

A Theoretical Evaluation of Four Influential Models of Emotional Intelligence

Faryal Razzaq*

Bahria University, Islamabad, Pakistan
SZABIST, Islamabad, Pakistan

Zainab F. Zadeh

Institute of Professional Psychology, Bahria University, Karachi
and Faisal Aftab
Bahria University, Islamabad, Pakistan

Emotional Intelligence (EQ) is attributed with success in life and work in general. But to know, develop and measure EQ it is needed to know the important theories and scales to measure it. The current paper evaluates four influential models i.e. Bar-On Emotional Quotient Inventory (Bar-On EQi), Emotional Competency Inventory (ECI), Emotional Intelligence Quotient (EIQ) and Goleman Clusters. The current paper juxtapose the elements of these influential models to present how similar or disparate the construct of EQ is presented in literature by the gurus in the field. An effort is made to highlight their strengths and weaknesses after critical evaluation. Literature review revealed that generally impression among researchers is that it is difficult to measure emotional intelligence and that no truly robust measure exists as yet (Goleman, 1996 as cited in Dulewicz & Higgs, 2000a). The reason could be that developing sound measures is an arduous and lengthy process; many researchers take shortcuts or simply avoid the process altogether (Schmitt, 1991). This Research aims to identify the crucial gaps in the widely used measures, as if the measure does not holistically account for all the important dimension of EQ the results might not show the total potential of EQ in entirety. Since the aforementioned models differ in their constructs a case has been made to follow an integrative approach incorporating elements of dominant EQ models which works in multi-level to better explain the EQ construct.

Keywords: Emotional intelligence, models, theoretical study

*Correspondence concerning this article should be addressed to Faryal Razzaq, Bahria University, Islamabad, Pakistan. E-mail: faryalashfaq@hotmail.com

Emotional Intelligence (EQ) is relatively a new concept that came into the lime light with the publication of Goleman's (1995) bestselling book 'Emotional Intelligence'. When cognitive intelligence (IQ) related studies (Martinez, 1997; Thompson, Staurt, & Lindsley, 1996) failed to answer and predict why some people were more successful than other, an interest in finding an alternative explanation was ignited. This shift led to the exploration of non-cognitive attributes of the mind (Dulewicz & Higgs, 2000a; Goleman, 1995; Mayer & Salovey, 1997; Bar-On, 1997) and the progression towards the concept of Emotional Intelligence (EQ). Salovey and Mayer (1990) describe emotional intelligence as a form of social intelligence that involves 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 thinking and action.

The current widespread interest in EQ is attributed by the fact that high EQ not only differentiates between top performers at the workplace (McClelland, 1998), but is also a distinguishing factor among high-level leaders (Boyatzis, Goleman, & Rhee, 2000; Higgs & Aitkin, 2003). As research into EQ is advancing, its significance in work settings for regulating and enhancing emotions, attitudes and behaviors among employees and managers is also being realized (Devonish, 2016). EQ is also strongly correlated with a higher quality of life in general (Morgan, 2003). Currently EI at workplace is getting much attention as EI is related positively with service performance and attributes to reduce burnout and enhance job satisfaction as well as job performance (Prentic & King, 2012). Studies have revealed that emotionally intelligent employees are more committed to organizations and interpersonal dimension of EI helps in reducing stress and improves job satisfaction (Abraham, 2000). Researchers believe that EI related capabilities will not only enhance working life of all professionals but enhancing EI capacity results in 110% greater yields for organizations in monetary terms (Gragg, 2008).

Since, there are divergent views regarding what comprises EQ and how to measure it (McCleskey, 2014; Dulewicz & Higgs, 2000a; Goleman, 1996; Tett & Fox, 2006), the current paper explores the dimensions of the most influential models of EQ. It also looks at the measures based on these models, as all authors claim that the indices to measure EQ are valid; however a lot of controversy and discrepancy remains regarding the validity of any one model (McCleskey, 2014; Batool, 2009).

The concept of EQ has its roots in the term 'mindfulness' that goes back to the Buddhist era and other Eastern spiritual systems that emphasize imagination and the nurturance of conscious attention (Bishop et al., 2004). Darwin (1872) also recognized aspects of emotional expression. The introduction of the concept of "social intelligence," by Thorndike in 1920 paved the way for the concept of EQ. It took a long time to progress towards the dimension of EQ when Gardner (1993) in his theory of multiple intelligences divided social intelligence into inter-personal and intra-personal intelligences.

Little progress was made towards the actual domain of EQ till Payne (1985) in his PhD thesis elicited that emotional intelligence is an ability to have a creative association between pain desire and fear (Danciu, 2010, quoted Payne, 1985). The term Emotional Intelligence was coined by Salovey and Mayer who developed the background knowledge of non-cognitive aspects of intelligence and distinguished Emotional Intelligence from Cognitive Intelligence (Salovey & Mayer, 1990). However, Emotional Intelligence gained recognition and popularity when Daniel Goleman, PhD in Psychology from Harvard University and a science writer for the New York Times, started a series of studies to find out what it is that entails people to be successful. Goleman became aware of Salovey and Mayer's work, and this eventually led to his bestselling book published in 1995.

