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Discriminant and Concurrent Validity of Trait and Ability Emotional Intelligence Measures: A Cross-Cultural Study

Jahanvash Karim, CERGAM, IAE, Université de Paul Cézane, France
Robert Weisz, CERGAM, IAE, Université de Paul Cézane, France

Abstract : Cross-cultural validity of emotional intelligence (EI) scales is a constant concern in organizational behavior research. The present study examines the discriminant and concurrent validity of the Trait Emotional Intelligence Questionnaire (TEIQue 1.50) and Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT 2.0) in French and Pakistani cultures. Participants of this study included 228 students from two universities in both culture: 101 from a university in Aix-en-Provence, France (45 males, 56 females), and 127 from a large university in the province of Balochistan, Pakistan (78 males and 48 females, one unreported). The discriminant validity was assessed *vis-à-vis* the Big Five personality dimensions and cognitive intelligence and the concurrent validity was assessed *vis-à-vis* positive affect, negative affect, satisfaction with life and psychological distress. In summary, this study found that (a) in both cultures the TEIQue scores were distinguishable from the MSCEIT, cognitive intelligence, and the Big Five dimensions of agreeableness, conscientiousness, and intellect; (b) in both cultures the MSCEIT scores were distinguishable from cognitive intelligence and the Big Five dimensions of personality; (c) in both cultures the TEIQue scores were significantly associated with positive affect, negative affect, satisfaction with life, and psychological distress; finally (d) in both cultures the MSCEIT scores, with few exceptions, revealed to be unrelated to positive affect, negative affect, satisfaction with life, and psychological distress.

Keywords: Emotional Intelligence, Validity.

Introduction

The construct of emotional intelligence (EI) has received widespread attention, both within popular press and scholarly journals, ever since its inception in the 1990's. "Few fields of psychological investigation appear to have touched so many disparate areas of human endeavor, since its inception, as has emotional intelligence" (Mattews, Zeidnern, & Roberts, 2004, p. 4). Despite these notable advances, one area of research in EI that remains a relatively untouched domain is that of cross-cultural EI research. Specifically, generalizability of EI theory in different cultures (the practice of ''transporting "the EI instruments from one culture to other) has led to a concomitant increase in the need for researchers to evaluate the quality and, more importantly, the validity of the EI instruments across cultures (Ekermans, 2009; Gangopadhyay & Mandal, 2008; Palmer, Gignac, Ekermans, & Stough, 2008). If an EI measure fails to show comparable psychometric properties across different cultures, then its utility as a psychological construct is questionable (Brody, 2004). The psychometric properties (i.e., discriminant and concurrent validity) of the EI instruments have seldom been examined with demand and rigor across cultures.

The current study addressed this concern by simultaneously administering the Trait Emotional Intelligence Questionnaire (TEIQue: Petrides, Pérez-Gonzalez, & Furnham, 2007) and Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT: Mayer, Salovey, & Caruso,

2002) alongside other questionnaires, to university student samples from two nations; namely French and Pakistani cultures. These two cultures were selected because cross-cultural research predominantly involves the comparison of Eastern and Western cultures. According to Hofstede's (1980) cultural dimensions, Pakistan is a typical representative of the classical Eastern culture. France is considered as a prototype of the classical Western culture. Individualism-Collectivism is a major dimension of cultural variable postulated by many theorists (e.g., Hofstede's, 1980; Triandis, 1986, 1995). This dimension focuses on the degree a society reinforces individual or collective actions, achievements, and interpersonal relationships. Collectivism typifies societies of a more collective nature, close ties between individuals, collective goals and dependence on groups; while individualistic cultures stress individual goals and independence. Research indicates that the cultures of Africa, Asia and Latin America tend to be collectivistic; while those of Western Europe, Canada and the United States tend to be more individualistic (Hofstede, 1980; Triandis, 1986). According to Hofstede's rankings (see www.geert-hofstede.com) Pakistan ranks 14 on individualism which is much lower than the world average of 50, reflecting an orientation towards a collectivistic culture. France ranks 71, indicating a society with more individualistic attitudes. More specifically, the current study had two main objectives. First, we assessed the discriminant validity of EI measures *vis-à-vis* the Big Five personality dimensions and cognitive intelligence. Second, we assessed the concurrent validity of EI measures *vis-à-vis* satisfaction with life and psychological distress.

Trait and ability EI measures

Petrides and Furnham (2001) distinguished between *trait EI* (or emotional self-efficacy) and *ability EI* (or cognitive-emotional ability). Trait EI refers to "a constellation of *behavioral dispositions* and *self-perceptions* concerning one's ability to recognize, process, and utilize emotion-laden information. It encompasses . . . empathy, impulsivity, and assertiveness as well as elements of social intelligence . . . and personal intelligence" (Petrides & Furnham, 2003, p. 278) and is measured through self-report questionnaires (e.g., Emotional Quotient Inventory: Bar-On, 1997; Self-report Emotional Intelligence Test: Schutte et al., 1998; Trait Emotional Intelligence Questionnaire: Petrides, Pérez-Gonzalez et al., 2007). Trait EI measures ask individuals to reflect on emotional experiences across different situations and report their subjective perceptions which are indicative of their predispositions or traits (Lane et al., 2009, p. 289). On the other hand, proponents of ability EI suggest that specific "use of the term stresses the concept of an intelligence that processes and benefits from emotions. From this perspective, EI is composed of mental abilities, skills, or capacities" (Mayer, Salovey, & Caruso, 2000, p. 105). Hence, ability EI conceptualizes EI as a pure form of mental ability and thus as a pure intelligence and is measured through performance based questionnaires. In a performance test examinees are asked to answer questions for which there are correct answers. While ability EI captures *maximal* performance, trait EI aims to capture *typical* performance (see Petrides & Furnham, 2003). The difference between ability EI and trait EI (self-reporting EI measures) has been directly reflected in empirical findings documenting very low correlations between measure of trait EI and ability EI (e.g., O'Connor & Little, 2003; Warwick & Nettelbeck, 2004).

