

Cross-cultural and gender invariance of the Emotional Skills and Competence Questionnaire:

A comparison between Portuguese and Croatian secondary students

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Abstract

Emotional intelligence (EI) and its measures have been widespread across several countries and cultures and the need for valid and robust measures that could expand research on international settings is on the current agenda. Therefore, the present study, involving 1188 secondary students, assessed the measurement invariance of the Emotional Skills and Competence Questionnaire (ESCQ), a widely used self-report EI measure, with three dimensions – Express and Label, Perceive and Understand, and Manage and Regulate Emotion –, in different cultural (Portugal *vs.* Croatia) and gender groups (Girls *vs.* Boys; Portuguese Girls *vs.* Portuguese Boys). Measurement invariance for Croatian gender groups wasn't estimated due to the absence of proportionately distributed samples. The results showed that the ESCQ had satisfactory reliability and the three-factor structure was replicated on every tested group. Configural invariance was supported across all groups, and full and partial metric invariance was found for the gender and cultural groups, respectively. Scalar invariance was only confirmed for Portuguese gender groups. The results highlighted specific cultural aspects related to emotional experience. These findings provided empirical support to the growing EI measurement invariance literature, as well as to the invariance of ESCQ by its contribution to develop an exact model fit in cross-cultural comparisons.

Keywords: Emotional intelligence; measurement invariance, cross-cultural research; ESCQ; secondary students.

Introduction

Since its first publication on the field (Salovey & Mayer, 1990), the concept of Emotional Intelligence (EI) has known an increasing development during the last decades. The research has been exploring EI as an individual differentiating construct in several settings and countries. Simultaneously, proposals of diverse approaches for measuring the construct also took place in the leading research (Zeidner, Matthews, & Roberts, 2004). Nonetheless, the debate concerning EI measures' validity and methodological problems (self-report vs. ability) have been restraining their progress.

Furthermore, the fast diffusion and expansion of EI measures in several countries raised issues related to their validation in other cultures and languages. Thus, cross-cultural studies addressing measurement invariance and equivalence of EI scales are important, as nowadays an increasing use of such scales is made in the international context (e.g. Ekermans, Saklofske, Austin, & Stough, 2011; Parker et al., 2005). Parker et al. (2005) warned that special care is requested when examining the EI construct in different cultures, since the cultural context can influence the experience and expression of emotions. In this line, when EI measures are developed in one culture and used in another, the congruence and comparability of the psychological measures across the different cultural groups should be previously analysed.

Salovey and Mayer (1990) were among the first to introduce a scientific conceptualization of EI. Currently, considering both a theoretical and an assessment perspective, the literature presents two distinct views of EI: ability and trait models. The ability model perceive EI as a capacity to engage in valued behaviour and involve a certain degree of mutability (Mayer, Caruso, & Salovey, 1999). From this approach, EI refers to *an individual's ability to perceive accurately, appraise, and express emotion; access and/or generate feelings when they facilitate thought; understand emotions and emotional knowledge; and to regulate emotions to promote emotional and intellectual growth* (Mayer & Salovey, 1997, p. 5). In contrast with this perspective, the trait EI proposal integrates individual personality features (Bar-On, 2001; Goleman, 1995) and considers EI as *“a constellation of behavioral dispositions and self-perceptions concerning one's ability to recognize, process, and use emotion-laden information”* (Petrides & Furnham, 2003, p. 278).

Anchored on the development of the theoretical perspectives, several measures to test the construct of EI has been established (Mayer & Salovey, 1997), and can generally be differentiated in two major types: self-report and ability measures (Ciarrochi, Chan, Caputi, &

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Roberts, 2001). However, some measures' methodological problems (self-report vs. ability) have been leading to lack of agreement about the better way to assess EI (Roberts, Zeidner, & Matthews, 2001; Schutte et al., 1998). Some authors argue that self-report measures, similarly to the assessment of other psychological constructs, may include the lack of reliability on individual's opinion and understanding as his/her higher vulnerability to social desirability factors (Roberts et al., 2001; Schutte et al., 1998), but they tap into typical attributes of the individual's thoughts, feelings and behaviours in given situations, and they also allow data's gathering to be efficiently (Li, Saklofske, Bowden, Yan, & Fung, 2012). As a result, the self-report measures are relatively common in cross-cultural studies of EI. Nonetheless, with any given measure, the invariance or equivalence on EI's measurement is still an issue that needs to be addressed.