Although the definitions for EQ in the literature may be varied, they do seem to complement each other as most of the researches on EQ focus more or less on four dominant areas, emotional perception, regulation, understanding and utilization (Ciarrochi, Chan, & Caput, 2000). The disparity in the conceptual models of EQ is attributed towards the orientation of theorist as to how EQ abilities are measured and the way that EQ related behaviors are described. The main approaches to measure and define EQ are Trait Models, Ability Models and Mixed Models (Batool, 2009; Shi & Wang, 2007). Evaluating the claims for various models requires an understanding of the psychometric vocabulary that underpins particular constructs and measures of “reliability” and “validity”. For example, there are various dimensions of validity, including whether various test items appear to capture what they set out to measure (face validity) and whether the range of behaviors can be seen to have an impact on task performance (predictive validity). In addition, there is frequently overlooked issue of effect size (Coffield, Moseley, Hall, & Ecclestone, 2004).

When EQ is conceptualized as “a constellation of behavioural dispositions and self-perceptions concerning one’s ability to recognize, process, and utilize emotion-laden information” (Tett & Fox, 2006), then this orientation is referred to as trait emotional intelligence. Measures based on trait models are self-report measure and are popular especially in measuring EQ at workplace (Petrides & Furnham, 2003). Trait measures have shown good internal reliability over time but did not show similar factor structure in further studies (Day, 2004). Trait measures are also called competency models as the models are based on certain competencies, the most influential competency model is of Goleman (1995) EQ model.

Ability model is defined as set of information processing abilities that are grouped together into four levels where skill in the higher levels are built upon the skills gained at the lower level (Mayer, Salovey, & Caruso, 2004). Ability model, also known as performance model, assumes EQ to be a pure form of intelligence

and considers it a mental ability (Hebert, 2011). Ability measures assess direct handling of emotions and scores are compared according to the matching of the score, either by the model judgment by a large normative sample, or EQ subject matter experts (Geher & Renstorm, 2004). Ability measures show low reliability but good factorial validity. Researchers consider these two approaches as complementary and the measures based on them are heterogeneous (Stys & Brown, 2004) raising the question that what actually measures EQ accurately?

Following the mixed models, the contemporary research supports multidimensional conceptualization of EI but the nature and number of the dimensions remains unclear (Devonish, 2016; Tett & Fox, 2006). There are divergent views regarding what comprises EQ and how to measure it in a meaningful way (Dulewicz & Higgs, 2000b; Goleman, 1996; Tett & Fox, 2006). Therefore, the objective of the current paper is to juxtapose the elements of influential EQ models and evaluate the discrepancies between them; as each model claims to evaluate the construct of EQ through desk review. The other objective of the current paper is to narrow down the way forward among different orientations of EQ that seem to produce different kinds of literature and define the construct of EQ in a meaningful way.

Review of Influential EQ Models

Researchers and theorists in the field of EQ have a general consensus about the most influential EQ models which are, (i) Bar-On Emotional Quotient Inventory (Bar-On EQi), (ii) Emotional Competency Inventory (ECI), (iii) Goleman's Clusters and (iv) Emotional Quotient Inventory (EQI) (Saber, 2012; Hebert, 2011; Batool, 2009; Dimitriadis, 2007). Salovey and Mayer's (1990) ability model, which asserts EQ as a pure intelligence, is also known as a performance based model (Mayer, Salovey, & Caruso, 2004). Goleman's (1995) competency model views EQ as a competency model based on personality theory, and Bar-On's EQi (2000) and Dulewicz and Higgs' (2000b) EIQ are trait or mixed models based on both cognitive ability and personality theory. EIQ and EQ-i measure social and emotional constructs which represent personal

factors associated with behavior (Boyatzis, Goleman, & Rhee, 2000).

Ability theorists of EQ, who advocate performance based scales of EQ, believe that EQ is a pure intelligence model and assert it as a subset of the broader domain of intelligence (Mayer & Salovey, 1997). The measure based on ability model like MSCEIT by Salovey and Mayer (1990) focuses on responses that have correct or incorrect answers, as they are based on the capacity of the respondents to perform certain mental tasks (Carroll, 1993). The proponents of ability measures claim that EQ is a type of intelligence therefore the scales used are based on objective performance; for instance identifying the emotion in a simulated context, and then evaluating the answers against a criteria that can determine the EQ (Mayer, Salovey, & Caruso, 2004). Mixed models, on the other hand, are comprised of both cognitive ability and personality questions (Bar-On, 1997; Bar-On, 2000; Goleman, 1995, Goleman, 1998). They are mostly based on self-reporting measures and show good validity. This disparate nature of EQ models raise questions among researchers whether EQ should be regarded as a pure intelligence, as fake responses by respondents also remains a big concern (Zeidner, Matthews, & Roberts, 2002).