Trait Emotional Intelligence Questionnaire: Petrides, Pérez-Gonzalez et al. (2007). The Trait Emotional Intelligence Questionnaire, version 1.50 (TEIQue) (Petrides, Pérez-Gonzalez et al., 2007) is the direct operationalization of the Petrides and Furnham's (2001) trait EI

model. The TEIQue is predicated on trait EI theory, which conceptualizes emotional intelligence as a personality trait, located at the lower levels of personality hierarchies (Petrides, Pita, & Kokkinaki, 2007).The TEIQue is comprised of 153 items that are divided into 15 subscales. The test yields 20 scores: one for each of the 15 subscales, one for each of four factors, and a global trait EI score. The TEIQue four factors are: (1) *well-being*, representing how successfully one is able to enjoy life and maintains a positive disposition; (2) *self-control*, representing the ability to regulate one's impulsions and emotions, as well as managing emotional pressures (3) *emotionality*, representing the ability to identify and express feelings, and to use these faculties to maintain close relationships with others; (4) *sociability*, representing interpersonal skills and functioning to assert oneself, as well as, to influence others emotions and decisions. Initial research indicates that the TEIQue is reliable and has strong cultural robustness (e.g., Germany: Freudenthaler, Neubauer, Gabler, & Scherl, 2008; Belgium: Mikolajczak, Luminet, Leroy, & Roy, 2007).

Mayer-Salovey-Caruso Emotional Intelligence Test Version (MSCEIT; Mayer et al., 2002). The Mayer-Salovey-Caruso Emotional Intelligence Test Version 2.0 (MSCEIT; Mayer et al., 2002) is the operationalization of Mayer and Salovey's (1997) ability model. This model consists of four general EI abilities: (1) *Identifying emotions*, which involves the ability to recognize emotions in oneself and others, as well as the ability to express emotions; (2) *Using emotions*, to facilitate thinking, which involves using emotions to improve thinking processes and harness the power of positive moods; (3) *Understanding emotions*, including the complexities and subtleties of emotions as well as their interrelationships; and (4) *Managing emotions*, which involves skills in regulating and controlling felt emotions in a positive fashion.

The MSCEIT is known as an ability model of EI because of its capability to measure one's capacity to reason with emotional content and to use the emotional content to enhance thought. Respondents are asked to solve emotional problems and rate the extent to which their emotional skills are being used. The MSCEIT is comprised of 141 items that are divided into 8 subsets/tasks (2 for each dimension). The test yields 15 scores: one for each of the 8 subsets (i.e., Faces, Pictures, Sensation, Facilitation, Blends, Changes, Emotion Management, & Social Management), one for each of four dimensions (i.e., Perceiving Emotions, Using Emotions, Understanding Emotions, and Managing Emotions), two area scores, and a total EI score. The two areas are named: Strategic EI (combined scores for the understanding and managing dimensions) and experiential EI (combined scores for the perceiving and managing dimensions).

Initial research has found the MSCEIT to be both reliable and valid. Mayer, Salovey, Caruso, and Sitarenios, (2003) reported acceptable reliabilities for total MSCEIT and subscales scores. They reported full-test reliabilities of .93 and .91 for consensus and expert scoring. Reported reliabilities for experiential and strategic EI were .90 and .90 for consensus scoring and .88 and .86 for expert scoring. The reliabilities for the four dimensions for both methods of scoring were between .76 and .91. Regarding the factorial validity of the MSCEIT, Mayer et al. (2003) have demonstrated that one-, two- (experiential and strategic), and four-factor models provide good fit to the data, suggesting that each model provides viable representation of the test's underlying factor structure.

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Hypotheses

Discriminant Validity

Bearden and Netemeyer (1999) define discriminant validity as, "the degree to which two measures designed to measure, similar, but conceptually different, constructs are related" (p. 5). According to them, low to moderate correlation is evidence of discriminant validity. In other words, discriminant validity is established if the scores on a test do not correlate with variables they are not supposed to correlate with given the nature of the construct (Mikolajczak et al., 2007). That is, scores on the EI instruments should not correlate with theoretically unrelated constructs. According to Papadogiannis, Logan and Sitarenios (2009), those that intercorrelate between r =.00 and .25 are considered unrelated to minimally related with one another. Intercorrelations ranging from r = .25 to .50 indicate minimal to moderate overlap, while intercorrelations ranging from r = .50 to .75 are deemed moderate to highly related concepts (p. 49).

Since trait EI (self-report measures) assesses emotion-related self perceived abilities and traits rather than cognitive abilities per se (as in ability EI) (Petrides, & Furnham, 2001, 2003; Mavroveli, Petrides, Rieffe, & Bakker, 2007), trait EI and ability EI should be regarded distinct. Research has consistently supported this distinction by revealing low correlations between various self-reporting EI measures and the MSCEIT: an ability EI measure (e.g., Brackett & Mayer, 2003; Livingstone, & Day, 2005; O'Connor & Little, 2003; Warwick & Nettelbeck, 2004). For example, Livingstone and Day (2005) found that the MSCEIT and EQ-i had a low to moderate intercorrelation (r = .13–.31). Brackett and Mayer (2003) showed that the MSCEIT was minimally related to the EQ-i (r = .21), as well as to the SREIT (Schutte et al., 1998; r = .18). Moreover, items on the TEIQue pertain to personality traits such as assertiveness, optimism, and happiness that are conceptually unrelated to the emotional abilities assessed by MSCEIT. Therefore, lack of convergence between the MSCEIT and the TEIQue is expected.

***Hypothesis 1a*:** In both cultures, the scores on the TEIQue will demonstrate low to nonsignificant correlations with ability based measure of EI, that is, the MSCEIT.

