - IQ). These models suggest that EI should develop over time, be correlated with measures of IQ, and be measurable with a test based on performance (Ciarrochi, Chan & Caputi 2000; Mayer, Salovey, & Caruso 2004). In contrast, mixed models of EI incorporate both non-cognitive models (e.g., BarOn 1997) and competency-based models (e.g., Goleman 1995). These mixed models typically overlap or 'mix' with traditional models of personality and tend to utilise self-reports as their primary mode of assessment.

Importantly, while each approach conceptualises and measures EI from different perspectives, the approaches themselves appear to complement rather than contradict each other (Ciarrochi, Chan & Caputi, 2000). For example, both mixed and ability based measures of EI have been shown to be only modestly related to each other and to relate to important criteria such as social support, mental health, and social behavior (Ciarrochi, Scott, Deane, and Heaven, 2003; Mayer, Salovey and Caruso, 2004).

A critical question is whether EI is distinguishable from traditional measures of personality and IQ. The ability based measure of EI has been repeatedly shown to have incremental value over traditional measures (Ciarrochi, Chan, & Caputi, 2000; Ciarrochi, Dean & Anderson, 2002; Mayer in press; Mayer, Salovey, Caruso, & Sitarenios, 2003; Mayer, Salovey & Caruso). In contrast, mixed model

measures of EI correlate, sometimes strongly, with measures of personality (Ciarrochi, Chan & Caputi, 2000; Ciarrochi, Chan, Caputi, and Roberts, 2001; MacCann, Roberts, Mathews, and Zeidner, 2004; Rosete 2004). Some research has shown that these measures can show incremental value over personality (Ciarrochi, Chan, & Bajgar, 2001; Ciarrochi, Scott, Deane, & Heaven, 2003; Ciarrochi, & Scott, 2005; Schutte, Malouff, Hall, Haggerty, Cooper, Golden, & Dornheim, 1997), whereas others have shown that they add little incremental value (Davies, Stankov, & Roberts, 1998).

Our study sought to establish the extent to which mixed and ability based measures of EI were useful for predicting leadership effectiveness over and above traditional personality and cognitive ability measures.

Personality and Emotional Intelligence

People have theorized that EI contributes to people's capacity to work effectively in teams, manage stress, and/or lead others (Ashkanasy & Trevor-Roberts, 2000; Mayer, Salovey, & Caruso, 2004; George, 2000; Goleman, 1998; Goleman, Boyatzis, & McKee, 2002; Prati, Douglas, Ferris, Ammeter, & Buckley, 2003). For example, leaders who are poor at perceiving their emotions may unknowingly miss important emotional signals from their co-workers. Similarly, leaders who are poor at managing emotions may allow their emotions to interfere with effective action. For instance, when they feel anxious, they may avoid giving an important speech, or when they feel angry, they may inappropriately lash out at a co-worker.

The transformational/transactional leadership model of Bass and Avolio (1990) has provided the general framework for most of the research on emotional intelligence and leadership effectiveness (see for example, Barling, Slater & Kelloway, 2000; Palmer, Walls, Burgess & Stough, 2001; Gardner & Stough, 2002). Transformational leaders are seen as those people that are able to create a vision, communicate this vision, build commitment amongst subordinates to the vision, and model the vision within the workplace. In contrast, transactional leaders are viewed more as managers that maintain the status quo. It is argued that transformational leaders are able to deal with strategic matters more efficiently and in turn are able to build commitment in employees, and are therefore more likely to take an organization forward (Bass and Avolio, 1994; McShane & Von Glinow, 2000).

The available EI-Leadership research supports the hypothesis that self-reported EI is linked to self-reported transformational leadership style (Barling, Slater & Kelloway, 2000, Palmer, Walls, Burgess &

Stough, 2001; Gardner & Stough, 2001). Barling, Slater and Kelloway (2000) conducted an exploratory study on the relationship between emotional intelligence and transformational leadership. Their results suggest that self-reported emotional intelligence is associated with three aspects of transformational leadership, namely idealised influence, inspirational motivation and individualised consideration. The leaders who report exhibiting these behaviours were assumed to be more effective in the workplace.

Palmer, Walls, Burgess and Stough (2001) administered a self-report EI measure to 43 managers in order to evaluate the link between EI and leadership style. They found significant correlations with several components of the transformational leadership model. Specifically, the inspirational, motivation and individualised consideration components of transformational leadership correlated with self-reported ability to both monitor and manage emotions.

While research based on self-reported managerial style is important, it does not establish whether an ability-based test of EI or self-report measure of EI is related to relatively objective (or non-self-report) measures of leadership effectiveness such as supervisor ratings or measures of actual business unit performance. In one relevant study, Lopes, Côté, Grewal, Kadis, Gall and Salovey (2003) examined the link between an ability measure of EI and several indicators of job performance, including salary, merit increases, and company rank. They also assessed interpersonal facilitation, affect and attitudes at work, and leadership potential, using both peer and supervisor ratings in 44 analysts and clerical/administrative employees. The findings revealed that EI was related to the percentage of pay increase, internal classification level, and better peer and supervisor ratings. Importantly, these results held even after controlling for the effects of cognitive ability and personality traits.

