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Psicometric Properties of the Trait Emotional Intelligence Questionnaire (TEIQe) in Turkish

Ilkay Ulutas[1]

Abstract The present study focused on the translation of the Trait Emotional Intelligence Questionnaire (TEIQue) to the Turkish speaking people. The TEIQue was completed by 500 undergraduate students created from two different sample. Study followed two step as linguistic equivalence and validity-reliability analyses. Psychometric analysis provided evidence in support of the reliability of the TEIQue (at the facet, factor, and global levels) and the confirmed four-factor structure (Well-Being, Sociability, Self-Control, and Emotionality). This solution accounted for 66.3% of the total variance, and factor loading was .493–816. With regard to CFA and internal consistency of four factors and Global TEIQue, the Turkish version showed acceptable psychometrics and was in concordance with the original version. This study also found significant sex differences among factors and Global TEI. Female participants had higher scores on Wellbeing, Emotionality, and Global TEI. TEIQue would contribute as the base for further studies, and literature by adding data from Turkey.

Keywords Emotional Intelligence · Trait Emotional Intelligence · Self-Efficacy · Personality

Introduction

Since early 1990s, Emotional intelligence (EI) continues to be a topic of research and clinical focus. Salovey and Mayer (1990) introduced the term to describe people's ability to understand, perceive, manage, and use emotions to help them function adaptively in various areas of their life. Recent theoretical researches conceptualize EI in two ways as an ability EI and trait EI (Brouzos et al. 2014; Mikolajczak et al. 2007). The theory of ability EI focuses on people's ability to process emotional information and regulate emotions (Mayer and Salovey 1997). Trait emotional intelligence is relevant with personality characteristics including both social and emotional skills (Bar-On 1997, 2006; Boyatzis 2006; Petrides & Furham, 2000, 2001). It covers emotion related dispositions and self-perceptions measured via self-report, whereas ability EI model (or cognitive-emotional ability) concerns emotion-related cognitive abilities assessed with performance-based tests (Petrides et al. 2007; Petrides et al. 2010). Trait EI should be investigated with reference to personality hierarchies, while ability EI should be investigated with reference to cognitive ability hierarchies (Mavroveli et al. 2007). Trait EI is the only operational definition in the field that recognizes the inherent subjectivity of emotional experience (Petrides et al. 2010).

The Trait Emotional Intelligence Questionnaire (TEIQue) was created as the fundamental measure (Petrides and Furnham 2001). It is a self-report questionnaire that contains 153 items and 15 facets organized under four factors (Petrides 2009).

TEIQue provides three advantages. First, the TEIQue is based on a psychological theory that integrates the construct into mainstream models of differential psychology. In contrast, other measures are based on the misconception that intelligence or competencies can be measured through self-report items such as "I'm good at understanding the way other people feel." Second, the TEIQue provides comprehensive coverage of the 15 facets of the trait EI sampling domain (Table 1). In contrast, other measures typically overlook a large part of this domain and often include irrelevant facets. Third, the full TEIQue has excellent psychometric properties

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Table 1 The Facets and factors of Trait Emotional Intelligence

Facets;

Adaptability flexible and willing to adapt to new conditions

Assertiveness forthright, frank, and willing to stand up for their rights

Emotion expression capable of communicating their feelings to others

Emotion management (others) capable of influencing other people's feelings

Emotional perception (self and others) clear about their own and other people's feelings

Emotion regulation capable of controlling their emotions

Impulsiveness (low) reflective and less likely to give in to their urges

Relationships capable of maintaining fulfilling personal relationships

Self-esteem successful and self-confident

Self-motivation driven and unlikely to give up in the face of adversity

Social awareness accomplished networkers with superior social skills

Stress management capable of withstanding pressure and regulating stress

Trait empathy capable of taking someone else's perspective

Trait happiness cheerful and satisfied with their lives

Trait optimism confident and likely to "look on the bright side" of life

Factors;

Well-being; Self-esteem, trait happiness, trait optimism

Self-control; Emotion regulation, stress management, impulsiveness

Emotionality; Emotion perception, emotion expression, trait empathy, relationships

Sociability; Social awareness, emotion management, assertiveness

Global trait EI

(Cooper and Petrides 2010). Several independent studies have stated TEIQue predict criteria (outcomes) to a more accurate degree than other questionnaires (Freudenthaler et al. 2008; Gardner and Qualter 2010; Martins et al. 2010).

The TEIQue assesses all of the above facets through 15 subscales. In addition, it provides scores on four factors of broader relevance such as "well-being," "self-control,","emotionality" and "sociability" (Petrides 2001). Besides adult version, child, youth and short versions is also available. It is free of charge, to academics for research purposes.