Since trait EI is a personality trait and is conceptualized as non-cognitive capability (Petrides & Furnham, 2001, 2003) , therefore it should not be expected to correlate strongly with measures of cognitive ability (g) or proxies thereof (Petrides, Frederickson, & Furnham, 2004).Studies of the association between trait EI (self-reporting EI measures) and various cognitive intelligence measures have generally confirmed this view, reporting either significant but small or non-significant correlations (Brackett & Mayer, 2003; Mikolajczak et al., 2007; O'Connor & Little, 2003 ; Schutte et al., 1998; Warwick, & Nettelbeck, 2004). Based on the notion that the TEIQue is a trait-based measure, lack of convergence between the self-report EI measure and cognitive intelligence is expected.

***Hypothesis 1b*:** In both cultures, the scores on the TEIQue will demonstrate nonsignificant correlations with cognitive intelligence measure, that is, Ravens Advanced Progressive Matrices (Raven, Raven, & Court, 2003).

Empirically, there appears to be sufficient discriminant validity between the MSCEIT and various general intelligence measures (Papadogiannis et al., 2009). Lopes et al. (2003) reported significant correlation between understanding emotions and verbal intelligence (WAIS III vocabulary) (*r* = .39) and between understanding emotions and verbal SAT (*r* = .36). However, they did not find any significant relationship between total MSCEIT scores and the WAIS-III vocabulary subset and verbal SAT scores. Livingstone and Day (2005) found that among four MSCEIT scales, scores on emotional management and emotional understanding demonstrated low correlations with verbal ability (both *r*s = .14) and only scores on emotional understanding scale demonstrated low correlation with problem solving (*r* = .15). O'Connor and Little (2003) found that three of the MSCEIT scale scores (understanding, managing, and Strategic EI) and the total score were significantly correlated with cognitive intelligence (*r*s ranging from .27 to .50) measured by ACT and 16PF reasoning. Warwick and Nettelbeck (2004) found significant and weak correlation between abstract reasoning ability and the regulation of emotions subscale (r =.26) but not with any other MSCEIT subscale and MSCEIT total score. Brackett, Mayer, & Warner, (2004) found that two of the MSCEIT scale scores (experiential and strategic) and the overall MSCEIT score were significantly correlated with verbal SAT (*r*s ranging from .18 to .22). Likewise, Brackett and Mayer (2003) found a significant relationship between MSCEIT total score and verbal SAT (*r* = .32). Gil-Olarte Marquez, Palmorea Martin and Brackett (2006) reported moderate correlation between MSCEIT total score and verbal intelligence (*r* =.31) and nonsignificant relationship between MSCEIT total score and general intelligence. Rode et al. (2007) reported a significant correlation between MSCEIT and general mental ability measured by Wonderlic Personal Test (*r* = .24). In sum, results from previous studies examining the relationship between the MSCEIT and cognitive intelligence indicated low to moderate correlations between two constructs.

***Hypothesis 1c*:** In both cultures, the scores on the MSCEIT will demonstrate low to nonsignificant correlations with cognitive intelligence measure.

Since dispositional tendencies fundamentally differ from the active cognitive processing of emotional information (Mayer et al., 2000) therefore ability EI is mostly distinguishable from well-being scales and the Big Five (Brackett & Mayer, 2003). O'Connor, and Little (2003) did not find significant relationship between personality and the MSCEIT. Likewise, Lopes, Grewal, Kadis, Gall, & Salovey (2006) did not find any significant relationship between the total MSCEIT score and any of the Big Five personality dimensions. Brackett and Mayer (2003) reported significant correlation (*r* = .25 and .28) with the Big Five dimensions of openness to experience and agreeableness, and Lopes, Salovey, and Straus (2003) found significant relationships (*r* = .22 or greater) with the Big Five dimensions of agreeableness, conscientiousness, and intellectual curiosity. Likewise, Warwick and Nettelbeck (2004) reported a significant relationship with agreeableness (*r* =.30) but not with any other personality dimension. Rode et al. (2007) reported relatively low correlations between the MSCEIT and the Big Five personality dimensions. The strongest association observed was with neuroticism (*r* = -.15). Dantas and Noronha (2006) found low positive correlations with Extraversion (*r* = .12), Softness (*r* = .25), and Tough Mindedness (*r* = .19). Further to this, meta-analysis results indicated low correlations between MSCEIT and the Big Five personality dimensions (Van Rooy et al., 2005); the strongest association was with the agreeableness (*r* = .18). These results suggest that MSCEIT is quite distinct from personality.

***Hypothesis 1d*:** In both cultures, the scores on the MSCEIT will demonstrate low to nonsignificant correlations with the Big Five personality dimensions.

Trait EI is embedded within personality framework, and draws heavily on personality variables such as empathy, optimism, and impulsivity (Petrides, & Furnham, 2001, 2003). This led some researchers to believe that trait EI may be best characterized as a type of personality inventory (Brackett & Mayer, 2003; Hedlund & Sternberg, 2000). Petrides, Furnham and Mavroveli (2007) assert that, "trait EI is not distinct from personality constructs, but part of them" (p.156). The TEIQue is predicated on trait EI theory, which conceptualizes EI as a personality trait, located at the lower levels of personality hierarchies (Petrides, Pita et al., 2007). Petrides, Pita et al. (2007) found a strong evidence of discriminanat validity of the TEIQue *vis-à-vis* the Giant Three and Big Five personality dimensions by identifying the oblique trait EI factor in Eysenckian and Big Five factor space. Isolation of an oblique trait EI factor in both taxonomies supports the conceptualization of trait EI as a lower-order construct that comprehensively encompasses the emotion-related facets of personality. Since the main function of higher-order personality traits is to summarize variance in the traits lower down the hierarchy, the most of the trait EI construct's variance overlaps with the Big five personality dimensions (Freudenthaler et al., 2008; Petrides, Furnham, et al., 2007; Petrides, Pita, et al., 2007). Petrides, Furnham, et al. (2007), in a meta-analysis, found a variance overlap of approximately 65% between the trait EI and the Big Five factors. According to Petrides and colleagues (Vernon, Villani, Schermer, & Petrides, 2008), "this level of overlap provides the basis for reconceptualizing emotional 'intelligence' as a personality trait, thus connecting it to mainstream models of differential psychology" (p. 525). The TEIQue has been shown to be strongly associated with neuroticism and extraversion, and less so with conscientiousness, openness, and agreeableness (e.g., Freudenthaler et al., 2008; Mikolajczak et al., 2007). These results are in line with trait EI theory concepualization, which views the trait EI construct as encompassing the emotion-related aspects of personality, many of which have been conceptualized as constituent facets of the basic dimensions of neuroticism and extraversion (Vernon et al., 2008). In sum, the high correlations of trait EI with neuroticism (emotional stability) and extraversion is evidence of its convergent validity and its low to moderate correlations with the Big Five dimensions of agreeableness, conscientiousness, and intellect provide evidence of its discriminant validity (Freudenthaler et al., 2008). Thus, it is expected that