In another study, Rosete and Ciarrochi (in press) conducted a small exploratory study of the relationship between an ability measure of emotional intelligence, personality, cognitive intelligence and leadership effectiveness amongst senior executives. Leadership effectiveness was assessed using both managerial performance ratings and a 360 assessment involving each leader's subordinates and direct manager ratings. Correlational analyses revealed that higher emotional intelligence was associated with higher leadership effectiveness.

In the present study we sought to replicate and extend past research by utilising a larger sample, and administering both self-report and ability based measures of EI. We also administered a measure of personality and reasoning ability, to examine the

incremental value of the EI measures over measures that are commonly used in the organizational setting.

The Present Study and Research Questions

Our primary measures of leadership effectiveness will be based on a structured performance management assessment. The structured performance management system assesses employees' progress towards organisational goals (Corporate Leadership Council, 2002). This system is seen as a good indicator of an individual's leadership effectiveness (Management Advisory Committee 2001; Corporate Leadership Council 2002; Hogan, Curphy & Hogan, 1994). It establishes whether an individual meets business outcomes in such a manner that they not only achieve results but also build effective working relationships. Importantly, the performance management system is tied to concrete outcomes for the individual: Leaders who score well on the system receive larger bonus pay increases (up to 15% of their normal pay).

This study sought to address two major research questions. First, to what extent are self-reported and ability based measures of EI related to leadership performance? Second, to what extent do the EI measures predict variance in leadership performance over and above that accounted for by traditional personality and cognitive reasoning measures?

Method

Participants

The sample consisted of 122 executives from a large Australian Public Service organisation. Executives who did not complete the main battery of measures or whose performance ratings were not accessible were then excluded leaving a final sample of 117 executives (56 men, 60 women, 1 unreported; mean age 40.54, SD = 8.95). The final sample consisted of both assistant directors ($n = 64$) and directors ($n = 52$) with 1 unreported. Multivariate analyses revealed that there were no differences between these groups in terms of gender, age, tenure and qualifications.

Participants' mean tenure within the organisation was approximately 15 years. The level of qualifications amongst the sample was quite impressive with approximately 32% reported to have completed a masters degree or higher; 22% reported to have completed a postgraduate diploma or certificate; 33% reported to have completed an undergraduate degree and 4% reported to have completed some form of associate diploma or certificate.

Procedure

Participants were administered a battery of psychological tests that assessed personality, reasoning

ability, and EI. In exchange for their participation, individuals were provided with a confidential feedback report on their results on each of the instruments.

Materials

The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) v 2.0

The MSCEIT v.2.0 is an ability measure of EI requiring participants to complete a set of tasks associated with either perceiving emotion, using emotion, understanding emotional information or managing emotions (Mayer, Salovey & Caruso, 2002). It contains 141 items which are broken down into eight tasks, which are further divided into four branches of abilities including (a) perceiving emotion, (b) using emotion to facilitate thought, (c) understanding emotion, and (d) managing emotions. The research to date on the MSCEIT has shown good reliability and promising validity studies across a diverse range of psychological constructs (Mayer, Caruso and Salovey, 2000; Mayer, Salovey, Caruso and Sitarenios, 2003; Palmer, Gignac, Manocha and Stough, in press; Roberts, Zeidner & Matthews, 2001).

The Swinburne University Emotional Intelligence Test (SUEIT)

Given space limitations in our survey, we could not include every self-report measure of emotional intelligence that exists in the literature. We thus sought a measure that was representative of self-report measures in general. The SUEIT was developed after an extensive factor analytic study involving five of the predominant measures of EI (Palmer & Stough 2001; Palmer 2003). Four of these were commonly used self-report measures of EI including the Bar-On Emotional Quotient Inventory (Bar-On, 1997), the Trait Meta-Mood Scale (Salovey, Mayer, Goldman & Palfai, 1995), the twenty-item Toronto Alexithymia Scale-II (TAS-20; Bagby, Taylor & Parker, 1994a,b), and the Emotional Intelligence Scale (EIS, Schutte, Malouff, Hall, Haggerty, Cooper, Golden and Dornheim, 1997). In addition to representing a number of central EI dimensions, the SUEIT also had the advantage of focusing on EI in the workplace, rather than general EI.

The SUEIT consists of 65 items that ask participants to indicate the extent to which a particular statement is true of the way they typically think, feel and act at work (on a five-point scale: 1 = never, 2 = seldom, 3 = sometimes, 4 = usually, 5 = always). The SUEIT report provides an overall EI score that indicates a participant's general workplace EI, and five sub-scale scores including (1) emotional recognition and expression (in oneself) which is the "ability to identify one's own feelings and emotional states, and the ability to express those inner feelings to others" (2)

emotions direct cognition, which measure the “extent to which emotions and emotional knowledge is incorporated in decision making and/or problem solving” (3) understanding of emotions external, which is the “ability to identify and understand the emotions of others and those manifest in external stimuli” (4) emotional management, which is the “ability to manage positive and negative emotions both within oneself and others” and (5) emotional control, which is “how effectively emotional states experienced at work such as anger, stress, anxiety and frustration are controlled” (Palmer and Stough, 2001, p. 5).

