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EXERCISE / EXERCICE NEW HORIZONS

EMOTIONAL INTELLIGENCE: CAVEAT EMPTOR

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Abstract

In broad terms, emotional intelligence (EI) refers to the competence to identify and express emotions, understand emotions, assimilate emotions in thought, and regulate both positive and negative emotions in the self and in others.¹ The concept of emotional intelligence has received considerable attention in today's popular psychology, in particular EI's purported connection in developing successful leaders. This paper was written in response to a report prepared for the Canadian Forces Leadership Institute (CFLI) that recommended, "CFLI should examine the utility and practicality of using emotional intelligence measures for the selection and training of military leaders upon further investigation of the definition of emotional intelligence."²

While many exalt the virtues of EI development as an important contribution to successful leadership, some have challenged the statistical significance of EI measurement and EI's validity to indicate, or improve upon, leadership qualities. Evidence suggests that emotional intelligence has the potential as a construct to contribute to effective leadership training. However, there exists a critical lack of consensus regarding the definition of emotional intelligence, plus several identified reliability and validity shortcomings with popular EI models. It is recommended that the concept of EI be included within a training curriculum; however, the use of current EI

¹ Gerald Matthews, Moshe Zeidner, and Richard D. Roberts, *Emotional Intelligence: Science and Myth*, (Massachusetts: The MIT Press, 2002), 3.

² Holly Livingstone, Maria Nadjiwon-Foster and Sonya Smithers, *Emotional Intelligence and Military Leadership*, Report Prepared for the Canadian Forces Leadership Institute (Ottawa: DND, 2002), 44.

measures as a means of effecting any major career decisions should be avoided, until further research provides both, reliable and valid data sets through the employment of robust psychometric approaches.

INTRODUCTION

The jury is still out as to whether or not there is a scientifically meaningful concept of emotional intelligence.

S. Epstein 1998

In a report to the Canadian Forces Leadership Institute (CFLI), Livingstone et al. (2002) recommended that the “CFLI should examine the utility and practicality of using emotional intelligence measures for the selection and training of military leaders upon further investigation of the definition of emotional intelligence.”³ The aim of this paper is to address the recommendation through a review of the current situation surrounding emotional intelligence.

The Livingstone et al. (2002) report, and many others, is a result of the considerable attention that emotional intelligence (EI) has received in today’s popular psychology, in particular EI’s purported connection in developing successful leaders. It was E.L. Thorndike who first introduced the notion of ‘social intelligence’ in 1920, but it wasn’t until the publishing of Daniel Goldman’s book “*Emotional Intelligence*” in 1995 that the modern concept of EI became highly popularized within both the academic and

³ Holly Livingstone, Maria Nadjiwon-Foster and Sonya Smithers, *Emotional Intelligence and Military Leadership*, Report Prepared for the Canadian Forces Leadership Institute (Ottawa: DND, 2002), 44.

professional communities.⁴ The definition of EI has met with some controversy within the literature; however, in broad terms

EI refers to the competence to identify and express emotions, understand emotions, assimilate emotions in thought, and regulate both positive and negative emotions in the self and in others.⁵

In academic circles, the focus has been on developing a greater understanding of the nature of the construct and determining whether EI is in fact a distinct and measurable ‘intelligence’ per se. The professional community meanwhile is touting EI as being critical to the development of today’s successful manager.⁶ The military community too, has expressed interest in exploring the concept of EI and how it would apply within the context of leadership.⁷

While many exalt the virtues of EI development as an important contribution to successful leadership, some have challenged the statistical significance of EI measurement and EI’s validity to indicate, or improve upon, leadership qualities. This paper will argue that while emotional intelligence has the potential as a construct to

⁴ <http://www.socialresearchmethods.net/Gallery/Young/emotion.htm>; Internet; accessed 11 March 2005.

⁵ Gerald Matthews, Moshe Zeidner, and Richard D. Roberts, “*Emotional Intelligence: Science and Myth*,” (Massachusetts: The MIT Press, 2002), 3.

⁶ Chris Watkin, “Developing Emotional Intelligence,” *International Journal of Selection and Assessment* 8, no. 2 (June 2000): 89-92.

⁷ Sharon M. Latour and Bradley C. Hosmer, “Emotional Intelligence: Implications for All United States Air Force Leaders,” *Air and Space Power Journal* (Winter, 2002). [document online]; available from <http://www.airpower.maxwell.af.mil/airchronicles/apj/apj02/win02/latour.html>; Internet; accessed 12 March 2005.

contribute to effective leadership, any major decisions based on current EI measures having impact on personnel selection, or a career should be avoided.

This paper will first examine the current definitions of emotional intelligence. It will then discuss the utility of emotional intelligence as it relates to leadership training. Finally, based on the results of recent research, the paper will examine the practicality of using existing EI measures as a means of effecting possible career decisions.

CURRENT DEFINITIONS OF EMOTIONAL INTELLIGENCE

Definition: a statement of the exact meaning of the word or the nature of something.⁸

Oxford Dictionary

In the field of research a definition has significant import. A clear definition provides focus; it helps identify boundaries of what is to be inclusive or exclusive of the research being conducted; and it provides a degree of confidence when the validity of the results is challenged. Law et al. (2004) “argue conceptually that EI is defined as a set of abilities on the basis of its theoretical definition.”⁹ But what exactly is the theoretical

⁸ “*The Oxford Paperback Dictionary, Thesaurus, and Wordpower Guide*,” (New York: Oxford University Press, 2001), 226.