The advocates of self-reporting measures assert that since the procedure is more straight forward and the respondents can be the best judge to assess their own emotional intelligence, they can open up more easily about their own beliefs (Austin, Saklofske, & Egan, 2005; Holtgraves, 2004; Van Rooy & Viswesvaran, 2004). A major concern for the critics of self-report measures is the convergence of the self-report measures with personality measures (Zeidner, Matthews, & Roberts, 2002). However, empirical evidence suggests that self-reporting shows no significant relationship with several measures of standard intelligence or personality (Bar-On, 2002; Sala, 2002).

Following is the list of the most influential EQ models;

1. Emotional Competency Inventory (ECI) measures developed by Boyatzis, Goleman and Rhee in 1999 (Boyatzis, Goleman & Rhee, 2000; Dulewicz & Goleman, 2000).
2. Bar-On Emotional Quotient Inventory (EQ-i) developed by Bar-On in 1997 (Bar-On, 1997; Bar-On, 2002; Cherniss, 2000; Gardner, 1993).
3. Emotional Intelligence Quotient (EIQ) was developed by Dulewicz and Higgs (Dulewicz & Higgs, 2000a; Dulewicz, Higgs, & Slaski, 2003; Higgs & Aitkin, 2003).
4. Goleman's Clusters (Goleman, 1995).

Goleman's Clusters

Goleman suggests that EQ is based on five clusters of competencies, first the *Self-Awareness Cluster*, which includes, emotional self-awareness, accurate self-assessment and self-confidence. The second cluster is that of *Self-Regulation*, which is comprised of self-control, trustworthiness, conscientiousness, adaptability and innovation. The third cluster is called the *Self-Motivation Cluster*, and contains achievement orientation, commitment, initiative and optimism. Fourth is the *Empathy Cluster*, and consists of empathy, organizational awareness, service orientation, developing others and leveraging diversity. Lastly, the *Social Skills* cluster includes leadership, communication, influence, change catalyst, conflict management, building bonds collaboration and cooperation and team capabilities.

The measures based on these clusters are measured by multi-rater assessment and mostly fall under the rubric of trait models of EQ (Shi & Wang, 2007). Most of the EQ theories evolve from this model, for instance, ECI and Bar-On EQI etc.

ECI

The ECI measures 18 competencies organized into four clusters: Self-Awareness, Self-Management, Social Awareness, and Relationship Management. The Self-Awareness cluster contains

three competencies, emotional awareness, accurate self-assessment and self-confidence. The Self-Management cluster contains six competencies: emotional self-control, transparency, adaptability, achievement, initiative and optimism. The Social Awareness cluster contains three competencies: empathy, organizational awareness and service and orientation relationship management. The Relationship Management cluster contains six competencies: developing others, inspirational leadership, change catalyst, influence, conflict management, teamwork and collaboration.

This model for ECI was developed by Boyatzis, Goleman, and Rhee (2000). The theoretical framework and the competencies for EI were derived by integrating the work of Goleman (1998) and Boyatzis (1994). The ECI scale was developed initially by 596 samples taken in the summer/fall of 1998 from managers, sales people and graduate students. After reliability assessment and inter-correlation of items, the scale was refined in December 1998. In 1999 it was rewritten with the research staff of McBer group (Boyatzis, Goleman, & Rhee, 2000). For the early applications of the ECI the developmental scaling of McBer instruments' assumptions were based on expert opinions from previous studies.

On the basis of factor, cluster, and reliability analyses of the data, a number of competency scales were reconsidered and reclassified from Goleman's (1998) earlier models. On both versions of the ECI, the manner of scoring used was the average item scoring method as well as the developmental weighting method. For clustering, the researchers employed empirical clustering rather than using priori clustering by integration of four factor analyses via Learning Skills Profile (self-report card sort, $n=724$), Self-Assessment Questionnaire (self-report, $n=454$), Behaviorally Coded Critical Incident Interview (audio taped, $n=497$), Behaviorally Coded Group Discussion Exercise (videotaped, $n=482$).

Cronbach's Alpha was used to assess reliability. The reliability of SAQ was taken by administering it on 180 MBA students. The SAQ and its 360° version, the EAQ, as well as both

versions of the ECI had similar response categories i.e. on the scale of 1-6 starting from “he/she behaves this way only sporadically” to “the behavior is very characteristic of this individual (i.e., he/she behaves this way in most or all situations where it is appropriate)”. The differential impact of demonstration of the competencies in each of these clusters was assessed using the Tipping Point Analysis.

Emotional Competence Inventory the ECI final version is a 360 degree instrument (Cherniss, 2000). People who know the individual, rate him or her on 20 competencies that Goleman’s research suggests are linked to emotional intelligence (Goleman, 1995). ECI is based on about 40 percent of the items of the Self-Assessment Questionnaire (SAQ) that was developed by Boyatzis (1994). These earlier items had been validated against performance in hundreds of competency studies of managers, executives, and leaders in North America, Italy, and Brazil. The authors addressed the rationale of clustering in detail as to why competencies were grouped in clusters and what were the reasons behind it.

The authors claimed that clusters of competencies can predict performance and links to all levels of human psyche. They also claimed that clusters help in developing the theory of action and theory of personality. The authors predicted that fractals exist within the structure of human personality and that competency clusters are a necessary level of variable needed to find and see the fractals.