While a relatively new EI measure, there is growing research to support the SUEIT’s reliability and predictive validity with leadership factors (Palmer and Stough, 2001; Palmer, Walls, Burgess and Stough, 2001; Palmer, Gardner and Stough, 2003; Rosete, 2004).

Measuring Personality via the 16PF

Participants completed the well validated Sixteen Personality Factor (16PF) questionnaire (Conn & Rieke, 1998). The 16PF was chosen as it is a widely used and recognised personality test within the Australian Public Service with availability of Australian norms. The total scale contains 185 items and 16 subscales each containing 10 to 15 items.

Measuring Cognitive Ability via Factor B Reasoning

The 16PF primary factor B examines what is described as Reasoning. Factor B is generally used as a quick measure of general mental ability due to its brevity and moderately high relationship with measures of intelligence (Conn & Rieke, 1988). The scale measures three areas of general reasoning ability, namely verbal, numerical, and logical reasoning in a 15-item scale. The scale has an overall coefficient alpha of .80 and has been shown to correlate with other general ability measures such as the Information Inventory ($r = .61$) and the Culture Fair Intelligence Test ($r = .51$).

Measuring Leadership Effectiveness via an Annual Appraisal

The annual appraisal is a formal feedback discussion between a manager and an executive about work performance. The purpose of the annual appraisal is to review an executive’s performance against their business plans, sometimes referred to as performance and development agreement (PDA). There are two focuses placed on the annual appraisal: (1) “What” has been achieved, and (2) “How” has it been achieved. Examples of the what focus include whether occupational health premiums have been decreased, whether external charter standards have been met, whether the specific area has delivered on

key government initiatives, or whether tax revenue targets have been achieved. The What section is always expressed in terms of both deliverable and measurable targets.

The How focus of the PDA is on how leadership behaviors were adopted to achieve business outputs. A significant part of the How aspect is an individual’s ability to demonstrate core leadership behaviours as outlined by the Australian Public Service Commission (APSC) Leadership Capability Framework. This framework has five core leadership capabilities: (1) Shapes strategic thinking (i.e., someone who inspires a sense of purpose and direction; focuses strategically; harnesses information and opportunities; and shows judgment, intelligence and commonsense); (2) Achieves results (i.e., someone who builds organisational capability and responsiveness; marshals professional expertise; ensures closure and delivers on intended results; and steers and implements changes and deals with uncertainty); (3) Cultivates productive working relationships (i.e., someone who nurtures internal and external relationships; values individual differences and diversity; guides, mentors and develops people; and facilitates co-operation and partnerships); (4) Communicates with influence (i.e., someone who communicates clearly; listens, understands and adapts to an audience; and negotiates persuasively) and (5) Exemplifies personal drive and integrity (i.e., someone who engages with risk and shows personal courage; commits to action; displays resilience; and demonstrates self-awareness and a commitment to personal development).

Both the What and How are initially rated on a five point scale (1 to 5) by the participants’ direct manager. The meaning of the five ratings are:- (5) *Exceptional* - Performance well beyond expectations, breaking new ground, producing outcomes of considerable value to the organisation, often quite unanticipated; (4) *Superior* - Achievement has been consistently high on the range of indicators, behaviours, capabilities and any leadership role throughout the financial year; (3) *Fully Effective* - Good and meritorious achievement. Has achieved standard as detailed in performance agreement for both business outputs and behaviours; (2) *Borderline Performance* - has slipped below standard as detailed in performance agreement for either business outputs and or behaviours; and (1) *Unsatisfactory* - Continued failure to achieve expected standard.

An important integrity aspect of the appraisal process is the fact that the What and How ratings go through a series of checks before they are finalized. An individual executive will first collate evidence about his or her performance, which is further supplemented by the executive’s direct manager who also collates

evidence on their performance. The aim of this is to identify if specific business targets have been met. During the appraisal discussion, both the executive and direct manager will review business objectives and outcomes, review the executive's behavior against the leadership framework and agree on interim ratings for both the What and How components.

The interim ratings are then moderated by a third party committee, and generally, individuals displaying superior or exceptional performances are highly scrutinized by both department and corporate assurance processes. The importance of the corporate assurance process becomes particularly evident when one considers that executive directors are entitled to performance pay should their individual performance ratings reach a certain level. The higher the performance ratings, the higher the performance based pay they are entitled to receive.

Consistent with the validity of this rating procedure, the What and How ratings have been shown to correlate significantly with internal peer 360 performance ratings, $r = .52$ (Rosete 2004). In addition, past research has supported the validity of this sort of rating system (McEvoy and Beatty, 1989; Hogan, Curphy and Hogan, 1994; Management Advisory Committee 2001; Corporate Leadership Council, 2002). For example, McEvoy and Beatty (1989) examined the predictive validity of performance evaluations compared to assessment center ratings and concluded that performance ratings were as effective as assessment center data in forecasting performance seven years later.