Moreover, the task of examining the validity and robustness of EI measures across different cultural groups is particularly important, since it is acknowledged that even biologically grounded emotions are socially and culturally moulded and maintained (Kitayama & Markus, 1994), including the learning, control, expression and perception of emotion (Matsumoto & Ekman, 1989). In fact, the cultural context may influence the emotions recognition and expression through their specific social norms and standards (Matsumoto & Ekman, 1989).

Besides important cross-cultural effects, research is revealing that both genders could address differentially the recognition and expression of emotions. In fact, females may reflect specific cultural aspects of their development when in several studies they report higher skills of EI, particularly, reasoning more about their own feelings, expressing emotions more frequently and in a more adaptive way and revealing a better understanding of their own emotions, as well as others' (Brackett, Mayer, & Warner, 2004).

Measurement Invariance on EI research

One of the main missions on research nowadays is to establish whether a construct and its measures are pertinent across culturally diverse groups (e.g. Byrne & Campbell, 1999; Van de Vijver & Poortinga, 1997), and the field of EI is no exception. In fact, several authors claim that meaningful and valid cross-group comparisons can only be made after measurement invariance has been established (Byrne & Campbell, 1999).

Measurement invariance can be defined as the comparability of quantitative estimation of psychological variables or constructs. Measurement invariance exists when items

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measuring a specific construct are perceived and understood in the same way as well as the response scale is used similarly across diverse samples, thus, assuring that the given instrument is assessing the same psychological construct across different groups (Robert, Lee, & Chan, 2006). Without the assumption of measurement invariance, the scientific basis of assessment is uncertain and observed group differences may be due to measurement bias, rather than underlying real differences.

Measurement invariance is established at various levels, each with different practical implications. Configural invariance offers support for the equivalence of the form of the factor model across different groups, which implies a similar conceptualization of a construct across different groups. Metric invariance establishes that the regression of the indicator variable on the latent trait has parallel slopes across groups. Scalar invariance tests the hypothesis that the vector of the item intercepts is invariant across groups (Byrne, 2004). The lack of scalar invariance is interpreted by some authors as an evidence for a culturally driven response style (Acquiescence Response Style, ARS; Mullen, 1995).

EI is likely to vary across cultures, as most of the motivationally oriented constructs, as it is influenced by one's attitudes and beliefs within specific social contexts. In fact, research points out that cultural differences exist across a wide range of emotion-related abilities that essentially comprise the construct of EI. For instance, individualistic cultures seem to have better skills at recognizing and understanding (Matsumoto, 1989), expressing (Fernandez, Carrera, Sanchez, Paez, & Candia, 2000), and regulating their emotions (Gross & John, 2003) than collectivistic cultures. So the processes underlying the EI factors and their manifestations across cultures may differ as a consequence of the role that culture plays in the development and interpretation of emotions (Karim & Weisz, 2010).

In the growing field of research on EI's construct, few cross-cultural studies have been described, and particularly less measurement invariance results have been reported (Ekerman et al., 2011; Karim & Weisz, 2010; Li et al., 2012). Since a great deal of EI instruments is developed within American or European cultural contexts, the generalized use of non-assessed invariance measures in other countries could show cultural dramatic differences on the interpretation of the scales (Van de Vijver & Poortiga, 1997), influencing the meaningfulness and generalization of results. For this reason, it is crucial that more empirical evidence supports the EI construct, so this can be replicated as an identical set of psychological constructs in other cultures and languages.

One of the self-report EI instrument widely used is the *Emotional Skills and Competence Questionnaire* (ESCQ; Takšić, Mohorić, & Duran, 2009). It is based on the

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ability's model of Mayer and Salovey (1997) for measuring the individual's self-perceptions about EI. The ESCQ was originally developed in the Croatian context, but it was quickly adapted to other countries (for example, Portugal, Finland, Sweden, Slovene, Spain, Japan, Italy, China, India, Argentina, USA, Iran, Austria) and different languages (Faria et al., 2006; Takšić et al., 2009). Despite the proliferation of ESCQ in international contexts, and the existence of several studies in different countries confirming the validity of its factor structure (Faria et al., 2006; Takšić et al., 2009), little is known about ESCQ measurement invariance.