Currently, the applications of the trait EI measures concern mostly the clinical/health, educational, and organizational domains (Mikolajczak et al. 2007). The measure was adapted in many countries, including Spain (Pérez-González and Sánchez-Ruiz 2014), France (Mikolajczak et al. 2007).), Germany (Freudenthaler et al. 2008), Greece (Petrides et al. 2007).), Georgia (Martskvishvili et al. 2013), Netherlands (Petrides et al. 2010) and Serbia (Marjanović and Dimitrijević 2014). All studies stated that TEIQue has very good psychometric properties even in small samples (Petrides et al. 2006).

The Present Study

The main purpose of the study is to modify TEIQue in Turkish and to provide a contribution to worldwide EI literature.

Method

The adaptation process of the Turkish Language version of the TEIQue was performed in the following three stages: (1) translation of the English-language version of the TEIQue into Turkish, (2) testing the psychometric equivalence of the Turkish and English versions of the TEIQue, and (3) verification of the factor structure, and the concurrent and discriminant validity of the Turkish TEIQue.

Participants

A non-probability sampling method was used in this study. Five hundred students were recruited from the universities located in Ankara. 100 students (59 females, 41 males) were used as a pilot sample to examine the translation and modification of the TEIQue for the Turkish population. Finally, 400 participants (276 females, 124 males) ranged in age from 18 to 24 years (M = 20.83, SD = 1.66) was used to examine psychometric properties of T-TEIQ.

Data were collected during the class time with support from department principal. The translation/back-translation process was directed by the author and KV Petrides.

Measure

Trait Emotional Intelligence Questionnaire (TEIQue v.1.5)-Turkish Modification

The TEIQue consists of 153 items with seven-point Likert scale, ranging from "completely disagree" to "completely agree" (Petrides 2009). TEIQue can administered as a group and take 20–25 min. Items which were problematic (9 items) rephrased by changing the wording.

Translation Procedure and Psychometric Equivalence Assessment of English and Turkish Versions of the TEIQue

TEIQue items were translated into Turkish and then back translated into English based on the International Test Commission guidelines for test adaptation (Hambleton 2001; Gudmundsson 2009). The translation were made with three experts who worked at psychology, Turkish and English language departments of universities. The translators were fully bilingual, having Turkish as a first language but having professional experience in English. Firstly every item in English version of TEIQ was translated in Turkish. Turkish form of the TEIQ was reviewed by the experts and revisions were made according to the suggestions and comments. One researcher beside from expert group was translated Turkish form to English to compare the concept and meaning similarities to original version. Items which were not related to the original concepts were modified and rephrased by researcher. Experts

compare Turkish and English versions to finalize the translation process. Most of the items fit the English, all discrepancies were minor, involving the choice between two synonyms. Cultural conformity of the TEIQue was evaluated by the two experts who were working sociology and psychology departments. Six item were edited according to Turkish culture. As a result, Turkish version of the TEIQ was be ready for the pilot testing to 100 university students (59 females, 41 males) to see the linguistic equivalence of the questionnaire. During testing, the feedbacks of the students (unclear items, repeated content etc.) recorded. Data were analyzed on SPSS. Items which had item total correlation higher than 1.00 and factor loading lower than .30 and recorded unclear by the students were revised. After translation step The TEIQ was ready to examine psychometric properties.

The final and main sample included 400 participants (276 females, 124 males) ranged in age from 18 to 24 years (M = 20.83, SD = 1.66).

Analysis

First, factorial structure of the Turkish TEIQ was assessed by operating Varimax rotation. And reliability analysis of the factors was carried out using Cronbach's alpha coefficient.

Second, for the assessment of the overall fit the chi-square test was used, which indicates a good fit when it is not significant and with values less than 2.00. Evaluations were made using a variety of fit indices, including the comparative fit index (CFI), standardized root mean square residual (SRMR), and the root mean square error of approximation (RMSEA). Values of CFI > 0.9, SRMR <0.08, and RMSEA <0.08 are indicative of a good fit with the data [Hoyle 1995].

Third, observed mean score differences were explored by t test and Anova. Finally, Spearmen test was used to examine correlations among TEQ factors.

Results

Factor Structure of the T-TEIQue

Suitability of the data for factor analysis was examined with KMO and Bartlett's test. Kaiser–Meyer–Oklin value was .91, exceeding the recommended value of .60 (Kaiser 1974). Bartlett's test of sphericity (Bartlett 1954) reached statistical significance, $\chi2(105, N = 400) = 2829.27$, $p = .001$, supporting the factorability of the correlation matrix. As a result of those test data was accepted as normally distributed.