Results

Descriptive Statistics and Internal Reliabilities

The SUEIT

The means, standard deviations, and internal reliabilities of the SUEIT subscales were (1) emotional recognition and expression (in oneself) ($M = 37.93$; $SD = 6.19$; $r = .74$); (2) emotions direct cognition ($M = 32.42$; $SD = 6.33$; $r = .78$); (3) understanding of emotions external ($M = 74.86$; $SD = 8.83$; $r = .69$); (4) emotional management ($M = 41.15$; $SD = 5.82$; $r = .73$); and (5) emotional control ($M = 32.48$; $SD = 4.36$; $r = .76$). The sample mean for the overall SUEIT EI was 218.83 ($SD = 22.28$). These results are similar to the normative sample ($M = 226.75$; $SD = 17.25$) as reported for the workplace SUEIT (Palmer and Stough, 2001).

In four of the five sub-scales, and for the overall SUEIT EI score, the mean percentile scores fell within the average range, whereas the Emotions Direct Cognition (EDC) subscale fell within the low range. The EDC results indicate that generally, executives within this organization may tend to exhibit a very analytical or technically oriented decision-making

style where decisions at work are predominantly made on facts and technical information (Palmer and Stough 2001).

Further coefficient alpha analysis was carried out on the intercorrelations among the five sub-scales and total SUEIT EI score. The sizes of these correlations are generally higher than that reported for the workplace SUEIT (Palmer and Stough, 2001). In particular, there is a substantial correlation between the Understanding of Emotions External and Emotional Management ($r = .60$) scales suggesting that the subscales share approximately 36% of the variance in this data set. The highest inter correlation was found between Emotional Control and Emotional Management ($r = .70$) suggesting that these scales share approximately 49% of the variance in this data set.

The MSCEIT

The means, standard deviations, and reliabilities of each of the subscales is as follows (1) perceiving emotion ($M = .51$; $r = .76$), (2) using emotion to facilitate thought ($M = .49$; $r = .70$), (3) understanding emotion ($M = .55$; $r = .78$), and (4) managing emotions ($M = .41$; $r = .75$). Overall, the raw MSCEIT sample mean of .49 ($SD = .05$) scored similarly to the general scoring normative sample ($M = .51$; $SD = .06$) as reported for the MSCEIT user's manual (Mayer, et al, 2002). In all four of the branch level scores and for the overall EI score, the mean scores fell within the average range.

Further correlational analyses were carried out on the four branch levels and total MSCEIT EI score. Perceiving emotion was correlated with understanding emotion $r = .48$, understanding emotions $r = .16$ and managing emotion $r = .26$. Using emotion with correlated with understanding emotion $r = .19$, and managing emotion $r = .34$. Finally, understanding emotion was correlated with managing emotion $r = .38$. The sizes of these correlations are generally lower than that reported in the user's manual (Mayer, et al, 2002).

Personality & Cognitive Ability

The Sixteen Personality Factor (16PF) is a comprehensive multi-dimensional measure of personality based on extensive factor analytic research. It is comprised of sixteen primary personality factor scales and five secondary or global bipolar factors. These include introversion versus extroversion ($M = 4.2$, $S.D. = 2.34$), low versus high anxiety ($M = 5.94$, $S.D. = 1.92$), tough-mindedness versus receptivity ($M = 5.00$, $S.D. = 2.02$), independence versus accommodation ($M = 4.85$, $S.D. = 1.93$), and low versus high self-control ($M = 4.41$, $S.D. = 1.54$). The

five global factors are comparable to the “Big Five” dimensions of personality (Conn & Rieke, 1998).

For both the primary scales and global factors, mean scores between 4 and 6 indicate normal average range of functioning. Overall, results for the sixteen primary scales tended to be between 4 and 6 with minimum and maximum scores generally being between 1 and 10. These results indicate that the sample was approximately normal, with proportional numbers of executives exhibiting the breadth of personality dimensions one would be expected in any normal population.

The exception was the Reasoning scale which had a mean of 7.5 (SD = 1.5). The relatively high mean in this study suggests that as a group, the participants are generally more intelligent, brighter, and have higher general mental capacity than the normal population, operating at the 84 percentile.

Correlational Analyses

Leadership Effectiveness

Pearson correlation coefficients were used to examine any relationship that may exist between the SUEIT EI measure and leadership effectiveness as measured through the performance management ratings. No significant correlations were found between total SUEIT EI scores and any of the performance management measures. As can be seen in Table 1, only the sub-branch factors of emotional management and emotional control correlated significantly with one aspect of the performance rating, namely the how rating.

In contrast, the total EI score of the MSCEIT correlated with both what and how ratings (see Table 1), indicating that higher ability EI was associated with better performance. In addition, Table 1 illustrates that all of the EI subscales correlated with how performance ratings, and two subscales, perceiving and managing emotions correlated with what performance ratings.

Pearson correlation coefficients were also used to examine relationships between personality factors, reasoning and leadership effectiveness as measured through the performance management ratings. There were no significant correlations between the five global factors and reasoning with performance ratings. At the primary factor subscales there were some correlations. In particular, low levels of vigilance, high levels of abstractedness, low levels of privateness, and high levels of openness to change with higher what performance ratings. Low levels of vigilance were also associate with high how performance ratings.