⁹ Kenneth S. Law, Chi-Sum Wong, and Lynda Song, “The Construct and Criterion Validity of Emotional Intelligence and Its Potential Utility for Management Studies,” *Journal of Applied Psychology* 89, no. 3 (2004): 484.

definition of EI? Amongst the pioneers of emotional intelligence, Mayer and Salovey (1990) originally defined EI as being a subset of social intelligence that involved

the ability to monitor one's own and other's feelings and emotions, to discriminate among them and to use this information to guide one's own thinking and actions.¹⁰

From this definition Mayer et al. (2001) refined EI as being a set of emotion-related abilities divided into the following four-branch model:

- a. perceiving emotions;
- b. using emotions to facilitate thought;
- c. understanding emotions; and
- d. managing emotions.¹¹

Goleman (2001) prefers to conceptualize EI as a broad "theory of performance"¹², advocating that EI theory can be employed as a means of predicting future success via a

¹⁰ Peter Salovey and John D. Mayer, "Emotional Intelligence," *Imagination, Cognition and Personality* 9, (1990): 189. [document online]; available from http://www.unh.edu/emotional_intelligence/EIAssets/EmotionalIntelligenceProper/EI1990%20Emotional%20Intelligence.pdf; Internet; accessed 12 March 2005.

¹¹ John D. Mayer et al, "Emotional Intelligence as a Standard Intelligence," *Emotion* 1, no. 3 (September 2001): 232-242.

variety of “EI-based instruments.”¹³ Goleman (1995) prefers to use the five-domain model as follows:

- a. knowing one’s emotions;
- b. managing emotions;
- c. motivating oneself;
- d. recognizing emotions in others; and
- e. handling relationships.¹⁴

Bar-On developed the Bar-On Emotional Quotient Inventory which treats EI within the context of personality theory.¹⁵ Bar-On’s definition of EI is that it is

¹² Daniel Goleman, “Emotional Intelligence: Issues in Paradigm Building,” [document online]; available from http://ei.haygroup.com/resources/Library_articles/emotional_intelligence_paradigm_building_final.doc; Internet; accessed 13 March 2005.

¹³ Ibid.

¹⁴ Daniel Goleman, *Emotional Intelligence* (New York: Bantam Books, 1995), 43.

¹⁵ Kenneth S. Law, Chi-Sum Wong, and Lynda Song, “The Construct and Criterion Validity of Emotional Intelligence and Its Potential Utility for Management Studies,” *Journal of Applied Psychology* 89, no. 3 (2004): 484.

an array of noncognitive capabilities, competencies, and skills that influence one's ability to succeed in coping with environmental demands and pressures.¹⁶

Recognizing confusion in reported results caused by the existence of differing definitions, Law et al. (2004) argue that in order to exhibit distinctiveness from other recognized traits, EI must be clearly defined. Favouring a definition that captures the essence of the EI body of knowledge, but most particularly the ideas of Mayer et al. and Davies et al., Law et al. (2004) advocate a four-dimensional definition of EI as follows:

1. *Appraisal and expression of emotion in oneself.* This relates to an individual's ability to understand his or her deep emotions and to be able to express emotions naturally. People who have good ability in this area will sense and acknowledge their emotions better than most people.
2. *Appraisal and recognition of emotion in others.* This relates to an individual's ability to perceive and understand the emotions of the people around them. People who rate highly in this ability will be very sensitive to the emotions of others as well as able to predict others' emotional responses.

¹⁶ <http://www.eqtoday.com/02/emotional.php>; Internet; accessed 12 March 2005.

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

4. *Use of emotion to facilitate performance.* This relates to the ability of a person to make use of his or her emotions by directing them toward constructive activities and personal performance. A person who is highly capable in this dimension would be able to encourage him- or herself to do better continuously. He or she would also be able to direct his or her emotions in positive and productive directions.¹⁷

The problem posed by these differing definitions is that the concept of emotional intelligence becomes open to individual interpretation. An over-inclusive definition that overlaps with other concepts, such as personality traits, becomes meaningless and fails to introduce anything new and constructive. Mayer et al (2000) observed this overlap and concluded, “these alternative conceptions of emotional intelligence include not only emotion and intelligence per se, but also motivation, non-ability dispositions and traits,

¹⁷ Kenneth S. Law, Chi-Sum Wong, and Lynda Song, “The Construct and Criterion Validity of Emotional Intelligence and Its Potential Utility for Management Studies,” *Journal of Applied Psychology* 89, no. 3 (2004): 484.

and global personal and social functioning.”¹⁸ The broader definitions of Goleman and Bar-On are being popularized by the use of various 360-degree feedback tools that are being touted by management consultants as the “genuine [EI] article.”¹⁹ These broader interpretations of EI have also found their way into military research projects relating to leadership which advocate that

[i]n order to achieve revolutionary transformation in personnel, intuition and EI skills should be directly incorporated into current socialization, training, and evaluation programs through the use of 360 degree, or multi-rater appraising.²⁰

However, after examining the results of 360-degree type programs, Matthews et al (2002) have noted that

test developers generally claim that their measures are distinct from personality, but item content is typically very similar to standard personality scales.²¹

¹⁸ John D. Mayer, David R. Caruso, and Peter Salovey, “Emotional Intelligence Meets Traditional Standards for an Intelligence,” *Intelligence* 27, no. 4 (2000): 268.