***Hypothesis 1e*:** In both cultures, the TEIQue will demonstrate moderate to high correlations with Big Five personality factors of Extraversion and Emotional Stability and low to moderate correlations with Agreeableness, Conscientiousness, and Intellect.

Concurrent Validity

Concurrent validity refers to the correlation between the test scores and the scores of a criterion performance when both tests are given at the same time (Carmines & Zeller, p.18). Affectivity is a general tendency to experience a particular mood or to react to objects in a particular way (Lazarus, 1993). Affectivity is split up into two distinct dimensions: Positive affect (PA) and negative affect (NA). PA refers to tendency of experiencing good feelings such as enthusiastic, active, and alert, whereas, NA refers to having bad feelings such as anxiety and disgust (Watson, Clark, & Tellegen, 1988). Various researches have documented a statistically significant relationships between various trait EI measures and PA and NA in

West (e.g., Kafetsios & Zampetakis, 2008 ; Mikolajczak et al., 2007), as well as, in East (Karim, 2009). Thus, it is expected that the TEIQue will be positively associated with PA and inversely to NA.

***Hypothesis 2a*:** In both culture, the scores on the TEIQue will be positively associated with PA.

***Hypothesis 2b*:** In both cultures, the scores on the TEIQue will be negatively associated with NA.

Regarding the relationship between the MSCEIT and affectivity, Rode et al. (2007) utilized the scale developed by Huelsman, Nemanick, & Munz, (1998) to measure four dimensions of long term affect, that is, high positive affect, low positive affect, high negative affect, and low negative affect. They found positive relationship between MSCEIT and low negative affect (r = .17) and high positive affect (r = .22) and negative relationship between MSCEIT and high negative affect (r = -.35) and low positive affect (r = -.11).

***Hypothesis 2c*:** In both culture, the scores on the MSCEIT will be positively associated with PA.

***Hypothesis 2d*:** In both cultures, the scores on the MSCEIT will be negatively associated with NA.

Most of theorists look at a broader definition of psychological health containing two factors: Psychological well-being (positive mental health states like life satisfaction) and psychological distress (negative mental health states like anxiety and depression) (Massée, Poulin, Dassa, Lambert, Belair, & Battaglini, 1998; Veit & Ware, 1983; Wilkinson & Walford, 1998). Both of these criterion were selected because of their theoretical relevance to EI which is expected to contribute to good physical and psychological health (Salovey, Bedell, Detweiler, & Mayer, 1999; Salovey, Rothman, Detweiler, & Steward, 2000; Tsaousis, & Nikolaou, 2005) and have a direct impact on the cognitive evaluation of one's life circumstances (i.e., life statisfaction) (e.g., Petrides, Pita, et al., 2007). Emotionally intelligent individuals have good physical and psychological health because they are better able to cope with life's challenges and can control their emotions more effectively (Taylor, 2001). In literature, various empirical studies have well documented the significant negative relationship between trait EI and psychological distress (e.g., Besharat, 2007; Brackett & Mayer, 2003; Tsaousis & Nikolaou, 2005) and positive relationship between trait EI and satisfaction with life (e.g., Extremera & Fernandez-Berrocal, 2005; Freudenthaler et al., 2008).

***Hypothesis 2e*:** In both cultures, the scores on the TEIQue be positively associated with satisfaction with life.

***Hypothesis 2f*:** In both cultures, the scores on the TEIQue will be negatively associated with psychological distress.

There is some preliminary evidence to support the relationship between MSCEIT and well-being related variables. Brackett and Mayer (2003) reported significant correlation with the psychological well-being (r = .28) measured by Ryff's (1989) psychological well-being instrument and nonsignificant relationship with SWB (r = .05) measured by satisfaction with

life. Likewise, Livingstone and Day (2005) did not find significant association between subscale scores on MSCEIT and life satisfaction. However, Bastian, Burns, & Nettelbeck (2005) reported a significant but low positive correlation between MSCEIT and satisfaction with life (r = .14).

***Hypothesis 2g*:** In both cultures, the scores on the MSCEIT will not be associated with satisfaction with life.

Finally, literature indicates that MSCEIT is associated with depressive symptoms and anxiety. O'Connor and Little (2003), for instance, reported significant correlation between MSCEIT total score and anxiety measured by 16PF. Head (2002) reported significant correlation between the managing emotions subscale of the MSCEIT and depression (r = -.33) and anxiety (r = -.29), measured by State Trait Anxiety Inventory. Likewise, David (2005) found that MSCEIT's branch and total scores were negatively associated with depression and anxiety (r = -.25 to -.31).

***Hypothesis 2h*:** In both cultures, the scores on the MSCEIT will be negatively associated with psychological distress.