As noted above there is, to date, limited research bearing on the measurement invariance of the commonly used EI's instruments. Thus, the purpose of this study is to examine the measurement invariance of the latent variable model of ESCQ in different cultural contexts (Portuguese and Croatian settings) and gender (Girls and Boys; Portuguese Girls and Portuguese Boys).

Method

Sample and Procedure

Portuguese Sample. A total of 627 secondary school students provided data suitable for the analysis. The Portuguese sample comprised 52.6% of female students and 47.4% of male students, with ages ranging from 14 to 21 years old ($M=15.5$; $SD=.76$). They were attending several secondary courses.

Croatian Sample. 562 secondary students participated in this study. This sample consisted of 67.2% females and 32.4% males, with ages ranging from 14 to 19 years old ($M=16.3$ $SD=1.07$). They were attending several secondary courses as well.

The ESCQ scale was answered individually by each participant, either for Portuguese and Croatian samples, in classrooms' collective administrations, during school time and with the presence of a researcher and the class's teacher. The aims of the study, as well as the confidentiality and anonymity guarantees, were explained and granted to the participants.

Instrument

The *Emotional Skills and Competence Questionnaire* (ESCQ; Takšić et al., 2009) is a self-report EI measure using a 5-point Likert-type scale (1= never to 5= always). Originally developed in the Croatian cultural context with 45 items, within Mayer and Salovey's (1997)

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theoretical framework of the EI model, this measure has been adapted and validated to several cultural contexts, showing good psychometric properties across different studies (Faria et al., 2006; Takšić et al., 2009). In this study, it was used the 42-items ESCQ version due to items' refinements in previous psychometrics studies. It comprises 3 subscales: Perceive and Understand Emotion (PUE; 14 items), Express and Label Emotion (EE; 14 items), and Manage and Regulate Emotion (MRE; 14 items).

Data analysis

Descriptive and Reliability Analysis

Preliminary descriptive data analyses were conducted to examine the normality and the central tendency of the data. Also, the reliability of the ESCQ questionnaire for the several groups was assessed by Cronbach's alpha coefficient (SPSS 21.0 version).

Measurement Invariance

The invariance analyses consisting of two steps were performed with Confirmatory Factor Analyses (CFA). In particular, a sequence of increasingly restrictive CFA models was examined to evaluate the factorial invariance of the ESCQ scale across both cultural contexts (Portugal vs. Croatia) and gender (Girls vs. Boys; Portuguese Girls vs. Portuguese Boys). However, the factorial invariance for the Croatian gender groups was not estimated because the groups' samples were not proportionately distributed, which could lead to bias regarding the invariance analysis. In Step 1, initial CFA was used to test the goodness-of-fit of the baseline model in each of the sub-samples. Step 2 of the invariance routine compared two nested CFA's using multi-group analyses that assessed the fit of the three-factor model simultaneously across sub-samples.

The first CFA was conducted with the model for each sample in Step 1, with no cross-sample constraints imposed (Baseline Model; Model 1). If this multi-group model gave a good fit to the data, configural invariance across groups was supported, which implied, for instance, that both male and female participants used the same underlying framework when responding to the scale. Given an adequate fit of the data, a more stringent model was further fitted to the samples with all factor loadings constrained to be equal across samples (Model 2). If Model 2 fitted the data, metric invariance across groups was supported. Once metric invariance is confirmed, we next compared the baseline model with the highly restrictive scalar invariance model that imposes invariant factor loadings and an invariant threshold structure (i.e. structure of underlying latent threshold values of an ordered categorical variable

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that indicates the specific point at which respondents make a transition from a particular response category to a higher response category) (Model 3) across groups. If Model 3 fitted the data we can claim scalar invariance across groups (Byrne, 2004).

