Psychometric properties of the Catalan version of the Trait Emotional Intelligence (TEIQue): Comparison between Catalan and English data

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ABSTRACT

The present study compared the psychometric properties of the Trait Emotional Intelligence Questionnaire (TEIQue) in Catalan and UK samples. The results showed similar means and standard deviations in the facets scoring higher in both languages, except for Adaptability (d: -0.50) and emotion management (d: -0.37). The alpha reliabilities of the TEIQue facets were similar and acceptable in both samples. The TEIQue alpha was 0.95 and 0.90 in Catalonia and the UK, respectively. All TEIQue facets were highly correlated in both samples, suggesting a coherent construct. The factor structure was investigated through exploratory (EFA) and confirmatory factor analysis (CFA) for 13 and 15 facets respectively. The four-factor theoretical structure was satisfactorily replicated using orthogonal rotation for 13 and 15 facets. Factor congruency coefficients were at, or above, 0.98 for both languages and both solutions (13 and 15 facets). As expected, CFA analyses of the simple structures of the three models yielded unsatisfactory fit indices, although these improved considerably after incorporating secondary loadings and correlated error terms. The cross-cultural stability of the instrument was supported by multigroup analyses. The relationships between TEIQue factors and facets were the same in both countries. The TEIQue psychometric properties were similar and robust in both samples.

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1. Introduction

Emotional intelligence (EI) has been broadly studied (Goleman, 1995; Salovey & Mayer, 1990), with different psychometric measures to assess this construct (Bar-on, 1997; Mayer, Caruso, & Salovey, 1999; Schutte et al., 1998). The present study focuses on trait emotional intelligence, which is formally defined as a constellation of emotional perceptions located at the lower levels of personality (Petrides, 2001; Petrides, Pita, & Kokkinaki, 2007) and, in particular, its measurement vehicle, viz., the Trait Emotional Intelligence Questionnaire (TEIQue; Petrides, 2009).

The TEIQue has had a wide impact in the psychological literature for the past 15 years and it has been translated into multiple languages. It was originally developed in England using a large sample ranging from 15 to 77 years old subjects. The TEIQue comprises 153-items distributed in 15 facets, four domains or factors and a global dimension. The exploratory factorial structure indicates four factors: *emotionality* (emotion perception, trait empathy, emotion expression and relationships), *self-control* (emotion regulation, stress management, impulse control, adaptability and self-motivation), *sociability* (assertiveness, emotion management, and social awareness and self-esteem), and *well-being* (trait happiness, trait optimism and self-esteem). The four factors are strongly correlated (0.35 to 0.50). Strong sex differences are reported in assertiveness, emotion regulation, relationships, self-esteem facets and self-control, and emotionality factors, but overall they tend to balance out and produce roughly equal scores.

The TEIQue structure has been replicated by Mikolajczak, Luminet, Leroy, and Roy (2007) in Belgium using the same factorial extraction procedure and oblique rotation method. Congruence coefficients of the factor structure (pattern matrix) between Belgian and English range from 0.96 to 0.99, showing a good factorial equivalence. This factorial exploratory structure has also been replicated and confirmed in Georgia and Hong Kong (Martskvishvili, Arutinov, & Mestvirishvili, 2013; Gökçen, Furnham, Mavroveli, & Petrides, 2014). In the three non-English studies the rotation method of choice has been oblique with the factorial solution from the pattern matrix, not the structure matrix. The factors of the TEIQue are strongly correlated and the oblique structure matrix show overlapped variables in all factors.

Freudenthaler, Neubauer, Gabler, Scherl, and Rindermann (2008), performed a CFA of the TEIQue incorporating the correlated errors in the analysis between the following pairs of facets: happiness-optimism, happiness-relationships, assertiveness-empathy, assertiveness-social awareness, and assertiveness-relationships. They obtained acceptable fits indices. More recently,

Jacobs, Sim, and Zimmermann (2015) tested the higher-order factor structure of the TEIQue-SF (short form) with a CFA and after incorporating the correlated error terms (happiness-optimism; self-esteem-social awareness) obtained also an acceptable fit. Marjanovic and Dimitrijevic (2014) also performed a CFA with a Serbian sample, and after incorporating correlated errors (happiness-optimism, emotion expression-social awareness, and empathy-assertiveness) obtained a good fit.

The main objective of the current study was to analyze the psychometric properties of the Catalan version of the TEIQue in a stratified general population by gender and age groups representing a large age cohort (18–86 years old). We were interested in a) gender differences in the facets, b) reliability, c) factorial structure, and d) comparing the factor structure of the Catalan version of the TEIQue with that of an English sample.

2. Method

2.1. Participants

The Catalan sample consisted of 351 subjects (177 men and 174 women). The mean age was 40.27 (S.D.: 16.00; range: 18–86) for men, and 39.47 (S.D.: 15.26; range: 18–73) for women. Age was stratified into four quartiles: 18–22 (26.3%), 23–46 (25.1%), 47–51 (23.4%) and 52–86 (25.2%) years old. There were no age differences between genders (d: −.05). All subjects were white European from the general population. They were recruited in the city of Lleida by undergraduate students that collaborated in this study. The students invited to participate in this study subjects from their social context as relatives, neighbors and friends. The data were analyzed as part of an assignment in the course of "Psychology of personality".