Method

Participants

Participants of this study included 228 students from two nonnative English speaking national cultures: 101 from a university in Aix-en-Provence, France (45 males, 56 females), and 127 from a large university in the province of Balochistan, Pakistan (78 males and 48 females, one unreported).In order to attain sample equivalency, participants in both cultures were recruited from the management sciences subject pool fully conversant with English language and were enrolled in programs where medium of instruction was English. Participants received class credit for their participation. The average age of the participants was 29.46(SD= 8.46). The French sample included 60% students from regular master programs and 40% from executive programs. The Pakistani sample included 73.5% from regular master programs and the rest were from executive programs.
All participants took the TEIQue and other tests in two testing sessions, each lasting one and half hour. Eight classes participated in the study. The number of students for each group was approximately between 20 and 40. The questionnaires were presented in the same order in all groups. All participants were treated in accordance with the "Ethical principles of Psychologists and Code of Conduct" (American Psychological Association, 2002).

Measures

TEIQue. The TEIQue (Petrides, Pérez-Gonzalez et al. 2007) consists of 153 items rated on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Analysis of the data by the test publisher provides twenty scores: 15 sub-scale scores, 4 composite factor scores and an overall or global trait EI score (see Table 1). Examples of items are "I am usually able to control other people", "I often find it difficult to recognize what emotion I am feeling" and "I know how to snap out of my negative moods". The internal consistencies (Cronbach's alpha)

of the TEIQue factors for the French sample were .78, .73, .70, and .71for well-being, self-control, emotionality, and sociability, respectively. The internal consistencies for the Pakistani sample were .80, .65, .65, and .75, respectively.

Affectivity. Affectivity was measured by 20 items Positive and Negative Affect Schedule (PANAS) (Watson et al. 1988). PANAS is composed of two ten-item mood scales one to measure positive affectivity and the other to measure negativity affectivity. The higher scores on both positive affectivity and negative affectivity items indicate the tendency to experience a positive and negative mood. The ten positive affective states were: motivated, excited, feel strong, enthusiastic, proud, alert, inspired, determined, attentive, and active. The ten negative affective states were: distressed, upset, guilty, scared, hostile, irritable, ashamed, nervous, jittery, and afraid. Research has demonstrated the sound reliability of PANAS (e.g., Morris and Feldman, 1996). Respondents were requested to rate the statement on a 5-point scale (*not at all* to *extremely*) by comparing themselves during the past 2 weeks with their usual selves. In this study, the positive and negative affect parts of PANAS had good internal consistency for both French and Pakistani samples (PA: .79 and .80; NA: .80 and .83).

Psychological distress. Psychological distress was measured by Chan‟s (2005) twenty items General Health Questionnaire. This scale measures psychological distress in terms of current non-psychotic symptoms in the five symptom areas represented by scales of health concerns (“Felt exhausted”) , sleep problems (“ Early awakening”), anxiety (“Afraid of everything”), dysphoria (“Not enjoying activities”), and suicidal ideas (“Thoughts of ending life”). Respondents were requested to rate each symptom statement on a 5-point scale (*not at all* to *extremely*) by comparing themselves during the past 2 weeks with their usual selves. In this study, internal consistencies for French and Pakistani samples were .72 and .83, respectively.

Personality. The 50-item version of the International Personality Item Pool (IPIP) (Goldberg et al. 2006) Big-Five Factor markers was used to assess personality. The scale contains 10 items for each of the Big-Five personality factors: Extraversion (E) (“I am the life of the party”), Agreeableness (A), (“Take time out for others” Conscientiousness (C) (“Pay attention to details”), Emotional Stability (ES) (“Seldom feel blue”) and Intellect (I) (“Spend time reflecting on things”). Participants were requested to read the 50 items comprising the IPIP questionnaire and to mark each one according to how much they believed it described them on a 5 point scale from very inaccurate to very accurate. The internal consistencies (Cronbach’s alpha) of the five factors for the French sample were .85, .80, .70, .76, and .77for Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect respectively. The internal consistencies for the Pakistani sample were .83, .80, .70, .83 and .74, respectively.

Self-report emotional intelligence test (SREIT). The 33-item emotional intelligence scale (SREIT; Schutte et al. 1998) is a unidimensional self-report measure of EI based on Salovey and Mayer‟s (1990) ability model of EI. It has previously demonstrated good reliability and has been shown to be predictive of various outcomes (Schutte et al. 1998). Respondents indicate their level of agreement with each of 33 statements on a seven-point scale. Examples of items are “I am aware of the non-verbal messages I send to others”, “When I am in a positive mood, I am able to come up with new ideas” and “I help other people feel better when they are down”. In this study, internal consistencies for French and Pakistani samples were .85 and .89, respectively.

Life satisfaction. The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) is a subjective self-report measure of life satisfaction. Respondents indicate their level of agreement with each of five statements on a seven-point scale. Examples of items are "In most ways my life is close to my ideal" and "I am satisfied with my life". In this study, internal consistencies for French and Pakistani samples were .85 and .82, respectively.

Ability EI. Emotional intelligence ability was measured with the MSCEIT (Mayer et al., 2002). The MSCEIT is a 141-item test that measures how well people perform tasks and solve emotional problems on eight tasks, which are divided into four classes or branches of abilities, including (a) perceiving emotions, (b) facilitating thought, (c) understanding emotions, and (d) managing emotions. For current study, expert scores for the MSCEIT were requested from the test publisher. Analysis of the data by the test publisher provides 15 scores, including one for each subset, one for each branch, one for each area, and one for total EI. As reported in the technical manual, split-half reliability coefficients for the four branches range from $r = .80$ to .91, and for the entire test, $r = .91$. In the current study, the Cronbach coefficient alphas for the MSCEIT were .63 and .78 for French and Pakistani samples, respectively.

Cognitive intelligence. The 48-item Raven's Standard Progressive Matrices Test (Raven, Raven, & Court, 2003) was used to measure cognitive intelligence. This test is designed to measure Spearman's '*g*' factor and has now been recognized as one of the purest measures of g available. The test consists of 48 questions and presents people with a series of patterns which has one part or piece missing. The task in each case is to select from a set of eight alternatives the piece which will complete the pattern correctly.