¹⁹ Chris Watkin, “Developing Emotional Intelligence,” *International Journal of Selection and Assessment* 8, no. 2 (June 2000): 89-92.

²⁰ Mark M. McLeod, “Developing Intuitive Officers to Revolutionize Transformation in the 21st Century Military” (Carlisle Barracks: US Army War College Paper, 2003), 1.

²¹ Gerald Matthews, Moshe Zeidner, and Richard D. Roberts, “*Emotional Intelligence: Science and Myth*,” (Massachusetts: The MIT Press, 2002), 524.

Calling into question the claims that these types of programs differ from existing Meyers-Briggs type indicators.

Regardless of the definition used by researchers, it is imperative that a single definition of EI be adopted. The four dimensional EI definition espoused by Law et al (2004) (presented earlier on page nine) is a good example for a possible candidate, as it is inclusive of existing EI concepts and it focuses on breaking out a level of ‘ability’ within each of its dimensions, thereby offering a solid basis for scientific exploration. By focusing research on any of these four pieces of the EI puzzle over time, EI research may provide indications as to the relative importance any single element contributes to the overall construct. Perhaps only one, vice all four elements might prove any utility of the overall EI construct, but at least a defensible stance, in proof or disproof of EI will be afforded. For example, the case may be that dimension two, *appraisal and recognition of emotion in others* may prove to be the key contributing element to effective leadership while dimension three, *regulation of emotion in oneself* may have no bearing on leadership ability and therefore be discarded as an element for personal development and rating. If emotional intelligence is to be utilized within a decision chain, whether for consideration of leadership training or personnel selection, it must be done based on a clear definition so that it may be correctly applied to a requirement.

THE UTILITY OF EMOTIONAL INTELLIGENCE

The Temple of Science is a multi-faceted building.

Albert Einstein

The history of measuring intelligence dates back to the nineteenth century and the pioneering work of Sir Francis Galton, in particular his application of correlation and other statistical techniques.²² The purpose of measuring intelligence is to provide some framework for assessing one's cognitive abilities in relation to others. Expanding on Galton's work, Alfred Binet helped develop the Binet-Simon scale, the precursor to the modern-day intelligence quotient (IQ) test.²³ The practicality of IQ tests has been debated since their introduction²⁴ and Binet himself "stressed the remarkable diversity of intelligence and the subsequent need to study it using qualitative as opposed to quantitative measures."²⁵ Yet despite the many opposing views, standardized tests are widely employed and ones such as the Scholastic Aptitude Tests (SAT) and the Armed Services Vocational Aptitude Battery (ASVAB) are being used extensively as a means of assessing academic ability and in predicting future success.²⁶ One major observation regarding the utility of these intelligence tests is that "general intelligence is often said to

²² http://en.wikipedia.org/wiki/Francis_Galton; Internet; accessed 11 March 2005.

²³ <http://www.indiana.edu/~intell/binet.shtml>; Internet; accessed 11 March 2005.

²⁴ Jan Strydom and Susan Du Pessis, "IQ Test: Where Does It Come From and What Does It Measure?", http://www.audiblox2000.com/dyslexia_dyslexic/dyslexia014.htm; Internet; accessed 11 March 2005.

²⁵ <http://www.indiana.edu/~intell/binet.shtml>; Internet; accessed 11 March 2005.

²⁶ <http://www.baseops.net/militarybooks/asvab/>; Internet; accessed 11 March 2005.

account for between 10% and 20% of such success.”²⁷ That leaves a significant margin unaccounted for. Given that aptitude tests have been used extensively within the gamut of personnel selection criteria over the past century, proponents of emotional intelligence advocate that the measure of EI may afford a complementary increment to existing tests. In particular, EI may contribute to the prediction of personal ability and future success, thereby offering a significant contribution to the influencing of personnel selection decisions.

The Oxford dictionary defines intelligence as “the ability to gain and apply knowledge and skills.”²⁸ To the psychologist, this definition would be somewhat broad, as it does not expand upon whether the overall make-up of intelligence is rooted in a single ability, or a range of abilities. Since Galton, many prominent academics have attempted to define what was implied by the term ‘intelligence’. Central to the debate is whether intelligence is a unitary or multi-faceted ability. Charles Spearman’s psychometric ‘g’ or ‘general intelligence’ is perhaps the most widely supported unitary theory.²⁹ Those supporting the unitary stance relate their definition predominantly to

²⁷ John D. Mayer and Peter Salovey, “*What is Emotional Intelligence?*,” [document online]; available from http://www.unh.edu/emotional_intelligence/EIAssets/EmotionalIntelligenceProper/EI1997MSWhatIsEI.pdf; Internet; accessed 11 March 2005.

²⁸ “*The Oxford Paperback Dictionary, Thesaurus, and Wordpower Guide*,” (New York: Oxford University Press, 2001), 471.