The data analysis was conducted using the AMOS (v. 19, SPSS Inc.) with maximum likelihood estimation; Hu and Bentler's (1999) cutoff criteria for goodness-of-fit indices were applied. We evaluated the goodness-of-fit model with multiple criteria using both absolute and relative fit indices (Hu & Bentler 1999). The absolute misfit index used was the root mean square error of approximation (RMSEA). The relative goodness-of-fit indexes were the comparative fit index (CFI) and the Tucker-Lewis Index (TLI, or Non-Normed Fit Index: NNFI). Values of $RMSEA < .08$, and CFI and TLI $> .90$ are indicative of an acceptable fit. The chi-square difference (X^2_{diff}) test (Steiger, Shapiro, & Browne, 1985) was used to compare the more stringent models (Model 2 and 3) with the less restricted model (Model 1).

Results

The .01 level of significance was adopted throughout all statistical analyses. In tables, significant differences are marked with an asterisk.

Descriptive and Reliability Analysis

The means scores and standard deviations for EE, PUE, MRE and the total ESCQ scale for both different cultural and gender groups are reported in Table 1. Internal consistency reliability, calculated by the Cronbach's alpha coefficient for each subscale and the total ESCQ across samples, confirmed similar results to previous studies (reliability above .70; Faria et al., 2006), with coefficients ranging from .85 to .88 for PUE, .84 to .86 for EE, .72 to .75 for MRE, and from .89 to .91 for the ESCQ total scale.

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Table 1 - Descriptive statistics and reliabilities of ESCQ in the different groups.

	Portuguese sample (N=627)		Croatian sample (N=561)		Girls (total sample) (N=709)		Boys (total sample) (N=479)		Girls (Portuguese sample) (N=330)		Boys (Portuguese sample) (N=297)	
	M(SD)	α	M(SD)	α	M(SD)	α	M(SD)	α	M(SD)	α	M(SD)	α
Perceive and Understand Emotion (PUE)	51.6 (6.61)	.88	49.8 (7.11)	.85	51.3 (6.63)	.85	49.9 (7.24)	.86	51.9 (6.20)	.86	51.4 (7.04)	.86
Express and Label Emotion (EE)	53.3 (6.99)	.84	49.8 (8.18)	.86	51.9 (7.85)	.86	51.1 (7.65)	.86	53.1 (7.04)	.84	53.4 (6.94)	.85
Manage and Regulate Emotion (MRE)	53.8 (6.02)	.73	53.3 (6.04)	.74	53.9 (6.01)	.72	53.1 (6.04)	.73	45.5 (5.41)	.72	45.8 (5.45)	.75
Total	162.5 (16.03)	.90	156.5 (18.18)	.91	160.9 (17.07)	.91	157.8 (17.58)	.91	158.8 (15.34)	.89	158.7 (16.07)	.90

Note: *M* = Mean; *SD* = Standard deviation; α = Cronbach's alpha coefficient.

Baseline Confirmatory Factor Analysis

As prior research has provided empirical evidence for the theoretical three-factor model underlying the ESCQ (Faria et al., 2006), our first analyses re-examined the three-factor structure of the ESCQ in the different countries and gender samples separately. According to the recommended practice for the identification of an acceptable CFA model (Kline, 2010), inspection of the parameter estimates and examination of the modification indices were performed. For all samples, the examination of the parameter estimates revealed that not all factor loadings were significant and the review of modification indices showed some opportunities for model improvement, which lead to the exclusion of some items on ESCQ's subscales. Refinements on the CFA models for the different samples were endorsed and consequently good fit parameters were achieved for the three-factor model (PUE, EE, MRE) underlying the ESCQ (cf. Table 2).

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Table 2 - Fit Indices for CFA model in each sample.

Sample	Group	χ^2	df	RMSEA	CFI	TLI
	Portuguese	263.550*	148	.031	.971	.966
Portuguese and	Croatian	326.053*	203	.033	.968	.964
Croatian	Boys	334.879*	184	.041	.949	.942
	Girls	358.682*	183	.037	.959	.952
	Girls	267.858*	185	.037	.953	.946
Portuguese	Boys	221.586*	148	.041	.953	.946

Note: RMSEA = root mean squared error of approximation; CFI = comparative fit index; TLI = Tucker-Lewis index or non-normed fit index; *p < .01 for the χ^2 test.