Results

Discriminant validity

The TEIQue and the MSCEIT (Hypothesis 1a). For the participants in the French sample all correlations between the TEIQue factors and the MSCEIT factors were statistically nonsignificant, except for the following three pairs of correlations: well-being and perceiving emotions ($r = .21$, $p = .05$); well-being and using emotions ($r = .27$, $p = .01$); well-being and managing emotions ($r = .23$, $p = .05$). Likewise, for the participants in the Pakistani sample, only seven pairs of correlations have been found statistically significant, with greatest of correlation found between emotionality and managing emotions ($r = .36$, $p = .01$). In sum, the ability EI, in both cultures, was found to be independent of the trait EI.

The TEIQue and cognitive intelligence (Hypothesis 1b).As expected, with the exception of correlation between emotionality and cognitive intelligence, in both samples the TEIQue factors demonstrated statistically nonsignificant correlations with scores on cognitive intelligence. Thus, support was found for hypothesis 1b.

The MSCEIT and cognitive intelligence (Hypothesis 1c). For the participants in French sample, there were no significant relationships between cognitive intelligence and the MSCEIT factors. However, for the Pakistani sample, the cognitive intelligence was significantly related to three of the MSCEIT factors, that is, using emotions ($r = .31$, $p < .01$),

understanding emotions (r = .51, p < .01), and managing emotions (r = .30, p < .01). In sum, partial support was found for hypothesis 1c.

The MSCEIT and the Big Five (Hypothesis 1d). For the French sample, with the exception of low correlation between perceiving emotions and emotional stability (r = .31, p < .01), the MSCEIT factors demonstrated statistically nonsignificant correlations with scores on the Big Five personality dimensions. Likewise, for the Pakistani sample, with the exception of six pairs of low correlations, the MSCEIT factors demonstrated statistically nonsignificant correlations with the Big Five personality dimensions. In sum, the ability EI, in both cultures, was found to be independent of the big five personality dimensions.

The TEIQue and the Big Five (Hypothesis 1e).For the French sample, well-being was found to have low correlations with extraversion (r = .25, p < .05) and intellect (r = .24, p < .05) and high correlation with emotional stability (r = .48, p < .01). Self-control was found to have low correlation with conscientiousness (r = .31, p < .05) and high correlation with emotional stability (r = .63, p < .01). Emotionality had low correlations with conscientiousness (r = .21, p < .05) and intellect (r = .25, p < .05) and high correlation with agreeableness (r = .56, p < .01). Finally, sociability was found to have low to moderate correlations with emotional stability (r = .34, p < .01) and intellect (r = .42, p < .01) and high correlation with extraversion (r = .48, p < .01). For the Pakistani sample, well-being was found to have low to moderate correlations with extraversion (r = .36, p < .01), agreeableness (r = .32, p < .01), conscientiousness (r = .24, p < .05), and intellect (r = .35, p < .01) and high correlation with emotional stability (r = .48, p < .01). Self-control was found to have low to moderate correlation with conscientiousness (r = .36, p < .01) and high correlation with emotional stability (r = .63, p < .01). Emotionality had low to moderate correlations with extraversion (r = .35, p < .01), conscientiousness (r = .18, p < .05), emotional stability (r = .31, p < .01) and intellect (r = .37, p < .01) and high correlation with agreeableness (r = .49, p < .01). Finally, sociability was found to have low to moderate correlations with agreeableness (r = .30, p < .01), emotional stability (r = .23, p < .05) and intellect (r = .42, p < .01) and high correlation with extraversion (r = .45, p < .01). In sum, the low to moderate correlations of the TEIQue factors with the Big Five dimensions of agreeableness, conscientiousness, and intellect provide support for the discriminant validity of the TEIQue *vis-à-vis* the Big Five personality dimensions.

Concurrent Validity

The TEIQue and affectivity (Hypotheses 2a, 2b). In both samples, the trait EI factors showed statistically significant positive correlations with PA and statistically significant negative correlations with NA. Thus, support was found for hypotheses 2a and 2c.
The MSCEIT and affectivity (Hypotheses 2c, 2d). For the French sample, only perceiving emotions was found to be negatively correlated with negative affect (r = -.29, p < .01). For the Pakistani sample, the MSCEIT factors were found to have nonsignificant correlations with PA and NA. Thus, partial support was found for hypothesis 2c, whereas no support was found for hypothesis 2d.

The TEIQue, satisfaction with life and psychological distress (Hypotheses 2e, 2f). In both samples, the trait EI factors showed statistically significant positive correlation with

satisfaction with life and statistically significant negative correlation with psychological distress. Thus, hypotheses 2e and 2f were accepted.

The MSCEIT, satisfaction with life and psychological distress (Hypotheses 2g, 2h). For the French sample, only perceiving emotions revealed to be significantly associated with psychological distress (r = -.24, p < .05). Likewise, for the Pakistani sample, only understanding emotions and managing emotions were found to be significantly correlated with psychological distress (r = .29 and -.36 respectively). In both cultures, the MSCEIT factors were found to be unrelated to satisfaction with life. Thus, no support was found for hypothesis 2g, whereas partial support was found for hypothesis 2h.

Discussion

Although EI has received a lot of attention, more research has been needed to clarify the psychometric properties of trait EI measures. Specifically, cross-cultural validity of EI scales is a constant concern in organizational behavior research (Fernandez-Berrocal & Extremera, 2006; Gangopadhyay & Mandal, 2008; Palmer, Gignac, Ekermans, & Stough, 2008). The present study attempted to evaluate trait and ability based measures of EI (the TEIQue and the MSCEIT) cross-culturally.

The first objective of this study was to examine the external equivalence of EI measures by looking at their universal links with personality traits and cognitive intelligence across cultures (discriminant validity). Consistent with past research relating trait EI with ability EI measures (e.g., Brackett & Mayer, 2003; Livingstone, & Day, 2005; O'Connor & Little, 2003; Warwick, & Nettelbeck, 2004), in both cultures, the TEIQue demonstrated lack of convergence with the MSCEIT (H 1a). The lack of convergence between MSCEIT and the TEIQue may be attributed to the distinct ways the constructs are conceptualized and measured (i.e., performance based vs. self-report). Because EI ability (measured by MSCEIT) is specifically defined as the ability to perceive, integrate, understand, and regulate emotions (Mayer & Salovey, 1997), it is unlikely to be related to personality traits envisioned by the TEIQue. Mayer et al. (2000) noted that the MSCEIT should not be related to "motivation, socialibility, warmth, optimism, and a variety of other desirable characteristics that people often think of when they think of popular versions of emotional intelligence".