The models’ main strength was its theoretical framework. They used about four leading theories on EI to form the conceptual framework, and refined the scale after integration of four types of factor analysis of four different measures for empirical clustering of the final scale. The pilot testing and the first version of ECI testing was elaborate therefore, the clusters that emerged show high face and construct validity.

The major weakness of the ECI model is its methodology, as after clustering and factor analysis it didn’t dilate the discriminant and convergent validities of the scale, which is one of the main

factors that makes the scale effective. Their main analysis is based on the internal reliability i.e. Cronbach's Alpha whose validity is also debatable. The sampling technique along with the results, the factor loading of the factor analysis, and how the cluster analysis grouped together were also not specified.

Bar-On EQ-i

Bar-On EQ-i (Bar-On, 1997) is a self-report instrument, originally evolved from a clinical context, and now has been around for almost 26 years. It was designed to assess those personal qualities that enable some people to possess better "emotional well-being" than others. The EQ-i has been used to assess thousands of individuals, and we know quite a bit about its reliability and its convergent and discriminant validities, but less is known about its predictive validity in work situations.

The structure of the Bar-On EQ-i is based on the literature and its author's research experience as a clinical psychologist (Bar-On, 1997). The concept was theoretically developed from logically clustering variables and identifying underlying key factors purported to determine effective and successful functioning as well as positive emotional health (Bar-On, 1997). The EQ-I produces a total EQ score, five composite scale scores, and 15 sub-scale scores, defined by Bar-On (1997). Little is known about its predictive validity.

Bar-On EQ-i –Composite Scales and Subscales

It has nine main dimensions: 1. *Intra-personal (self-awareness and self-expression)* which includes, self-regard, emotional self-awareness, assertiveness, independence and self-actualization, 2. *Inter-personal (social awareness and interpersonal relationship)*, which contains empathy, social responsibility and interpersonal relationship, 3. *Stress Management (emotional management and regulation)* which comprises of, stress tolerance and impulse control, 4. *Adaptability (change management)* which includes reality-testing, flexibility and problem-solving, 5. *General Mood (self-motivation)* consisting of, optimism and happiness, 6.

Intra-personal (self-awareness and self-expression) composed of self-regard, emotional self-awareness, assertiveness, independence: to be self-reliant and free of emotional dependency on others, self-actualization, 7. *Inter-personal (social awareness and interpersonal relationship)* which includes empathy, social responsibility, interpersonal relationship, 8. *Stress Management (emotional management and regulation)* including, stress tolerance and impulse control, and finally 9. *Adaptability (change management)* which includes, reality-testing, flexibility and problem-solving.

The scale was normed on approximately 4000 respondents from the United States and Canada. 79% of the North American normative sample were white, below the age of 30 years and both the genders has equal representation (Bar-On, 2002). Test-retest reliability was assessed after 1 and 4 months to be checked on South African sample for stability estimates and was .85 (N = 44) and .75 (N = 27) (Stys & Brown, 2004). It should be noted that no stability estimates were reported for the North American sample. For internal consistency, Cronbach's alpha scores were used which ranged from .69 to .86 for the 15 subscales and an overall average internal consistency of .76 (Bar-On, 2002).

Content validity is reported by the authors as being adequate as items for each subcomponent were generated and selected in a systematic approach. Item analyses were conducted to identify the items that were not related to the definitions. Initial feedback was taken from subjects in the early stages of test development. To test hierarchical structure of the scale structural validity was established through factor analysis. Analyses supported the five components of emotional intelligence (GFI = .971), however, exploratory factor analyses revealed 13-factor model of sub-components rather than the postulated 15 factor model (Bar-On, 2002). *Criterion validity* was established with the Emotion Quotient Inventory being accurately able to differentiate successful respondents from unsuccessful ones in business and industry settings.

Construct validity was illustrated through measures of *convergent and divergent validity*. No statistically significant correlations were found between the EQi and several measures of standard intelligence (Bar-On, 2002; Brackett & Mayer, 2003). However EQi was found to be significantly correlated to the measures of psychological and subjective well-being ($r = .54$ and $r = .35$) and to all of the Big Five personality factors as measured by the NEO-PI-R (r 's = $.16$ to $-.57$) (Brackett & Mayer, 2003), while being negatively correlated with other indicators of abnormal emotional functioning (Bar-On, 2002). Comparisons with other measures of emotional intelligence indicated that it minimally correlates with the Mayer-Salovey-Caruso Emotional Intelligence Test ($r = .21$) but more significantly with the Self Report Emotional Intelligence Test (Schutte et al., 1998). For *incremental validity* it was found that when personality and intelligence (IQ) were held constant, emotional intelligence as measured by the Emotion Quotient Inventory was still predictive of alcohol use (Brackett & Mayer, 2003).

Research conducted by Brown, Bryant, and Reilly (2006) concluded that Bar-On EQi is not a suitable tool for managerial selection, development or assessment.