The English sample comprised 1666 individuals (907 female, 759 male, 74 unreported). The sex differences analyses were based on 863 females and 729 males (n = 1592). The rest of the analyses were based on all 1666 subjects. The mean age for men was 32.67 years (SD: 11.95; range: 16–77) and for women 27.10 (SD: 10.64 range: 16–74). Most participants were of white UK origin (58%), followed by white European (19.2%), Indian (6.6%), African and Caribbean (5.7%), and East Asian (5.1%). Strong age differences were found by sex (d: .79). The English sample was the same as in Petrides (2009).

2.2. Measure description

The Trait Emotional Intelligence Questionnaire (TEIQue) has 153 items which are rated on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The TEIQue is structured in 13 facets assertiveness, emotion control, emotion expression, emotion management, emotion perception, empathy, happiness, impulse control, optimism, relationships, self-esteem, self-motivation, social awareness and stress management. These facets are grouped into four factors: well-being, self-control, emotionality and sociability. The adaptability and self-motivation facets are not integrated in any of the four factors and are considered as auxiliary facets that feed directly into the global EI trait score (Petrides, 2001; Petrides & Furnham, 2003). The alpha internal consistencies of the 20 TEIQue variables (15 facets, 4 factors and the global EI trait score) ranged between 0.67 and 0.87 (Petrides, 2009). For details see http://www.psychometriclab.com.

2.3. Translation procedure

The TEIQue was translated to Catalan by a Catalan-English bilingual speaker, and back-translated by a professional English-Speaking bilingual translator familiarized with the psychological literature. The English back-translation was analyzed by the last author and the equivalence between the source and target version was evaluated by all authors. Translation and back-translation procedures were conducted according to the test commission guidelines for test adaptation (Hambleton, 2001).

3. Results

3.1. Descriptive, gender differences and alpha reliability

Appendix 1 shows descriptive statistics, alphas, and sex differences for 15 facets and 4 factors of the Catalan and English TEIQue versions. In the Catalan sample, women scored relatively higher than men in trait-empathy (d: 0.40) and the Emotionality factor (d: 0.48). Women scored higher in emotional expression (d: 0.35), emotion perception (d: 0.34), and relationships (d: 0.30). In contrast, in the English sample males scored higher in assertiveness (d: −0.36), emotional management (d: −0.30), emotional regulation (d: −0.61), stress management (d: −0.55), self-esteem (d: −0.37), and in the factors of self-control (d: −0.57) and sociability (d: −0.36). The main differences between the Catalan and English samples were adaptability (d: −0.50, and emotion management (d: −0.37), where the English scored higher than the Catalans. Alpha reliabilities of the TEIQue facets ranged from 0.59 to 0.87, and from 0.68 to 0.89 for Catalans and English respectively. The global TEIQue alpha values were 0.95 and 0.90 in each country.

3.2. TEIQue correlations and exploratory factorial structure

In Appendix 2, we present the intercorrelation matrix for the 15 TEIQue facets (including the total score) for the Catalan and the English samples. The average of correlations between the 15 facets with the total scores was 0.66 and 0.65 for the Catalan and English samples, respectively. Correlations between the facets were positive and ranged from 0.07 to 0.73 (average 0.39) for the Catalan sample, and 0.12 to 0.74 (average 0.46) for the English sample. For the Catalan sample the correlations ranged between 0.30 and 0.63 and for the English sample between 0.35 and 0.50.

Table 1 shows the factorial structure of the 15 and 13-facets for the Catalan and the English samples. A Principal Axis (PA) analysis with orthogonal rotation was used in all samples extracting four factors. For the Catalan data the Kaiser–Meyer–Olkin measures of sample adequacy for the 15 and 13 facets were above 0.88 vs 0.86 and a Bartlets's test of sphericity of 2791.105 vs 2438.70 approximated chi squared (d.f.: 105 vs 78; p < 0.001). The four factors explained the 69.11% and 73.423% of the total variance. For the English data the Kaiser–Meyer–Olkin measures of sample adequacy for the 15 and 13 facets were above 0.90 vs 0.87 and a Bartlets's test of sphericity of 12,648.601 vs 10,697.356 approximated chi squared (d.f.: 105 vs 78; p < 0.001/0.001). The four factors explained the 69.12% and 72.63% of the total variance.

Correlations between the TEIQue factors and dimensions for the Catalan and English samples were very similar (see Appendix 2). We performed an Orthogonal Procrustes rotation using the Catalan and English structures for 15 and 13 facets. The global Tucker factorial congruence coefficients with the English and Catalan 15 facets version were mostly above 0.98 and for English and Catalan 13 facets versions above 0.99 (Table 1).

3.3. Confirmatory Factorial Analysis

The Confirmatory Factor Analyses (CFA) of the 15 and 13 TEIQue facets were based in four latent variables with the Maximum Likelihood estimation method in different models of growing complexity: 1) *Simple structure one-factor* (all facets were linked to their respective four factors and the factors linked to a single latent factor); 2) *Simple structure 4-factor*: (facets as observed variables linked to 4 factors as latent variables); 3): *Simple structure 4-factor and salient loadings* (all secondary loadings larger than ± .30); and 4) *Simple structure 4-factor and salient loadings plus correlated errors* (higher modifications indices).