In both samples, the TEIQue scores were found to be uncorrelated with cognitive ability, suggesting that trait EI as defined by the TEIQue is distinct from psychometric intelligence (H 1b). The patterns of non-significant correlations between TEIQue factors and cognitive intelligence, within each culture, accord well with those of other studies (e.g., Newsome, Day,& Catano, 2000; Schutte et al., 1998). These findings further provide support for Petrides and Furnham's (2001) theoretical proposition that trait EI and ability EI are two different constructs in that, trait EI aims to provide coverage of personality facets relating to affect and the construct is not related to intelligence as traditionally defined (i.e. cognitive ability).

Regarding MSCEIT, if EI is to be considered as a measure of intelligence, it should have low to moderate level of correlation other intelligence measures. Consistent with previous researches ((Brackett et al., 2004; Gil-Olarte Marquez et al., 2006; Livingstone & Day, 2005;

Warwick & Nettelbeck, 2004), low to moderate correlations were found between the MSCEIT factors and cognitive intelligence (H 1c).

As predicted, this study revealed that MSCEIT was mostly distinguishable from the Big Five personality dimensions in both cultures. The correlations of MSCEIT's factors with Big Five were mostly nonsignificant or low (H 1d).

Regarding relationship between the TEIQue and the Big Five personality dimensions, the results of this study accord well with those of other studies (e.g., Petrides, Pita, et al., 2007; Vernon et al., 2008; Brackett & Mayer, 2003; Freudenthaler et al., 2008; Mikolajczak et al., 2007). In both samples, the TEIQue and the Big Five personality factors that were theoretically expected to correlate with one another did correlate (e.g., well-being and emotional stability, self-control and emotional stability, sociability and extraversion); whereas factors that were not expected to correlate did not correlate. For instance, in line with Freudenthaler et al. (2008) findings, self-control in both cultures did not correlate significantly with extraversion, intellect and agreeableness. The low to moderate correlations between four TEIQue factors and the Big Five personality dimensions of agreeableness, conscientiousness, and intellect provided support for the discriminant validity of the TEIQue (H 1e).

The second objective of this study was to find the concurrent vailidity of the TEIQue and the MSCEIT *vis-à-vis* affectivity, satisfaction with life and psychological distress. In both samples, the TEIQue appeared to be a significant correlate of affectivity (H 2a and H 3a). The obtained correlations echo those of previous studies, where trait EI appeared to be a strong correlate of PA and NA (e.g., Kafetsios & Zampetakis, 2008 ; Lopes et al., 2006 ; Sevdalis, Petrides, & Harvey, 2007; Mikolajczak et al., 2007). However, contrary to hypotheses (2c and 2d), the MSCEIT was unrelated to affectivity in both cultures.

In both samples, the TEIQue appears to be a strong correlate of life satisfaction. The obtained correlations echo those of previous studies, where the TEIQue significantly correlated with satisfaction with life (H2e) (e.g., Petrides, Pérez-González, et al., 2007; Petrides, Pita, et al., 2007; Extremera & Ferna´ndez-Berrocal, 2005; Freudenthaler et al., 2008). In both cultures, the well-being factor emerged as a strongest correlate of satisfaction with life. These findings are consistent with the theoretical structure of the TEIQue as the factor "well-being" represents how successfully one is able to enjoy life and maintains a positive disposition. In other words, the strong association between well-being factor and satisfaction with life can be attributed to the conflation between satisfaction with life and happiness subscale of the well-being factor. For instance most of the researchers take the pragmatic approach of treating happiness and life satisfaction as synonyms, such that a higher score on an instrument measuring life satisfaction similarly suggests a higher level of happiness (Veenhoven, 1991). Therefore, inclusion of satisfaction with life as a criterion variable with particular reference to the TEIQue is warranted due to its conflation with happiness sub-scale.

In line with related research on adults (Mavroveli, Petrides, Rieffe, & Bakker, 2007), this study found that students in both cultures who perceive themselves as being touch with their emotions and are able to regulate them tend to report less psychological distress. In other words, students who scored high on the TEIQue seem to be less vulnerable to psychological health related problems as compared to low trait EI students (H2f). According to Petrides,

Pérez-Gonzàlez et al. (2007), people high on trait EI have an advantage in terms of effective coping. Among the four TEIQue factors, the well-being factor emerged as a strongest correlate of psychological distress in both cultures (France: r = .46 and Pakistan: r =.46). Previous studies suggest that the well-being component of trait EI has a protective effect against stress (e.g., Mikolajczak et al., 2006). Enhancement of positive emotions (i.e., self-esteem, happiness, optimism) helps in preventing and treating problems such as psychological distress, deeply rooted in negative emotions.

However, by and large, the MSCEIT revealed to be unrelated to satisfaction with life and psychological distress. The nonsignificant correlations between the MSCEIT factors and satisfaction with life echo those of previous studies (e.g., Livingstone & Day, 2005).

Limitations and theoretical considerations

Although, results of this study provide evidence for the discriminant and concurrent validity of the TEIQue and the MSCEIT, we recommend readers that results should be interpreted with caution.