EIQ

EIQ is a self-report measure of EI developed by Dulewicz and Higgs. Its dimensions include, self-awareness, emotional resilience, motivation, interpersonal sensitivity, influence, intuitiveness and conscientiousness and integrity. The authors provide little information regarding the factor analysis they conducted to create the scales (for example, the eigen values), therefore it is difficult to evaluate the factor structure of the measure. They do, however, report that five of the seven scales have alpha coefficients below $.70$, Alpha coefficients this low affect the likelihood that research using this measure will yield valid results. The items that comprise the EIQ are not available in published research literature. It also appears that the EIQ omits several facets of emotional ability, such as emotional expression and the ability to

use emotions so as to change perspective, enhance problem solving, focus attention, and make judgments. Therefore, content validity needs to be further explained by the authors.

Dulewicz and Higgs (2000a & 2000b) provide evidence for the construct validity of the EIQ with 16PF, Meyers-Briggs Type Inventory (MBTI), and Type A behavior. Dulewicz, Higgs, and Slaski (2003) provide evidence to indicate a strong relationship between the EIQ and the EQ-i as well as between the EQ-i and all seven dimensions of the EIQ. Four were highly significant ($p < .001$), and the total correlation between the EIQ and EQ-i was .63. Thus, the EIQ demonstrates substantial convergent validity with the EQ-i. Given that both instruments include many trait-based factors as core dimensions, the degree of face validity of the EIQ remains an empirical question. Dulewicz and Higgs (2000b) provide evidence for the predictive (concurrent) validity of the EIQ (McEnrue & Groves, 2006).

For *internal consistency/reliability* Cronbach's alpha scores were used which ranged from 0.6 to 0.8. The alpha for the overall EIQ score derived from the seven elements was 0.77 (Dulewicz & Higgs, 2000a). For *Content Validity* the author claimed to study the dominant theorists in the field extensively reviewing 72 books and articles. *Construct validity* was established with the occupational personality questionnaire, the 16PF questionnaire; Belbin team roles derived from the 16PF; and the Myers Briggs type inventory (Dulewicz, Higgs, & Slaski, 2003). For *Concurrent/criterion-related validity* the current performance was correlated with EIQ for team leaders (Dulewicz & Higgs, 2000a). In another study only 2 elements of self- assessment EIQ were related to job performance (Dulewicz & Higgs, 2000a). For *predictive validity* indirect links to the original study (Dulewicz & Higgs, 2000a) on general managers was reported (Dulewicz, Higgs, & Slaski, 2003).

Table 1
Comparison of Components of Different EQ Models

EQ-i	Goleman clusters	FIQ	ECI
Emotional self-awareness	Emotional self-awareness	Self-awareness	Emotional Awareness (Accurate Self-Assessment)
Assertiveness	Self-confidence	Influence	Self-Control, Initiative
Self-regard	accurate self-assessment	Self-awareness	Emotional Self-Control
Self – actualization	achievement drive initiative	Motivation	Achievement
Independence	Self-management	Influence	Self-Confidence
Inter-personal		Intuitiveness	
Empathy	Empathy	Inter-personal sensitivity	Empathy
Social Responsibility	Conscientiousness Service orientation	Conscientiousness	Trustworthiness, Conscientiousness

Inter-personal relationships	developing others influence, communication, leadership, analyzing change, building bonds teamwork	Influence	Communication Developing Others, Inspirational Leadership Influence Change Catalyst
Adaptability component	Adaptability		Teamwork & Collaboration
Reality-testing		Self-awareness and resilience	
Flexibility	Collaboration		
Problem solving	conflict management		Conflict Management
Stress management			
Stress tolerance	Emotional self-control		
Impulse control		Resilience and conscientious	
Optimism			Optimism
Happiness			

A careful evaluation of the factors of the most influential models (see table 1) shows that there is a lot of discrepancy in the elements of the said models. Pfeiffer (2001) in his evaluative study on the construct of EQ also emphasized that future researchers should try to establish that the subset of EQ abilities do share a common psychological underpinning and for the construct to be deemed as an intelligence it should relate the elements so as to explain the mental processes instead of treating the elements as clusters like in Goleman's model or competencies as in Bar-On and ECI model or abilities as in Mayer and Salovey model. Therefore a logical model may define EQ more holistically that caters to thought processes from realization to application and achieving maturity in handling emotions (Razzaq & Aftab, 2015).

An evaluative study by Boyatzis and Sala (2004) of the 3 approaches of EQ conceptualization, as trait, ability and mixed models conclude that the 3 approaches appeared to complement each other and explained EQ as a multi-layered sphere with layers of processes trying to explain the EQ from different aspects. Mayer and Salovey (1997) also advocate three EI models' components distribution across the multilevel personality subsystems considered as spheres. They placed at layer one, the core to four mental abilities as they work at a deep emotion-cognition interaction level treating them as intelligence (Mayer & Salovey, 1997; Mayer, Salovey, & Caruso, 2004). At the second layer, personality-based perception of EQ is placed assuming personality traits as an intermediate level between the deeper emotional qualities and cognitive abilities. The third layer is conceptualized as Van Rooy and Viswesvaran (2004) have conceptualized a universal definition of EQ, "Emotional intelligence is the set of abilities verbal and nonverbal that enable a person to generate, recognize, express, understand, and evaluate their own, and others' emotions in order to guide thinking and action that successfully cope with environmental demands and pressures" (p.72), pointing that the universal understanding of EQ models talk at the core of the mental processes that realize emotions and the second layer that talks about the traits and the subsequent behaviors and the last layer is the successful coping with environment pointing towards the emotional maturity.