Insert Table 1 about here

EI, Personality and Reasoning Ability

We next investigated the extent that the self-report and ability based EI measures were distinctive from personality and reasoning ability. Concerning self-reported EI (the SUEIT), table 2 shows moderate to strong correlations between all but one of the scales. For the MSCEIT EI measure, weak to moderate correlations were found between total EI score and anxiety. The self-report measure of EI appears to be more highly correlated with personality than the ability measure. In contrast, reasoning seems to be more highly correlated with the MSCEIT understanding emotion subscale than it is with the other scales.

Insert Table 2 about here

We carried out a series of hierarchical regression analyses in order to determine if ability and self report measures of emotional intelligence related to performance after controlling for personality and reasoning ability. Reasoning ability was entered in Step 1, the five global personality factors on Step 2 and either ability EI or self-reported EI were entered in step 3.

The results of the first regression analysis with the What ratings showed that neither reasoning ability (Step 1, $r = .01$, $R^{2\text{change}} = .00$, $F^{\text{Change}} = .00$), the five global personality factors of the 16PF (Step 2, $r = .29$ ($R^{2\text{change}} = .08$, $F^{\text{Change}} = 1.89$), or the self-report measure of EI (Step 3, $r = .31$ ($R^{2\text{change}} = .00$, $F^{\text{Change}} = .01$), had a significant effect. In contrast, the ability measure of EI produced significant improvement in the model (step 3, $r = .37$, $R^{2\text{change}} = .05$, $F^{\text{Change}} = 6.22$) accounting for approximately 5% of the variance in the What perspective of the performance management system. The ability measure of EI thus related to variance over and above that involving reasoning and personality.

The How rating analyses produced similar results. Essentially, the self-reported EI measure did not predict variance over and above personality and reasoning, $p > .2$. In contrast, the ability measure of EI significantly improved the fit of the model (Step 3b, $r = .53$, $R^{2\text{change}} = .22$, $F^{\text{Change}} = 31.99$). Thus, the ability measure of EI was able to explain an additional 22% of the variance above both reasoning ability and personality characteristics.

In addition to controlling for the global dimensions of personality (i.e., the Big Five), we conducted analyses that controlled for the individual personality subscales (see Table 1). We focused on the subscales of EI that had been identified as significant. Hierarchical regression analysis was conducted for the What performance rating with reasoning ability at Step 1, the significant 16PF primary factors at Step 2 and any significant EI measure at the branch level at Step 3. No significant self-report EI effects were found at step 3, suggesting these measures do not add

incremental value over and above personality and reasoning. In contrast, we found that even when controlling for reasoning in step 1 and the four significant 16PF subscales in step 2 (see Table 1), the MSCEIT subscales (perceiving $r = .26$, $p < .01$ and managing emotions $r = .08$, $p > .4$) significantly improved the fit of the model (Step 3, $r = .46$, $R^{2\text{change}} = .08$, $F^{\text{Change}} = 5.10$) and accounted for 8% of the variance.

Finally, we ran hierarchical regressions that focused on the How ratings, and again found that the self-reported EI measures did not contribute significantly to the model at Step 3. In contrast, the ability based model (perceiving emotion, $r = .40$, $p < .01$, using emotion $r = .06$, $p > .5$, understanding emotion $r = .20$, $p < .05$, and managing emotion $r = .05$, $p > .6$) contributed significantly (Step 3, $r = .54$, $R^{2\text{change}} = .30$, $F^{\text{Change}} = 9.52$), indicating that it predicted 30% of the variance in the How variance even after controlling for reasoning and personality.

Discussion

The findings suggest that the executives who achieve the best business outcomes are the ones who 1) score higher on an EI ability test, 2) manifest certain personality characteristics (e.g., high openness, low vigilance and privateness), and 3) have higher self-reported ability to manage emotions. Importantly, the ability measure of emotional intelligence was able to predict effective leadership over and above already well established workplace measures such as reasoning ability and personality. In contrast, self-reported measures of emotional intelligence had little to offer over and above well-established measures of personality and reasoning. These results may have important implications on how we engage in performance management, and select and develop executives.

Self-reported EI and personality

The SUEIT's emotional control and emotion management subscale was related to higher How ratings, explaining between 3 to 5 % of the variance. Personality also explained approximately 3 to 6% of the variance. Specifically, the most effective executives were those who showed low levels of vigilance and privateness, and high levels in abstractness and openness to change.

The SUIET tended to correlate moderately with personality, especially with extraversion, anxiety and independence. Importantly, the SUEIT failed to predict leadership effectiveness over and above personality. These results are consistent with evidence that suggests self-report measures of EI overlap with well-established personality traits or behaviors (Ciarrochi, Chan & Caputi, 2000; Ciarrochi, Chan, Caputi, and

Roberts, 2001; MacCann, Roberts, Mathews, and Zeidner, 2004).

On a practical level, these results suggest that self-report EI may not add incremental value over personality in predicting leadership success. Thus, there appears to be little empirical justification, to date, for the use of self-report EI measures for the selection of executives (Meidner, Matthew & Roberts, 2004; Landy, 2005).