First, it is worth to mention that, we need to reconsider Pakistan's stance as a ''collectivist culture''. According to Parker, Haytko, and Charles, (2009), "as world cultures become less isolated, change is undoubtedly going to take place. It may be a mistake, therefore, to automatically assume that Eastern cultures are going to remain collective and that Western cultures will remain more individualized in nature" (p.). There has been a shift in the cultural values of Pakistani society, away from a collectivist orientation towards a more individualist orientation. Two plausible factors can be attributed to this shift. First, Pakistani women have started to take jobs outside of their home depicting a shift to individualistic culture. This shift in woman's role, from being a housewife to a woman with a career outside the home, has contributed to women becoming individualistic. The continuous influx of women in workforce has impacted the traditional collectivist family structure to a great extant. The traditional large-scale family unit, which consisted of grandparents, aunts, uncles, and cousins, has been reduced to just parents and children. Second, Pakistani youth (present study sample-university students) is much different from previous generations. They have been raised differently. This youth is the best educated and most culturally diverse generation. A combination of Western-style of education (mostly American and UK based curriculum), widespread use of internet, and currently vibrant print and electronic media in the country has made this generation exceedingly tolerant and open-minded toward western lifestyles.

Second, there is a possibility that individualism/collectivism along with other cultural factors will vary within cultures because of demographic, regional, class, and other differences within culture. Therefore, results collected in big cities (in present study) could likely be different from those collected in small cities or villages. This, of course, points to the need for future research to examine samples across various sub-cultures.

Third, most importantly, student samples do not represent the culture as much as do more or less representative sample. Therefore, it is important to examine the validity of the EI measure using a larger sample that is more representative of the general population.

Conclusion

Taken together, the findings of this study is meaningful and in line with the findings of other parts of the world. This supports the applicability of the EI construct in Pakistani and French samples. Results presented here provide supporting evidence for the discriminant and concurrent validity of the TEIQue and the MSCEIT.

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Table 1

Intercorrelations among EI measures

	1	2	3	4	5	6	8	9	10	11	12	13	14	15	Mean	*SD*
1. Cognitive Intelligence		-0,09	0,18*	-0,04	0,07	0,36**	0,02	-0,08	0,23*	0,05	0,19	0,31**	0,51**	0,30**	29.04	8.65
Personality																
2. Extraversion	-0,04		0,38**	-0,02	0,20*	0,22*	0,36**	0,08	0,35**	0,45**	-0,05	-0,02	-0,02	0,13	3.27	.76
3. Agreeableness	-0,31**	0,15		0,27**	0,07	0,36**	0,32**	0,09	0,49**	0,30*	0,18	0,30**	0,23*	0,25**	4.09	.58
4. Conscientiousness	-0,14	-0,09	0,08		0,26**	0,09	0,23*	0,36**	0,18*	0,17	0,05	0,12	-0,06	0,10	3.53	.66
5. Emotional Stability	-0,07	0,22*	-0,01	0,03		0,16	0,48**	0,63**	0,31**	0,23**	0,02	0,08	0,21*	0,17	2.97	.73
6. Intellect	0,07	0,21*	0,12	-0,10	0,07		0,35**	0,10	0,37**	0,36**	0,12	0,34**	0,31**	0,32**	3.51	.56
Trait EI																
8. Well-Being	0,05	0,25*	0,02	0,13	0,48**	0,24*		0,42**	0,48**	0,49**	0,11	0,21*	0,27**	0,26**	5.01	.79
9. Self-Control	0,03	-0,05	-0,09	0,31**	0,63**	0,08	0,45**		0,43**	0,35**	0,00	0,02	0,05	0,19	4.19	.64
10. Emotionality	-0,24*	0,12	0,56**	0,21*	0,17	0,25*	0,24*	0,20		0,56**	0,13	0,17	0,33**	0,36**	4.68	.60
11. Sociability	0,03	0,48**	0,07	0,08	0,34**	0,42**	0,47**	0,28**	0,35**		0,12	0,21*	0,07	0,29**	4.49	.69
Ability EI																
12. Perceiving Emotion	-0,06	0,04	0,08	0,15	0,32**	-0,16	0,21*	0,19	0,04	0,10		0,45**	0,34*	0,37**	92.79	13.32
13. Using Emotion	-0,07	0,02	0,16	0,10	-0,07	0,17	0,27**	0,04	0,10	0,10	0,24*		0,59**	0,40**	87.67	16.95
14. Understanding Emotion	0,08	-0,10	0,13	0,05	-0,19	-0,16	-0,05	-0,04	0,09	-0,05	0,19	0,12		0,46**	79.44	12.58
15. Managing Emotion	0,09	0,10	0,16	-0,01	0,10	0,03	0,23*	0,13	-0,01	0,03	0,28**	0,35**	0,25*		77.97	12.34
Mean	38.28	3.50	4.05	3.42	3.26	3.68	5.35	4.20	4.70	4.79	97.86	91.31	87.16	86.38		
SD	4.89	.69	.50	.66	.64	.55	.67	.73	.67	.65	13.90	16.21	9.72	9.47		

*$p < .05$. **$p < .01$

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Table 2

Concurrent validity of EI measures

	France				Pakistan			
	PA	NA	SWL	PD	PA	NA	SWL	PD
Trait EI								
Well-Being	0,50**	-0,48**	0,56**	-0,46**	0,42**	-0,53**	0,57**	-0,46**
Self-Control	0,21*	-0,47**	0,24*	-0,22*	0,27**	-0,49**	0,26**	-0,38**
Emotionality	0,40**	-0,11	0,28**	-0,09	0,27**	-0,35**	0,21*	-0,28**
Sociability	0,58**	-0,31**	0,23*	-0,31**	0,35**	-0,24*	0,20*	-0,19*
Ability EI								
Perceiving Emotion	0,08	-0,29**	0,18	-0,24*	-0,10	-0,14	0,07	-0,09
Using Emotion	0,19	-0,03	0,11	-0,02	-0,01	-0,09	0,02	-0,10
Understanding Emotion	-0,07	-0,03	0,05	-0,03	-0,04	-0,20*	-0,05	-0,29**
Managing Emotion	0,09	-0,16	0,11	-0,15	0,09	-0,33**	0,02	-0,36**

PA = Positive Affect; NA = Negative Affect ; SWL = Satisfaction With Life; PD = Psychological Distress

*p < .05. *p < .01