Testing Measurement Invariance

Our further analyses examined the cross-country and gender measurement invariance structure of the ESCQ.

Configural Invariance

The configural invariance model imposes the same theoretical factor structure across samples. That means that the same indicators (i.e. items) measure the same factors, for instance, in the different cultural contexts or genders. As the multi-group model showed a good fit to the data (cf. Model 1, Table 3), which implied that both groups used the same underlying framework when responding to the scale, configural invariance across different cultural context and gender was supported.

Metric and Scalar Invariance

As the configural invariance model does not impose any measurement parameters to be identical across groups, it serves as a baseline model to evaluate subsequent more restrictive invariance models. Once we considered the baseline model as being supported, both theoretically and empirically, we then compared the baseline model with a highly restrictive metric and scalar invariance model that imposes invariant factor loadings and an invariant threshold structure respectively across different groups (countries and genders). Thus, having established configural invariance, metric and scalar invariance were then examined across cultural context between Portuguese and Croatian groups, and for gender invariance between Girls and Boys groups and more particularly between Portuguese Girls and Portuguese Boys (cf. Table 3).

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Metric and Scalar invariance: Portuguese versus Croatian groups

When compared with the baseline model estimated simultaneously in both groups (cf. Model 1 in Table 3), placing invariance restrictions on all the factor loadings led to significant loss of fit in the χ^2 ($p < .001$), although other indices suggested no important change in fit (cf. Model 2 in Table 3). The inspection of the modification indices revealed that three (out of the four) ESCQ items measuring “Express and Label Emotion” as well as two items measuring “Perceive and Understand Emotion” (Item 13 “When I meet an acquaintance, I immediately notice his/her mood.” and item 15 “I am able to tell the difference if my friend is sad or disappointed”) and two more items measuring “Manage and Regulate Emotion” (Item 3 “I can maintain a good mood, even when the people around me are in a bad mood” and Item 8 “When I am in a good mood, it is difficult to bring my mood down”) exhibited non-invariance in terms of their factor loadings. As a result, it was released the restrictions on the total items measuring EE, freeing all the “EE” dimension parameters - because the one remaining item could not assure dimension validity - and the restriction on two items’ parameters of both “PUE” and “MRE”. This partial metric invariance model (cf. Model 2.1 in Table 3) showed an improved model fit ($\Delta\chi^2=108.323$, $\Delta df=14$, $\Delta p= < .001$ vs. $\Delta\chi^2=8.049$, $\Delta df=7$, $\Delta p=.328$ for the partial metric invariance). Therefore, the partial metric invariance model (cf. Table 3) seems to be an adequate model indicating what can be the most critical sources of non-invariance in measurement parameters of ESCQ across Portugal and Croatia.

Nonetheless, the statistical comparison between the partial scalar invariance model (cf. Model 3.1 in Table 3) and the configural invariance model reveals that the difference in χ^2 is highly significant ($p < .001$; cf. Table 3), leading to the conclusion that the scalar invariance is overly restrictive and should therefore be rejected.

Metric and Scalar invariance: Boys versus Girls groups

The same comparison between the baseline model estimated and the model with all factor loadings for the boys and girls groups led to no significant loss of fit in the χ^2 ($p=.267$) and no appreciable change in RMSEA, CFI and TLI (cf. Model 2 in Table 3). The invariant factor loadings were retained for the comparison of boys and girls groups, and, therefore, the metric invariance was sustained.

Concerning ESCQ scalar invariance for both groups, the highly significant difference in the χ^2 ($p < .001$; cf. Model 3 in Table 3) confirmed that the scalar invariance is overly restrictive and it does not hold for these groups.

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Metric and Scalar invariance: Portuguese Boys versus Portuguese Girls groups

The comparison between the baseline model estimated simultaneously in both groups and the model with all factors loadings invariant showed no significant loss of fit in the χ^2 ($p=.937$; cf. Model 2 in Table 3) and no important change in the other comparison model's criteria, supporting the hypothesis of factor loadings invariance for these groups. Moreover, the model with all threshold constrained (cf. Model 3 in Table 3), for scalar invariance testing, displayed no significant difference in the χ^2 model's comparison ($p=.087$), sustaining also the ESCQ's scalar invariance for Portuguese boys' and girls' groups.