In the light of the previous studies factor structure was analyzed based on 15 facets. This approach was taken as (1) the 15 facets are argued to represent the sampling domains of trait EI and have not been conceptualized as latent factors (Petrides 2009), and (2) because factor analysis of an individual item is problematic due to unreliability, especially because of nonnormal distributions (Bernstein and Teng 1989). As such, facet items can provide validity, and reliability of the construct. It is expected that a four-factor structure underlie these facet items. Both EFA and CFA was run to test this structure on the last subsample of participants.

The factor pattern matrix and factor intercorrelations are presented in Table 2. The four factors were substantively identical

Table 2 The factor pattern matrix and factor intercorrelations

	Component			
	1 (Well-being)	2 (Self Control)	3 (Emotionality)	4 (Sociability)
Social awareness	,784			
Emotion expression	,756			
Emotion management	,751			
Assertiveness	,666			
Self esteem		,505		
Optimism		,802		
Happiness		,770		
Self-motivation		,578		
Empathy			,767	
Relationships			,746	
Emotion perception			,579	
Impulsivity (low)				,493
Emotion regulation				,816
Adaptability				,665
Stress management				,658

Fig. 1 CFA of the theoretical four-factor structure of the TEIQue (*N* = 400)
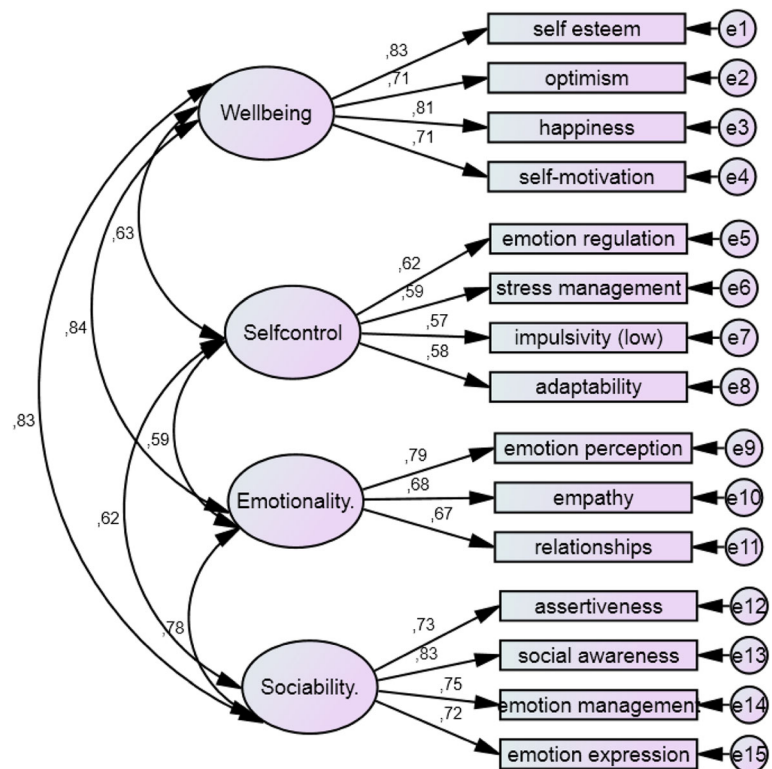
to the original British structure (Petrides 2001). Factors were named respectively: Well-Being, Sociability, Self-Control, and Emotionality. This solution accounted for 66.3% of the total variance, and factor loading was .493–816. Although four factor model was confirmed some facets loaded under the different factors from original model. Such as Emotional expression which was reported under the Emotionality for the original model, loaded under the Sociability in the current study. Likewise Self-motivation removed under the Well-being rather than Self-Control and Adaptation replaced under the Self-Control.

Confirmatory Factor Analyses

Confirmatory Factor Analyses was run to calculate the fit indexes that correlated four-factor model of TEIQue (hypothesized model) (Figure 1). Based on the standards established in the literature for fit indexes (Bentler 1990; Browne and Cudeck

1989; Joreskog and Sorbom 1984), the model fit was acceptable to good: x^2 = 374.2 (df = 84, *N* = 400), CFI = .90, AGFI = 84, NFI .87, and RMSEA = .09. The factor loadings were high in all cases, ranging between k = .58 and .83.

Reliability

TEIQue subfactors displayed acceptable to good reliability, with alphas above the recommended .70 level (Peterson 1994). Internal consistencies for global trait EI and the four factor scores in the present study were: global trait EI, .91, Well-being, .85, Self-control, .70, Emotionality, .76, and Sociability, .84 (Table 3).