One major difficulty with the overlap between self-reported EI and personality is that one can always question whether a result involving self-reported EI is really just a replication of a previous result using a similar personality measure. For example, research has clearly demonstrated a link between self-esteem and mental health (Ciarrochi, Scott, Deane & Heaven, 2003). Thus if an EI measure correlates substantially with self-esteem and mental health, is the EI test measuring something new, or is it replicating previous self-esteem effects?

Our findings do not imply, however, that self-report EI measures have no practical use. Both self-report EI and personality explained the same level of variance in leadership success (about 4%). Thus, it may be that in some instances one might use the self-report EI measure instead of a personality measure. Specifically, one might use the EI measure because it provides more "useable" feedback to managers than personality measures. For example, it might be more instructive to provide managers feedback on emotion management skill (from the self-report EI measure) than on their level of privateness (from the personality measure).

Future research is needed to evaluate whether self-report EI does have some added practical value over personality measures. For example, do leaders improve their performance more when provided with EI feedback compared to when they are provided with personality feedback? Are self-report EI measures more useful for guiding intervention programs?

Ability based measures of EI & Reasoning

We found that the executive were on average in the top 84 percentile in terms of cognitive intelligence. Variations at this level did not predict performance. Perhaps once people obtain a certain level of cognitive intelligence, having higher intelligence makes little difference (Sternberg & Vroom, 2002).

In contrast, ability-based EI demonstrated a strong relationship with job performance. An analysis of the individual subscales revealed that the most important scales were perceiving emotions and managing emotions. These scales related to the extent that executives achieved business outcomes, or the What of performance. In relation to the How of performance, the capacity to perceive emotion, use

emotions, understand emotion and manage emotion all related to how effectively an executive achieved their business outcomes.

George (2000) suggests that leadership involves the development of a collective sense of goals, instilling in others both knowledge and appreciation of certain work activities, and generating a sense of excitement, confidence, and trust. One could argue that these elements all require a leader to use their emotions to enhance how they communicate to subordinates, which in turn would assist them to effectively carry out the role of a leader. Not surprisingly, we find all four elements are critical in enabling a leader to meet business outcomes. The ability to perceive emotions provides an awareness of emotions and the ability to accurately read others emotions, especially subordinates. Using emotions provides a means to generate ideas within a team. Understanding emotions offers insights into what motivates people and others' points of view. Finally, managing emotions may allow a leader to stay open to their emotions, extract valuable information, and use them constructively to enhance team and individual performance (Caruso & Salovey, 2004). All four elements may enhance a leader's ability to communicate.

Of particular interest was the branch of perceiving emotion which in both the What and How rating had the highest effect sizes. A leader who is skilled in perceiving emotion would be described as someone who knows what people feel, reads people accurately, is good at recognising their own feelings and can express their feelings appropriately (Caruso & Salovey, 2004). These skills are particularly important as it allows a leader to accurately capture important social data around them, in particular the ability to read between the lines.

It is important to put the effect sizes we obtained here in context. Our effect size for ability EI was in the order of .26 for the What outcomes and .50 for the How outcomes. This effect level is considered to be large by many reviews (Barrick & Mount, 1991; Schmidt & Hunter, 1998). For example, research has consistently shown that personality traits such as conscientiousness are related to most job performance criteria and typically have an effect size in the order of .2 (Barrick & Mount, 1991). Schmidt and Hunter (1998) have also shown that in analyzing 85 years of research in personnel selection that General Mental Ability (GMA) tests have one of the highest effect sizes at .51.

The present results have potential implications for how we manage performance, selection and development of executives. In terms of performance management, it is important for an executive to both deliver outputs (What performance), and also deal

effectively with colleagues and staff (the How of performance - MAC 2001). It may be common for technical leaders to have What but not How skills. For example, a technical specialist may perform complex tasks tenaciously and manage to produce business outputs, but may be ineffective at managing his or her subordinates, leading to issues of staff turnover and underperformance. The results of this study show that emotional intelligence may be useful in identifying who is and is not likely to deal effectively with colleagues and staff. Furthermore, they also show which leaders are likely to achieve business outcomes. Organizations who wish to maximize their ability to meet business outcomes therefore have the choice to either recruit for these abilities or further develop these abilities in their top executives.

In conclusion, these results make significant contributions to the study of emotional intelligence in a work setting, but leave a number of important questions unanswered. First, research is needed to evaluate why EI is related to performance. Does it relate to interpersonal effectiveness on the job, as we suggested above? Or does it relate to other aspects of management, such as inspiring enthusiasm, or managing stressful jobs? Second, given the correlational nature of the present study, research is needed to evaluate whether EI predicts future performance, or merely co-occurs with performance. Third, research is needed to examine whether these results generalize across different occupational settings? Is EI more important in interpersonal settings, compared to settings that require little intrapersonal contact (e.g., some information technology jobs)? Regardless of the answers to these and many yet unanswered questions, this study suggests that ability based measures of EI have interesting applications within an applied setting.