To sum the review of the 4 influential EQ models and the scale developed based on the aforementioned EQ models, Table 2 provides the reliability and validity analysis and thoroughness in adopting the scale development process.

Table 2
Validity and Reliability Analysis of Influential Scales

	Bar-On EQi	ECI	EIQ
Cronbach Alpha	✓	✓	✓
Split Half Reliability	✓	x	x
Test-Retest Reliability	✓	x	x
Content validity	✓	Through self - assessment study of respondents*	Through Literature review *
Structural Validity through EFA	But got 13 factors than supposedly ✓15	Inconclusive ✓	No evidence provided * ✓
Expert Opinion	*x	x	x
Content validity through Factor Loadings	x	x	x
Concurrent validity	x	✓	✓
Predictive validity	x	x	*✓
Construct Validity Established	*✓	*✓	*✓
Convergent through Reliability, Composite reliability and AVE	x	x	x
Convergent validity with establish scale	x	**✓	✓
Discriminant Validity through Correlation matrix with AVE Square at diagonals	x	x	x
Discriminant Validity with low correlation with unrelated constructs	✓	Inconclusive uncorrelated evidence	x
Incremental Validity	✓	✓	x

Note: *Provide little evidence ** Evidence Provided

As can be seen from the table, lot of methodological discrepancies are found among the scale development process of influential models regarding establishing reliability and validity, making it imperative for the new scale developers in EQ to adopt more comprehensive approach to statistically establish reliability and validity.

Conclusions

Certain discrepancies were found in the dimensions of different EQ models. Bar-On EQ-i one of the most influential models of EQ does not cater to important EQ factors like intuitiveness (part of EIQ model). Also the aspects of perception of how one thinks they are creative and innovative along with inertia to recognize one's feelings and how one keeps their composure in stressful situations is also missing. Similarly trustworthiness, conscientiousness, service orientation (elements of ECI), and communication, developing others, influencing others (elements of ECI) and building bonds (elements of Goleman's clusters) were not elaborated in inter personal relationship. The important element of leveraging diversity was also missing. Emotional resilience (element of EIQ), and rational decision making were also not integrated in Bar-On EQ-i.

For the model of ECI, service orientation, reality testing, flexibility (elements of Bar-On EQ-i), rational decision making along with intuitiveness, inertia, composure and creativity were missing. Similarly, EIQ does not elicit about communication, interpersonal relationships, developing others, building bonds etc. The question arises if all the models talk about the construct of EQ then, why the elements of Bar-on EQ-i are different form ECI or EIQ?

The literature review showed that some of the best known and widely used instruments have some weaknesses. The consensus appears to be that it is difficult to measure emotional intelligence and that no truly robust measure exists as yet (Devonish, 2016; McCleskey, 2014; Dulewicz & Higgs, 2000a, quoted Goleman,

1996). Both ability and trait measures are supposed to measure the same construct and show convergent validity but show low to moderate correlations (Day, 2004; Geher & Renstorm, 2004; Batool, 2009; Shi & Wang, 2007). They seem to measure different constructs of EQ (Jr. Raymond & Little, 2003). Recent literature focuses on better understand the relationship between different EQ models suggesting the development of an integrative model that would include all important facets of EQ (McCleskey, 2014; O'Boyle Jr, Humphrey, Pollack, Hawver, & Story, 2011; Zeidner, Roberts, & Matthews, 2008).

Therefore, there is a need to develop valid and reliable measures to assess the important construct of EQ. The reason that many leading scales have weaknesses could be that developing sound measures is an arduous and lengthy process; many researchers take shortcuts or simply avoid the process altogether (Schmitt, 1991). Keeping in view the gaps in the literature and review of the selected models it is suggested to research the construct of EQ from a variety of perspectives and integrate the known factors that explain EQ in different models and adopting a more comprehensive approach to developing measures (Razzaq & Aftab, 2015).

References

- Abraham, R. (2000). The role of job control as a moderator of emotional dissonance and emotional intelligence–outcome relationships. *The Journal of Psychology: Interdisciplinary and Applied*, 2(132), 169-184.
- Austin, E. J., Saklofske, D. H., & Egan, V. (2005). Personality, well-being and health correlates of trait emotional intelligence. *Personality and Individual Differences*, 547–558.
- Bar-On, R. (1997). *Development of the Bar-On -i: A measure of emotional and social intelligence*. Chicago, IL: 105th annual convention of the American Psychological Association.
- Bar-On, R. (2000). Emotional and social intelligence: Insights from the Emotional Quotient Inventory (EQ-i.). In R. Bar-On, & J. D. Parker (Eds.), *Handbook of emotional intelligence* (pp. 363-388). San Francisco, CA: Jossey-Bass.