Descriptive Statistics

Means, standard deviations, of the four factors, and global trait EI score are given in Table 4 for women and men respectively.

Table 3 Internal Reliability (Cronbach's α) Comparison of TEIQue across the Current and four Other Studies

	Current study findings	Mikolajczak and Luminet (2008)	Freudenthaler et al. (2008)	Martskvishvili et al. (2013)	Marjanović and Dimitrijević (2014)
Wellbeing	85	91	Between 86 – 94	.69	.80
Selfcontrol	70	87		.82	.82
Emotionality	76	90		.78	.78
Sociability	84	87		.71	.80
Global	91	95	96	.87	.95

Table 4 TEIQue descriptives and gender differences

		N	Mean	Std. Deviation	Std. Error Mean	
Wellbeing	Female	276	19,8522	3,27,444	,19,710	3636**
	Male	124	18,6149	2,84,453	,25,545	
Self-control	Female	276	17,0472	2,07280	,12,477	,371
	Male	124	16,9658	1,93,508	,17,377	
Emotionality	Female	276	15,0143	1,90,334	,11,457	5158**
	Male	124	13,9546	1,89,337	,17,003	
Sociability	Female	276	18,7496	3,10,730	,18,704	1607
	Male	124	18,2326	2,65,765	,23,866	
Global TEI	Female	276	70,6632	8,60,119	,51,773	3216**
	Male	124	67,7678	7,68,241	,68,990	

Women had significantly higher means for Well-being ($t = 3.636$, $p < .05$), Emotionality ($t = 5.158$, $p < .05$), and Global TEIQue ($t = 3.216$, $p < .05$).

Correlations

Correlations analyses was operated in order to provide further evidence for the TEIQ construct validity. Correlations between the respondents' scores on the TEIQ can be found in Table 5. Factors and global TEIQue are expected to related within each other (Petrides and Furnham 2000). The results supported that factors and global items were highly correlated in each factor.

Discussion

The current study presents the psychometric properties of Trait Emotional Intelligence Questionnaire (TEIQue) in Turkish sample. It was verified that Turkish TEIQue has four factorial structure according to results of explanatory factor analyses. However, some items that loaded under the each of the factors were different from previous research. For example, Emotional expression replaced under Sociability instead of Emotionality, Self-motivation removed under the Wellbeing instead of Self-Control and Adaptation replaced under

the Self-Control. Turkish version has internal consistency for the four factor model. Confirmatory factor analyses supported that T-TEIQ has four factors, so the factor structure of the Turkish version is comparable to the original English version. These findings provided that the Turkish version of the TEIQ is a valid and reliable measure of Trait emotional intelligence in Turkish-speaking populations.

This study also found significant sex differences among factors and Global TEI. Female participants showed higher scores on Wellbeing, Emotionality, and Global TEI. This results were similar with previous researches (Mikolajczak and Luminet 2008; Marjanović and Dimitrijević 2014). Additionally, the results indicated that there are positive and strong relationship among four factors and Global TEIQ. These results are also consistent with those of previous research (Martskvishvili et al. 2013; Freudenthaler et al. 2008; Mikolajczak et al. 2007).

There are two limitations for the study. As Martskvishvili et al. (2013) stated external criteria such as personality trait, anxiety, self-regulation etc. was not used because of the length of the measure. Second, participants were well-educated students, which may limit generalizability. It would also be useful to assess the factorial structure and psychometric properties of the Turkish version of the TEIQue for less educated and older individuals to better generalizability of the TEIQue.

Table 5 Correlations among the four factors of the TEIQue

	M	SD	Wellbeing	Self-control	Emotionality	Sociability	Global
Wellbeing	19,45	3,20	1	,492**	,653**	,695**	,896**
				,000	,000	,000	,000
Self-control	17,02	2,03	,492**	1	,413**	,465**	,688**
			,000		,000	,000	,000
Emotionality	14,69	1,96	,653**	,413**	1	,617**	,798**
			,000	,000		,000	,000
Sociability	18,59	2,98	,695**	,465**	,617**	1	,873**
			,000	,000	,000		,000
Global TEIQ	69,77	8,43	,896**	,688**	,798**	,873**	1
			,000	,000	,000	,000	

In conclusion, beside these limitations, the present study is an important first step towards more research on the TEIQ of the Turkish samples. It presents evidence that the four factor Turkish TEIQue comparable psychometric properties to English, and other language versions. The TEIQue will be a reliable and valid measure for Turkish young adults. It would contribute as the base for further studies, and literature by adding data from Turkey.

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