²⁹ <http://www.psych.usyd.edu.au/difference5/scholars/spearman.html>; Internet; accessed 12 March 2005.

psychometric endeavours; however, most lack universality and beg more questions than those being answered.³⁰

Contemporary theorists have expanded on Spearman's ideas through a model of fluid (Gf) and crystallized (Gc) intelligence. Not without its own criticisms, this model does acknowledge the likes of Ulric Neisser and Robert Sternberg et al. who postulated that "no single definition of intelligence is adequate."³¹ This assertion is further supported by the view of Matthews et al. (2002) that intelligence

"is composed of several broad factors of ability...[and] since empirical data suggests that these cognitive abilities are relatively structurally independent of one another, it appears that each requires its own, separate conceptualization."³²

Considering this concept of intelligence being multi-faceted and consisting of cognitive abilities, the possible existence of an 'emotional intelligence' within an overall intelligence construct and the inherent potential a robust standardized test for EI would have for predicting future success is what makes EI all the more intriguing. In a study

³⁰ An exploration of 'general intelligence' is beyond the scope of this paper. Matthews et al discuss the equivocal results of 'g' testing at length.

Gerald Matthews, Moshe Zeidner, and Richard D. Roberts, "*Emotional Intelligence: Science and Myth*," (Massachusetts: The MIT Press, 2002), 85-98.

³¹ Gerald Matthews, Moshe Zeidner, and Richard D. Roberts, "*Emotional Intelligence: Science and Myth*," (Massachusetts: The MIT Press, 2002), 89.

³² Gerald Matthews, Moshe Zeidner, and Richard D. Roberts, "*Emotional Intelligence: Science and Myth*," (Massachusetts: The MIT Press, 2002), 89.

that employed the latter previously discussed four-dimensional definition of EI controlled for personality dimensions, Law et al concluded “that EI might be a good predictor of job performance.”³³ This potential of EI to predict job performance and hence application to selection methods offers considerable utility to employers.

Accepting that standardized tests have been used extensively in the past to assess a cognitive ability and that the concept of EI may have a place amongst the broader collection of cognitive abilities contained within the notion of intelligence, it is prudent to explore if EI would be of any particular interest to employers beyond those of selection measures. Based on the definitive work of Salovey and Mayer (1990), EI is focused on the “recognition and use of one’s own and other’s emotional states to solve problems and regulate behaviour.”³⁴ This characteristic of the EI construct could have an interesting impact on another construct that is of particular interest to many employers, in particular the military, that being leadership.

It is in the realm of leadership that one of the strongest cases is being made for EI. A search for EI material on the Internet will quickly yield a plethora of consultants willing to offer their expertise to maximize an organization’s return-of-investment in

³³ Kenneth S. Law, Chi-Sum Wong, and Lynda Song, “The Construct and Criterion Validity of Emotional Intelligence and Its Potential Utility for Management Studies,” *Journal of Applied Psychology* 89, no. 3 (2004): 494.

³⁴ Peter Salovey and John D. Mayer, “Emotional Intelligence,” *Imagination, Cognition and Personality* 9, (1990): 185-211. [document online]; available from http://www.unh.edu/emotional_intelligence/EIAssets/EmotionalIntelligenceProper/EI1990%20Emotional%20Intelligence.pdf; Internet; accessed 12 March 2005.

leadership development through the employment of EI methods. The potential connection between EI and leadership will now be discussed.

As debate exists regarding a precise definition of EI, debate also exists when it comes to voicing a precise definition of leadership. Wenek (2003) attributes the varying definitions of leadership to the notion that leadership is a ‘social construct’, and expands on this idea by stating that

[o]ne major source of instability and ambiguity in the leadership construct can be found in the basic process of social cognition – the everyday ways in which people think and feel about other people and their behaviour, and how they make personal sense of their perceptions and feelings.³⁵

Northouse (2001) defines leadership as “a process whereby an individual influences a group of individuals to achieve a common goal.”³⁶ General J.A. Dextaze defined leadership as “the art of influencing others to do willingly what is required in order to achieve an aim or goal.”³⁷ Wenek (2003) offers a general definition of leadership as “directly or indirectly influencing others, by means of formal authority or

³⁵ Karol Wenek, *Defining Leadership*, Discussion Paper Prepared for the Canadian Forces Leadership Institute (Ottawa: DND, 2003), 2.

³⁶ Peter G. Northouse, *Leadership: Theory and Practice* (Thousand Oaks: Sage Publications Inc, 2001), 3.

³⁷ J.A. Dextaze, “The Art of Leadership”, *Canadian Armed Forces Personnel Newsletter* (Ottawa: DND, 1973)

personal attributes, to act in accordance with one's intent or a shared purpose."³⁸ It is logical to extract from the common thread through each of these definitions that a person who is able to perceive, express, understand, assimilate and manage both positive and negative emotions could potentially exercise stronger leadership and increase organizational effectiveness. This apparent strong linkage between EI and leadership is further amplified by Humphrey (2002)

[who] argued that leadership is intrinsically an emotional process through which leaders recognize employees' emotional states, attempt to evoke emotions in employees, and then seek to manage employees' emotional states accordingly.³⁹

The concept of transformational leadership has received widespread attention particularly in the military community.⁴⁰ This leadership approach

is concerned with values, ethics, standards, and long-term goals.

Transformational leadership involves assessing follower's motives, satisfying their needs, and treating them as full human beings.⁴¹

³⁸ Karol Wenek, *Defining Leadership*, Discussion Paper Prepared for the Canadian Forces Leadership Institute (Ottawa: DND, 2003), 36.