- Bar-On, R. (2002). *Bar-On Emotional Quotient Inventory (EQ-I): Technical Manual*. Toronto, Canada: Multi-Health Systems.
- Batool, S. S. (2009). *Development and validation of emotional intelligence scale and emotional intelligence as a predictor of marital quality* (Unpublished doctoral dissertation). Department of Psychology and Applied Psychology, University of the Punjab, Lahore, Pakistan.
- Bishop, S., Lau, M., Shapiro, S., Carlson, L., Anderson, N., & Carmody. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science and Practice, 11*, 230-242.
- Boyatzis, R. E. (1994). Stimulating self-directed learning through the Managerial Assessment Development Course. *Journal of Management Education, 18*(3), 304-323.
- Boyatzis, R. E., Goleman, D., & Rhee, K. S. (2000). Clustering competence in emotional intelligence. In R. Bar-On & J. D. Parker (Eds.), *The handbook of emotional intelligence: Theory, development, and assessment, and application at home, school, and in the workplace* (pp. 343-362). San Francisco, CA: Jossey-Bass.
- Boyatzis, R. E., & Sala, F. (2004). The emotional competence inventory (ECI). In G. Geher (Ed.), *Measuring emotional intelligence*. NY: Nova Science Publishers.
- Brackett, M. A., & Mayer, J. D. (2003). Convergent, discriminant, and incremental validity of competing measures of emotional intelligence. *Personality and Social Psychology Bulletin, 114*7-1158.
- Brown, F. W., Bryant, S. E., & Reilly, M. D. (2006). Does emotional intelligence – as measured by the EQI – influence transformational leadership and / or desirable outcomes? *Leadership & Organization Development Journal, 27*(5), 330-351.
- Carroll, J. B. (1993). *Human cognitive abilities: A survey of factor-analytic studies*. Cambridge, England: Cambridge University Press.
- Cherniss, C. (2000, April). *Emotional intelligence: What it is and why it matters*. Paper presented at the Annual Meeting of the

- Society for Industrial and Organizational Psychology, New Orleans, LA.
- Ciarrochi, J. V., Chan, A. Y., & Caput, P. (2000). A critical evaluation of the emotional intelligence construct. *Personality and Individual Differences*, 28, 539-561.
- Coffield, F., Moseley, D., Hall, A., & Ecclestone, K. (2004). *Learning styles and pedagogy in post-16 learning: A systematic and critical review*. London: The Learning and Skills Research Centre.
- Danciu, E. L. (2010). Methods of developing children's emotional intelligence. *Procedia Social and Behavioral Sciences*, 5, 2227-2233.
- Darwin, C. (1872). *The expression of emotions in man and animals*. New York: Oxford Press.
- Day, A. L. (2004). Emotional intelligence in the workplace: Rhetoric and reality. In G. Gehe (Ed.), *Measuring emotional intelligence* (pp. 219-241). New York: Nova Science Publishers, Inc.
- Devonish, D. (2016). Emotional intelligence and job performance: The role of psychological well-being. *International Journal of Workplace Health Management*, 9(4) 428-442. doi.org/10.1108/IJWHM-04-2016-0031
- Dimitriadis, Z. S. (2007). Managing emotionally intelligent service workers Personal and positional effects in the Greek context. *Journal of European Industrial Training*, 31(3), 223-240. doi:10.1108/03090590710739296
- Dulewicz, V., & Goleman, D. (2000). Emotional intelligence - A review and evaluation study. *Journal of Managerial Psychology*, 15, 341-372.
- Dulewicz, V., & Higgs, M. (2000a). Emotional intelligence - A review and evaluation study. *Journal of Managerial Psychology*, 15(4), 341-372.
- Dulewicz, V., & Higgs, M. (2000b). *EIQ-Managerial User Guide*. Windsor: NFER-Nelson.
- Dulewicz, V., Higgs, M., & Slaski, M. (2003). Measuring emotional intelligence: Content, construct and criterion-related validity. *Journal of Managerial Psychology*, 18(5), 405-420.
- Gardner, H. (1993). *Multiple intelligences*. New York: Basic Books.