References

1. Ashkanasy, N. M., E. Trevor-Roberts, et al. (2000). Leadership attributes and cultural values in Australia and New Zealand compared: An initial report based on globe data. *International Journal of Organisational Behaviour* 2(3): 37-44.
2. Bagby, R. M., G. J. Taylor., J. D. A. Paker, (1994 a). The twenty-item toronto alexithymia scale-I. Item selection and cross-validation of the factor structure. *Journal of Psychosomatic Research* 38(1): 23-32.
3. Bagby, R. M., G. J. Taylor., J. D. A. Paker, (1994 b). The twenty-item toronto alexithymia scale-II. Convergent, discriminant, and concurrent validity. *Journal of Psychosomatic Research* 38(1): 33-40.
4. Barling, J., Slater, F. and Kelloway E.K. (2000), Transformational leadership and emotional

- intelligence: an exploratory study, *Leadership & Organization Development Journal*, 21(3), pp. 157-161.
5. Bar-On, R. (1997), *Bar-On Emotional Quotient Inventory: User's Manual*, Multi-Health Systems, New York, NY.
 6. Barrick, M. R. and M. K. Mount (1991). The Big Five personality dimensions and job performance: A meta-analysis. *Personnel Psychology* 44(1): 1-26.
 7. Bass, B.M. and Avolio, B.J. (1990), *Transformational Leadership Development: Manual for the Multifactor Leadership Questionnaire*, Consulting Psychologist Press, Palo Alto, CA.
 8. Bass, B.M. and Avolio, B.J. (1994), *Improving Organizational Effectiveness through Transformational Leadership*, Sage Publications, Thousand Oaks, CA.
 9. Caruso, D. R. and P. Salovey (2004). The Emotionally Intelligent Manager. San Francisco, Jossey-Bass.
 10. Ciarrochi, J.V., Chan, A.Y.C. and Caputi P. (2000), A critical evaluation of the emotional intelligence construct, *Personality and Individual Differences* 28, pp. 539-561.
 11. Ciarrochi, J.V., Chan, A.Y.C., Caputi P. and Roberts, R. (2001), Measuring Emotional Intelligence. In Ciarrochi, Forgas and Mayer (Eds), *Emotional Intelligence in Everyday Life: A Scientific Inquiry*, Psychology Press, Philadelphia, USA.
 12. Ciarrochi, J., Chan, A. Y., & Bajgar, J. (2001). Measuring emotional intelligence in adolescents. *Personality & Individual Differences*, 31(7), 1105-1119.
 13. Ciarrochi, J., & Scott, G. (2005). *Social and Emotional competence and well-being: a longitudinal study*. submitted for publication.
 14. Ciarrochi, J., Dean, F. P., & Anderson, S. (2002). Emotional intelligence moderates the relationship between stress and mental health. *Personality & Individual Differences*, 32(2), 197-209
 15. Ciarrochi, J., Scott, G., Deane, F.P., and Heaven, C.L. (2003), Relations between social and emotional competence and mental health: a construct validation study, *Personality and Individual Differences*, 35, pp. 1947-1963.
 16. Con, S.R., and Rieke, M.L. (1998), *The 16PF Fifth Edition Technical Manual*, Institute for Personality and Ability Testing, Inc, Champaign, Illinois.
 17. Corporate Leadership Council (2002). *Closing the Performance Gap: Driving Business Results Through Performance Management*. Corporate Executive Board, Washington.
 18. Davies, M., Stankov, L., and Roberts, R. D. (1998) Emotional intelligence: In search of an elusive construct. *Journal of Personality & Social Psychology*, 75(4), 989-1015.
 19. Gardner, L. and Stough, C. (2002), Examining the relationship between leadership and emotional intelligence in senior level managers, *Leadership & Organization Development Journal* 23(2), pp. 68-78.
 20. George, J. M. (2000). Emotions and leadership: The role of emotional intelligence. *Human Relations* 53: 1027-1055.
 21. Goleman, D. (1995), *Emotional Intelligence*, Bantam, New York.
 22. Goleman, D. (1998), *Working with Emotional Intelligence*, Bloomsbury Publishing, London.
 23. Goleman, D., Boyatzis, R., and McKee, A. (2002). *Primal Leadership: Realizing the power of EI*. Boston, Harvard Business School Press.
 24. Higgs, M. (2003). How can we make sense of leadership in the 21st century? *Leadership and Organization Development Journal* 24(5), 273-284.
 25. Hogan, R., G. Curphy, Hogan. (1994). What we know about leadership: Effectiveness and personality. *American Psychologist* 49(6): 493-504.
 26. Landy, F. J. (2005). Some historical and scientific issues related to research on emotional intelligence. *Journal of Organizational Behavior* 26, 411-424.
 27. Lopes, Côté, Grewal, Kadis, Gall and Salovey (2003). Evidence that Emotional Intelligence is Related to Job Performance, Interpersonal Facilitation, Affect and Attitudes at Work, and Leadership Potential. Manuscript submit for publication.
 28. MacCann, C., Roberts, R.D., Mathews, G. and Zeidner, M. (2004), Consensus scoring and empirical option weighting of performance-based emotional intelligence tests, *Personality and Individual Differences*.
 29. Management Advisory Committee. (2001). *Performance Management in the Australian Public Service*. Canberra, Commonwealth of Australia.
 30. McEvoy, G.M., and Beatty, R.W. (1989). Assessment centers and subordinate appraisals of managers. *Personnel Psychology*, 42(1), p 37.
 31. McKee, A. (2005). *Leadership, Passion, and Power: EI, Resonance and Renewal*. 5th Annual Emotional Intelligence Conference, Netherlands, 12 – 14 June.
 32. Mayer, J.D., and Salovey, P. (1997), What is emotional intelligence? In Salovey, P. and Sluyter, D.J. (Eds), *Emotional Development and*