³⁹ Humphrey R.H., "Special Issue on Emotions and Leadership," *Leadership Quarterly* 13, no.5 (2002).

⁴⁰ John D. Kovacheff et al, *Leadership Theory, Measurement, and Implications for Officer Selection*, Technical Note 8/92 Prepared for the Canadian Forces Personnel Applied Research Unit (Toronto: July 1992), 13.

The potential of EI has been linked to transformational leadership and it has been shown by Ashkanasy et al. (2003) that the inclusion of EI concepts in leadership classes “can play a role in performance outcomes.”⁴²

Not all researchers in EI have been unequivocal in supporting a connection between EI and leadership. Antonakis (2003) points out the clear lack of published evidence supporting such claims and argues that being emotionally attuned to the world does not necessarily make one a better leader. He proposes that

[b]eing *immune* to detecting subtle nuances in others may actually be useful for leaders, especially top-level leaders, because they would be able to focus on the mission and would not be derailed by negative emotions, pandering to individuals, and being agreeable.⁴³

In rejoinder, Prati et al. (2003) acknowledged the dearth of published material, but reiterated that the efforts to relate EI and leadership are merely

⁴¹ Peter G. Northouse, *Leadership: Theory and Practice* (Thousand Oaks: Sage Publications Inc, 2001), 131.

⁴² Neal M. Ashkanasy, and Marie T. Dasborough, “Emotional Awareness and Emotional Intelligence in Leadership Teaching,” *Journal of Education for Business* (September/October 2003): 21.

⁴³ John Antonakis, “Why “Emotional Intelligence” Does Not Predict Leadership Effectiveness: A Comment on Prati, Douglas, Ferris, Ammeter, and Buckley (2003),” *The International Journal of Organizational Analysis* 11, no.4 (2003): 357.

an attempt to provide a contribution to theory construction and refinement...and to mobilize empirical investigation for a more developed understanding in the areas of teams, leadership, and emotional intelligence.⁴⁴

Additionally, in a study seeking to relate EI and leadership performance involving midshipmen from the United States Naval Academy (USNA), Trabun (2002) found no “conclusive link between emotional intelligence and effective leader performance among Squad Leaders at USNA.”⁴⁵ Trabun (2002) however went on to conclude that

there is sufficient reason to believe that the abilities outlined in the emotional intelligence construct that formed the basis of this research is a fundamental competency on which effective leadership can be implemented and achieved.⁴⁶

Trabun’s (2002) comments suggest that foundational evidence linking EI and leadership exists, but perhaps the test measures require some further refinement.

If this combined potential of EI to predict job performance and hence application to selection methods, with its inherent strong social interaction relationship within the

⁴⁴ L. Melita Prati, et al, “The Role of Emotional Intelligence in Team Leadership: Reply to the Critique by Antonakis,” *The International Journal of Organizational Analysis* 11, no.4 (2003): 368.

⁴⁵ Michael A. Trabun, “The Relationship between Emotional Intelligence and Leader Performance,” (master’s thesis, Naval Postgraduate School, 2002), 69.

⁴⁶ Ibid. 69.

construct of leadership could be realized, it would be of substantial utility to employers. This of course should be predicated on sound scientific data and not a marketing sales pitch.

THE PRACTICALITY OF EMOTIONAL INTELLIGENCE

“The temptation to form premature theories upon insufficient data is the bane of our profession.”

Sherlock Holmes

In a report to the Canadian Forces Personnel Applied Research Unit (CFPARU) investigating contemporary leadership theory and measures of predicting leader effectiveness, Kovacheff et al. (1992) concluded that the Canadian Forces could benefit from exercising means of measuring leadership potential given that “...reliable and valid criterion measures and predictors...”⁴⁷ were used. As previously discussed, the EI construct offers significant potential to employers, including the CF, especially in the realm of leadership; however, if it is to be of any practical purpose, EI must be proven through the use of reliable and valid measures and predictors to be of some value.

Under the stated criteria of reliability Kovacheff et al. (1992) presented two precepts of identifying valid scientific reliability, they are:

⁴⁷ John D. Kovacheff et al, *Leadership Theory, Measurement, and Implications for Officer Selection*, Technical Note 8/92 Prepared for the Canadian Forces Personnel Applied Research Unit (Toronto: July 1992), 66.

- a. inter-rater reliability; and
- b. consistency of dimension measurement.⁴⁸

Inter-rater reliability (IRR) requires that different EI measures need to be defined well enough that different people can't understand them in a different way. If responses to testing yield inconsistent results across respondents then the measure could be termed unstable and be of questionable value. Kovacheff et al's (1992) criterion of consistency requires calculation of inter-item correlations. This correlation factor can be calculated by using Cronbach's Alpha on a grouping of questions that are meant to measure the same concept. In both IRR and Cronbach's Alpha, a value of 1.0 is the ideal; however, "most standardized tests of intelligence report reliability estimates around .90 (high)... reliability estimates below .60 are usually regarded as unacceptably low."⁴⁹ Therefore, in practical terms reliability figures should be a least 0.80 or higher for a test to be considered reliable.

Validity refers to the strength of the conclusions reached by the test. Did the researcher reach a good conclusion based on one's experience, judgment and methodology employed? Most importantly, validity asks, "Is the test measuring what you think it's measuring?"⁵⁰ Construct validity is the most important form of validity

⁴⁸ Ibid. 47.