- Geher, G., & Renstorm, K. L. (2004). Measurement issues in emotional intelligence research . In G. Geher (Ed.), *Measuring emotional intelligence: Common ground and controversy* (pp. 3-19). New York: Nova Science Publisher, Inc.
- Goleman, D. (1995). *Emotional intelligence*. New York: Bantam Books.
- Goleman, D. (1996). *Emotional intelligence: Why it can matter more than IQ*. London: Bloomsbury Publishing.
- Goleman, D. (1998). *Working with emotional intelligence*. New York: Bantam.
- Gragg, P. (2008). From theory to practice operation emotional intelligence. *Legal Reference Services Quarterly*, 2-3(27), 241-153.
- Hebert, E. B. (2011). *The relationship between emotional intelligence, transformational leadership, and effectiveness in school principals* (Doctoral dissertation, Georgia State University). Retrieved from [http:// scholarworks. gsu. edu/eps_diss/66](http://scholarworks.gsu.edu/eps_diss/66)
- Higgs, M., & Aitkin, P. (2003). An exploration of the relationship between emotional intelligence and leadership potential. *Journal of Managerial Psychology*, 18, 814-823.
- Holtgraves, T. (2004). Social desirability and self-reports: Testing models of socially desirable responding. *Personality and Social Psychology Bulletin*, 161-172.
- Jr. Raymond, M. O., & Little, I. S. (2003). Revisiting the predictive validity of emotional intelligence: Self report versus ability based measures. *Personality and Individual Differences*, 35, 1893-1902.
- Martinez, M. (1997). The smarts that count. *HR Magazine*, 42(11), 72- 78.
- Mayer, J., & Salovey, P. (1997). What is emotional intelligence? In P. in Salovey, & D. Sluyter (Eds.), *Emtional development and emotional intelligence: Educational implications* (pp. 3-24). New York: Basic Books.
- Mayer, J. D., Salovey, P., & Caruso, D. R. (2004). Emotional Intelligence: Theory, findings, and implications. *Psychological Inquiry*, 15(3), 197-215.

- McClelland, D. C. (1998). Identifying competencies with behavioral-event interviews. *Psychological Science*, 9(5), 331-339.
- McCleskey, J. (2014). Emotional intelligence and leadership. *International Journal of Organizational Analysis*, 22(1), 76-93. doi.org/10.1108/IJOA-03-2012-0568
- McEnrue, M., & Groves, K. (2006). Choosing among tests of emotional intelligence: What is the evidence? *Human Resource Development Quarterly*, 9-42.
- Morgan, P. (2003). *Managing yourself: Coach yourself to optimum emotional intelligence*. Great Britain: Pearson Education Limited.
- O'Boyle Jr, E. H., Humphrey, R. H., Pollack, J. M., Hawver, T. H., & Story, P. A. (2011). The relation between emotional intelligence and job performance: A meta analysis. *Journal of Organizational Behavior*, 32, 788-818.
- Payne, W. (1985). *A study of emotion: Developing emotional intelligence, self integration, relating to fear, pain and desire*. Cambridge: UMI.
- Petrides, K., & Furnham, A. (2003). Trait emotional intelligence : Behavioral validation in two studies of emotion recognition and reactivity to mood induction. *European Journal of Personality*, 39-57.
- Pfeiffer, S. I. (2001). Emotional intelligence: Popular but elusive construct. *Roeper Review*, 23(3), 138-142.
- Prentic, C., & King, B. E. (2012). Emotional Intelligence in a hierarchical relationship: Evidence for frontline service personnel. *Services Marketing Quarterly*, 33(1), 34-48.
- Razaq, F., & Aftab, F. (2015, Jan-Jun). Developing an indigenous scale of emotional intelligence at workplace. *Journal of Bussiness and Economics*, 7(1), 28-70.
- Saberi, M. A. (2012, September). *The role of emotional intelligence in enhancing intercultural sensitivity* (Unpublished doctoral dissertation). Brunel Business School, Brunel University, London, Great Britian.
- Sala, E. (2002). *Emotional Competence Inventory: Technical manual*. Philadelphia, PA: McClelland Center For Research, Hay Group.

- Salovey, P., & Mayer, J. (1990). Emotional Intelligence. *Imagination, Cognition and Personality*, 9, 185-211.
- Schmitt, N. (1991). *Research methods in human resources*. Cincinnati: South Western Pub, Co.
- Schutte, N. S., Malouff, J. M., Hall, L. E., Haggerty, D. J., Cooper, J. T., Golden, C. J., & Dornheim, L. (1998). Development and validation of a measure of emotional intelligence. *Personality and Individual Differences*, 25(2), 167-177.
- Shi, J., & Wang, L. (2007). Validation of emotional intelligence scale in Chinese university students. *Personality and Individual Differences*, 43, 377-387.
- Stys, Y., & Brown, S. L. (2004). *A review of the emotional intelligence literature and implications for corrections*. Ottawa: Research Branch Correctional Service of Canada.
- Tett, R. P., & Fox, K. E. (2006). Confirmatory factor structure of trait emotional intelligence in student and worker samples. *Personality and Individual Differences*, 41(6), 1155-1168.
- Thompson, J., Staurt, R., & Lindsley, P. (1996). The competency of top team members: A framework for successful performance. *Journal of Managerial Psychology*, 11(3), 48-66.
- Thorndike, E. (1920). A constant error in psychological ratings. *Journal of Applied Psychology*, 4, 25-29.
- Van Rooy, D. L., & Viswesvaran, C. (2004). Emotional intelligence: A meta-analytic investigation of predictive validity and nomological net. *Journal of Vocational Behavior*, 71-95.
- Zeidner, M., Matthews, G., & Roberts, R. D. (2002). Can emotional intelligence be schooled? A critical review. *Educational Psychologist*, 37, 215-231.
- Zeidner, M., Roberts, R. D., & Matthews, G. (2008). The science of emotional intelligence: Current consensus and controversies. *European Psychologist*, 13(1), 64-78.