- Emotional Intelligence: Implications for educators*, Basic Books, New York, NY.
33. Mayer, J. D., Ed. (2001). A field guide to emotional intelligence. Emotional intelligence in everyday life: A scientific inquiry. Philadelphia, Psychology Press.
 34. Mayer, J. D. (in press). A new field guide to emotional intelligence. Emotional Intelligence and Everyday Life. J. Ciarrochi, J. P. Forgas and J. D. Mayer. New York, Psychology Press.
 35. Mayer, J. D., Caruso, D. R., and Salovey, P. (1999). Emotional intelligence meets traditional standards for an intelligence, *Intelligence*, 27, 267-298.
 36. Mayer, Caruso and Salovey, 2000. Selecting a measure of EI: The case of ability scales. In R. BarOn and J.D.A Parker (Eds). The handbook of EI (pp 320 – 342). San Francisco: Jossey – Bass.
 37. Mayer, J.D., Salovey, P. and Caruso, D.R. (2002), *Mayer-Salovey-Caruso Emotional Intelligence Test*, Multi-Health Systems, Toronto.
 38. Mayer, J.D., Salovey, P., Caruso, D.R., and Sitarenios, G. (2003), Measuring emotional intelligence with the MSCEIT V2.0, *Emotion* 3(1), pp. 97 - 105.
 39. Mayer, J.D., Salovey P and Caruso, D.R. (2004). Emotional intelligence: Theory, Findings and Implications. *Psychology Inquiry*, 60, 197-215.
 40. Meyer, G. J., S. E. Finn, et al. (2001). Psychological testing and psychological assessment: A review of evidence and issues. *American Psychologist* 56(2): 128-165.
 41. Meidner, M., Matthew, G., and R. D. Roberts, (2004). EI in the workplace: A critical review, *Applied Psychology: An International Review*, 53(3), 371-399.
 42. McShane, S. L., and Von Glinow, M.A. (2000), *Organizational Behavior*, McGraw-Hill Inc, USA.
 43. Palmer, B. R. (2003). An Analysis of the Relationships Between Various Models and Measures of Emotional Intelligence. Centre for Neuropsychology, School of Biophysical Sciences and Electrical Engineering. Victoria, Swinburne University of Technology.
 44. Palmer, B., Walls, M., Burgess, Z. and Stough, C. (2001), Emotional intelligence and effective leadership, *Leadership & Organization Development Journal* 22(1), pp. 5 - 10.
 45. Palmer, B. and Stough, C. (2001), *Workplace SUEIT: Swinburne University Emotional Intelligence Test – Manual*, Organizational psychology Research Unit, Swinburne University, AU.
 46. Palmer, B.R., Gardner, L and Stough, C. (2003), *The relationship between emotional intelligence, personality and effective leadership*, 5th Australian Industrial & Organizational Psychology Conference, Melbourne.
 47. Palmer, B. R., G. Gignac, R. Manocha and C. Stough (in press). A psychometric evaluation of the Mayer-Salovey-Caruso Emotional Intelligence test version 2.0. *Intelligence*.
 48. Prati, L. M., C. Douglas, et al. (2003). Emotional intelligence, leadership effectiveness, and team outcomes. *International Journal of Organizational Analysis* 11(1): 21-40.
 49. Roberts, R., Zeidner, M., and Matthews, G. M. 2001. Does emotional intelligence meet traditional standards for an intelligence? Some new data and conclusions. *Emotion*, 1, pp 196 – 231.
 50. Rosete, D. (2004). *A Leaders profile - What attributes make an effective leader?* 4th International Test Users' Conference, Melbourne, Australia.
 51. Rosete, D. and J. Ciarrochi (in press). Emotional intelligence and its relationship to workplace performance outcomes of leadership effectiveness. *Leadership and Organization Development Journal*.
 52. Salovey, P and Mayer, J.D. (1990). Emotional Intelligence. *Imagination, Cognition and Personality*, 9, 185-211.
 53. Salovey, P., Mayer, J., Goldman, S., Turvey, C. & Palfai, T. (1995). Emotional attention, clarity and repair: Exploring emotional intelligence using the Trait Meta-Mood Scale. In J.W. Pennebaker, *Emotion, disclosure, and health* (pp. 125-154) Washington, DC: American Psychological Association.
 54. Schutte, N. S., J. M. Malouff, Hall, Haggerty, Cooper, Golden and Dornhein, (1997). Development and validation of a measure of emotional intelligence. *Personality and Individual Differences* 25: 167-177.
 55. Schmidt, F. L. and J. E. Hunter (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. *Psychological Bulletin* 124(2): 262-274.
 56. Sternberg, R. J., & Vroom, V. H. (2002). The person versus the situation in leadership. *Leadership Quarterly*, 13, 301-323.

3/10/2014