⁴⁹ <http://www.wilderdom.com/personality/L3-2EssentialsGoodPsychologicalTest.html>; Internet; accessed 14 March 2005.

⁵⁰ Ibid.

process and is used to determine whether or not a test actually measures what it was designed to measure.⁵¹ The application of construct validity is not merely a matter of executing an algorithm. The process of construct validity requires time and involves a continuous accumulation and analysis of research data; in effect it is almost a never-ending process. The cumulative data set provides the academic community indicators of success or failure. It helps in identifying the requirement to make minor or major adjustments to the theoretical understanding of a construct; and if consistently negative results are being realized, it provides grounds for outright rejection of the construct.

Construct validity consists of three different forms of validity:

- a. criterion validity (includes predictive and concurrent);
- b. convergent validity; and
- c. discriminant validity.⁵²

Criterion validity is composed of two parts; predictive validity and concurrent validity. The predictive component looks for external evidence that indicates whether the measure has any evident predictive power relative to the theory tested. Convergent validity compares results with like tests purporting to measure the same construct.

⁵¹ Ibid.

⁵² <http://www.wilderdom.com/personality/L3-2EssentialsGoodPsychologicalTest.html>; Internet; accessed 14 March 2005.

Theoretically, the like tests should correlate highly. Discriminant validity has particular import to EI, as it means to show that “that a measure doesn't measure what it isn't meant to measure.”⁵³ Validity will be discussed further later, but it is also important to note that “in order to be valid, a test must be reliable; but reliability does not guarantee validity, i.e. it is possible to have a highly reliable test which is meaningless (invalid).”⁵⁴

Earlier discussion in this paper highlighted that the possible existence of an ‘emotional intelligence’ within an overall intelligence construct would be of utility to employers, including the CF, but is EI an intelligence per se? To be categorized as an intelligence, EI must demonstrate that it can meet the reliability and validity requirements within three specific criteria groupings: conceptual, correlational, and developmental.⁵⁵

The first, conceptual criteria, includes that intelligence must reflect mental performance rather than simply preferred ways of behaving...second[ly], correlational criteria, describe empirical standards: specifically, that an intelligence should describe a set of closely related abilities that are similar to, but distinct from, mental abilities described by already-established intelligences...[lastly], developmental criterion, states that intelligence develops with age and experience.⁵⁶

⁵³ Ibid.

⁵⁴ Ibid.

⁵⁵ John D. Mayer, David R. Caruso, and Peter Salovey, “Emotional Intelligence Meets Traditional Standard for an Intelligence,” *Intelligence* 27, no. 4 (2000): 269.

⁵⁶ Ibid. 270.

In order to facilitate the means of demonstrating these reliability and validity criterion established measures of emotional intelligence are required.

In the process of developing a means to measure ‘emotional intelligence’, two different models of EI have emerged, the mixed-model and the ability-based measure. Each model is differentiated both in concept and measurement approach.⁵⁷

Mixed models are called such because they “includ[e] dispositional, motivational, and situational variables.”⁵⁸ The mixed model employs a self-reporting measurement approach that is based on individual self-perception. “Self-report measures have been designed to assess beliefs and perceptions about an individual’s competencies in specific domains of EI.”⁵⁹ Examples of the mixed model approach include: the Emotional Quotient Inventory (EQ-i) developed by Bar-On (1997); the Schutte Self-Report Inventory (SSRI); and the Hay 360 Emotional Competence Inventory (ECI).⁶⁰ Self-reporting, as related to EI, has incurred numerous unfavourable reviews. Cautions have been raised that self-reporting could be susceptible to both conscious and unconscious manipulation.⁶¹ For instance, conscious manipulation may be exercised by deliberately

⁵⁷ Carolyn MacCann et al, “Psychological Assessment of Emotional Intelligence: A Review of Self-Report and Performance-based Testing,” *The International Journal of Organizational Analysis* 11, no. 3 (2003): 249.

⁵⁸ Ibid. 250.

⁵⁹ Richard D. Roberts, Moshe Zeidner, and Gerald Matthews, “Does Emotional Intelligence Meet Traditional Standards for an Intelligence? Some New Data and Conclusions,” *Emotion* 1, no.3 (2001): 200.

⁶⁰ Carolyn MacCann et al, “Psychological Assessment of Emotional Intelligence: A Review of Self-Report and Performance-based Testing,” *The International Journal of Organizational Analysis* 11, no. 3 (2003): 250.

lying on a self-reported EI test in order to increase the rating of a particular discriminate, if it was known to be a critical requisite for a certain position. Unconscious manipulation may occur via the by-product of one's own over-inflated self-perception. Proponents of the self-reporting approach advocate that measures can be invoked to prevent such manipulation of EI testing; however, validation studies of such measures as applied to EI testing have yet to be completed by these researchers.⁶²

The EI ability-based models employ consensus and expert scoring techniques to evaluate testing results. Having several people present to respond individually to each question and then evaluating the pooled responses accomplishes consensus scoring. This method implies that the many outweigh the one. That is, if nine people respond that they perceived anxiety to be present in a situation, while the tenth states that he or she perceived euphoria in the air, the correct response will be weighed accordingly towards anxiety (nine people are each awarded a score of 0.90 marks, while the tenth receives a score of 0.10). Expert scoring implies the presence of a group of expert judges, knowledgeable in the field of EI and recognized as being capable of discerning EI qualities at the highest levels. While this scoring paradigm may be somewhat more robust than the mixed model approach, it is not without its recognized shortcomings. For example, while simple recognition of a basic emotional state such as surprise may be easily discernable at the basic skill level, many abstractions of emotion can be embodied in differing instances that would exist at a very high skill level resulting in a complex

⁶¹ Gerald Matthews, Moshe Zeidner, and Richard D. Roberts, *Emotional Intelligence: Science and Myth*, (Massachusetts: The MIT Press, 2002), 41.

⁶² Ibid. 41.

mosaic of possible ‘correct’ answers. Examples of ability-based models include the Multi-factor Emotional Intelligence Scale (MEIS); the Mayer-Salovey-Caruso Emotional Intelligence Tests (MSCEIT version 2); and the Wong and Law Emotional Intelligence Scale (WLEIS). It should be noted that all three models have been based on three subtle, yet differing four-branch models of EI.

Proponents of the two different model types have often entered into debate as to the usefulness of their particular approaches. Out of this debate, there appears to be a clear favourite resulting from the “accomplishment of Mayer, Caruso, and Salovey’s (2000) research...to establish the pre-eminence of [ability]-based testing of EI.”⁶³ In order to provide substantive evidence to help decide the issue, MacCann et al. conducted a detailed comparison between mixed model and ability-based models. The approach employed a side-by-side comparison of the reliability and validity of some common mixed model measures with that of some ability-based models. In particular the Bar-On EQ-I, Schutte SSRI, the Trait Meta-Mood scale (TMMS) and the Hay 360 ECI (all mixed model) were compared to the Mayer et al. MEIS and MSCEIT ability-based models.

A particular focus of the testing was to determine whether the models measured a new ability, that being EI, or whether they were just measuring an existing collection of recognized abilities, in particular the Five Factor Model of Personality (FFM). The five-factor model consists of five personality dimensions: Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. These five

⁶³ Moshe Zeidner, Gerald Matthews, and Richard D. Roberts, “Slow Down, You Move Too Fast: Emotional Intelligence Remains an “Elusive” Intelligence,” *Emotion* 1, no.3 (2001): 266.

dimensions are meant to provide a comprehensive description of personality.⁶⁴ The FFM was chosen because mixed models have been criticized for being a collective measure of personality traits vice a unique measure of EI.

Using Chronbach's alpha to test reliability of the target mixed model measures, it was found that they all had high composite reliability (all measured traits combined), varying between a low of 0.73 to a high of 0.96.⁶⁵ Individually however, the trait scales scored somewhat lower ranging between 0.54 and 0.91. MacCann et al. (2003) assert, "one should be cautious of making high stakes decisions based on sub-scale scores from virtually all extant measures of self-reported EI."⁶⁶ To establish the validity of mixed model measures, MacCann et al. compared the sub-scale measures of the target EI models with those of the FFM, as well as conducting a review of reports extending from 1998 to 2002. The result of the sub-scale measure comparison indicated a significant similarity between those of the self-reported EI measures and those of the FFM personality measures, therefore displaying poor discriminant validity.⁶⁷ The review of correlation summaries indicates poor convergent validity in that "[s]elf report measures of EI have thus far shown low (near zero) correlations with traditional forms of

⁶⁴ <http://www.personalityresearch.org/bigfive.html>; Internet; accessed 15 March 2005.

⁶⁵ Carolyn MacCann et al, "Psychological Assessment of Emotional Intelligence: A Review of Self-Report and Performance-based Testing," *The International Journal of Organizational Analysis* 11, no. 3 (2003): 256.

⁶⁶ Ibid. 255. Note: The mixed models evaluated generally employed like scales such as *Emotional Self-awareness* which could be construed as being consistent with the broad definition of EI. However, to arrive at test scores for each scale, each of the scales are further subdivided into varying sub-scale facets such as *optimism, self-regard, etc.* which can be mapped almost directly to the Five-Factor model.

⁶⁷ Ibid. 256.

intelligence.”⁶⁸ In so far as the ability of mixed models to provide predictive information the results are mixed (no pun intended). Since there is such abundance of evidence suggesting a significant overlap between EI mixed models and personality measures, much of any reported predictive value has been attributed to personality factors. Janovics and Christiansen (2001) went so far as to “report no relation between self-report EI (as measured by the SSRI and Trait Meta-Mood scale) and job performance.”⁶⁹ In essence, mixed models may exhibit high reliability, but fail significantly when it comes to validity, making them rather meaningless.

As discussed earlier, one of the most confounding problems facing ability-based models is the problem of determining what constitutes a correct answer. Both the MEIS and MSCEIT accomplish this by:

- a. assuming emotion experts know the answer (expert scoring);
 - b. assuming that the stimulus creators know the answer (target scoring);
- or
- c. assuming that the correct answer is what people generally agree is correct (consensus scoring).⁷⁰

⁶⁸ Ibid. 258.

⁶⁹ Ibid. 258.

⁷⁰ Ibid. 259.

The inherent pitfalls of this approach include determining who the experts are; ensuring the target audience reports their emotional interpretation correctly; and multivariate normality cannot be validly applied to consensually scored tests because they exhibit high kurtosis (peaked at the mean) and negative skew (non-symmetry).⁷¹

Given that there exists a very limited number of recognized experts in the field of EI, the preferred approach is to employ consensus scoring; therefore, the characteristics of this type of data set were reviewed. The statistical behaviour analysis revealed that it becomes difficult to identify the top EI performers from the poor ones because of the clustering of scores around the mean (kurtosis). Because of this particular data tendency, it becomes difficult to establish meaningful cut-off scores thereby leading MacCann et al. (2003) to conclude, “it is unlikely the scales could be used with any degree of assurance in making selection decisions for specific job clusters.”⁷²

Ability-based models fared more favourably in validity testing than did the self-reporting models. Discriminant validity testing against the FFM did not indicate any significant overlap, with the highest correlation being 0.29.⁷³ Convergent validity testing

⁷¹ Ibid. 260. Note: Multivariate normality analysis requires a normally distributed data set, as exhibited by accepted standardized tests. In plain terms, picture a ‘normal’ bell curve that exhibits easily distinguishable 1-sigma cutoffs and compare that to a squished and lop-sided curve where potentially all values are nearly the same. Since this EI data set exhibits differing characteristics, conclusions cannot be drawn in the same manner as from standardized test results.

⁷² Ibid. 261.

found the ability models to be correlated to knowledge-based tests, but not to tests of reasoning ability.

Generally, the evidence suggests that ability-based EI measures may index acquired emotional knowledge, which is related to crystallized intelligence, rather than fluid intelligence (and perhaps also general mental ability). Such a relationship supports claims that EI may be learned.⁷⁴

Finally, predictive validity was evident, more so for the MEIS than for the MSCEIT.

Reliability testing was conducted for each of the four test branches of the MEIS and MSCEIT models; remembering that the Mayer et al. (2001) branches consist of emotion perception; emotional facilitation of thought; understanding emotions; and managing emotions, respectively. The analysis of the data showed reliability estimates varying between a low of 0.29 to a high of 0.94, indicating favourable results for some branches and not so favourable results for others. MacCann et al. (2003) concluded “[o]nly Emotion Perception tests reached high enough standards of reliability for practical use, with other tests reasonable for experimental studies.”⁷⁵ An additional note of caution was also highlighted by this analysis. Observations on the format of the MEIS and MSCEIT indicate that the reliability scores are vulnerable to being overstated, simply

⁷³ Carolyn MacCann et al, “Psychological Assessment of Emotional Intelligence: A Review of Self-Report and Performance-based Testing,” *The International Journal of Organizational Analysis* 11, no. 3 (2003): 266.

⁷⁴ Ibid. 267.

⁷⁵ Ibid. 262.

by exercising random answering of the questions; further weakening any application as a potential selection tool.

On the whole, MacCann et al's (2003) findings reinforced the previously identified weaknesses of the mixed models, primarily their tendency to exhibit similar results obtained through personality-trait measures. The findings also provided substantive support to previous assertions that the ability-based models are the most EI-centric measure. However, a key observation was that the current state of ability-based models is such that they should be reserved for research purposes only, and that "[f]urther research appears necessary before tests of EI are suitable for making real-life decisions about individuals."⁷⁶

CONCLUSION

The great tragedy of Science – the slaying of a beautiful hypothesis by an ugly fact.

Thomas Huxley, 1894

Well-developed and psychometrically sound measurement tests are the bulwark of empirical research. However, in the highly popularized arena of emotional intelligence (EI) the development of psychometric tests has not been particularly straightforward. In particular, the EI community has yet to agree on a clear definition of

⁷⁶ Ibid. 247.

EI and although the Law et al (2004) adaptation is proceeding in the right direction, many others are still espousing broadly based definitions that lead to redundant testing of personality traits vice a focused approach to EI. Although considerable excitement has been created by the potential that EI proffers, the existence of EI and the relevance to the prediction of human potential must be grounded on accepted empirical evidence. In this vein, it is recommended that results in particular of mixed model measures, including such off-shoots as 360-degree type programs not be construed as a valid evaluation of emotional intelligence.

There remains a dearth of reliable and valid data to strongly support the assertion that those individuals of high EI inherently make better leaders.⁷⁷ However, the concept of EI still offers some utility in contributing to the field of leadership, as there is an apparent strong social interaction relationship between the two constructs. It is recommended that EI concepts should be considered for inclusion within leadership training curriculum, as an understanding of these concepts has been shown to have positive affects on team performance.⁷⁸

There remains much to be accomplished in the field of EI before it can be considered a mature enough field to be put to widespread use for occupational and career assessment. While ability-based methods show promise, they still need to demonstrate that any new iteration of their EI tests exhibit a high correlation with its predecessor or

⁷⁷ Michael A. Trabun, "The Relationship between Emotional Intelligence and Leader Performance," (master's thesis, Naval Postgraduate School, 2002)

⁷⁸ Neal M. Ashkanasy, and Marie T. Dasborough, "Emotional Awareness and Emotional Intelligence in Leadership Teaching," *Journal of Education for Business* (September/October 2003): 18-22.

other EI measures, as required by validity testing criteria. This would provide a basis to assess certain hypotheses for continuing research or rejection. Researchers also need to systematically construct tests that can be statistically normed and validated before the data is used for selection, placement or promotion within specific occupational groups. Finally, those interested in emotional intelligence should be cautioned that EI might be a victim of pop-psychology tainted by not so well formulated models, and as such be the unattainable chimera.

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