Table 3 - Testing of measurement invariance of the ESCQ across Countries and Gender groups

Invariance model	Sample	χ^2	<i>Df</i>	$\Delta\chi^2$	Δdf	Δp	RMSEA	CFI	TLI
Model 1	P vs. C	391.301*	232				.024	.967	.962
Configural invariance (baseline)	G vs. B	432.531*	232				.027	.962	.956
	PG vs. PB	280.597*	202				.025	.967	.961
Model 2	P vs. C	499.624*	246	108.323	14	<.001	.029	.948	.942
Metric invariance (all factor loadings invariant)	G vs. B	463.405*	269	16.794	14	.267	.025	.962	.958
	PG vs. PB	286.835*	215	6.238	13	.937	.023	.970	.967
Model 2.1									
Partial Metric invariance (non-invariance of two items measuring PUE and MRE, and the total items of EE).	P vs. C	399.350*	239	8.049	7	.328	.024	.967	.962
Model 3									
Scalar invariance (all factor loadings and intercepts invariant)	G vs. B	511.224*	263	78.692	31	<.001	.028	.953	.952
	PG vs. PB	320.424*	231	39.827	29	.087	.025	.963	.961
Model 3.1									
Partial Scalar invariance (non-invariance of two items measuring PUE and MRE, and the total items of EE).	P vs. C	573.728*	248	182.426	16	<.001	.033	.933	.927

Note: RMSEA = root mean squared error of approximation; CFI = comparative fit index; TLI = Tucker-Lewis index or nonnormed fit index; P= Portugal; C=Croatia; G=Girls; B=Boys; PG=Portuguese Girls; PB=Portuguese Boys.

* $p < .01$ for the χ^2 test.

Discussion

Using imported measures requires that different levels of equivalence should be established in order to achieve both the precision and meaningfulness of comparisons in cross-cultural research (Byrne & Campbell, 1999). Although the questions related to the instruments invariance is frequently overlooked, the present study contributes to the EI measurement invariance research literature, by providing empirical evidence of the measurement invariance of the ESCQ across countries (Portugal vs. Croatia) and gender groups.

Adding empirical support to the previous research on ESCQ proprieties (Faria et al., 2006; Takšić et al., 2009), the present study endorses the psychometric validity of the scale, reporting good reliability coefficients and confirming the three-factor model underlying ESCQ scale with good fit parameters, in all analysed groups.

Furthermore, concerning the measurement invariance analysis, the results of the multiple-group CFA indicated that the ESCQ represented the same three EI factors in each of the examined groups, therefore supporting the configural invariance and the comparability of the EI constructs composition across the different groups.

In addition, full metric invariance was sustained for the different gender groups' comparisons (Girls vs. Boys; Portuguese Girls vs. Portuguese Boys), highlighting that the weight given to the different factor loadings were similar and therefore comparable between groups. On the other hand, partial metric invariance was found for the cross-cultural comparisons (Portugal vs. Croatia). In fact, the factor "Express and Label Emotion" did not hold for equal factor loadings across the different cultural samples. This result probably identifies the different interpretation and manifestation of this aspect on both countries, therefore revealing differences in the valence placed on emotional expressiveness and justifying the non-invariance of these factor loadings. In fact, the higher Portuguese mean for this factor may reveal the tendency of this country to more likely express and label emotions, indicating, perhaps, more individualistic features of this country when compared to Croatia (Fernandez et al., 2000; Gross & John, 2003; Matsumoto, 1989).

Moreover, full scalar measurement invariance was verified in the Portuguese gender comparisons, reflecting the similarity of both groups on the construct and items' interpretation as well as the use of the given scale. However, scalar invariance was not achieved in either of the remaining group analyses (Portugal vs. Croatia and Boys vs. Girls groups), where significant differences were found differentiating the way that both groups understand EI as a

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construct. The absence of this particular strong measure of invariance may point towards the presence of some culturally driven response style (Mullen, 1995) and consequently a response scale shift on different cultural groups. In fact, both groups where it was confirmed the non-scalar invariance (Portugal vs. Croatia and Boys vs. Girls groups), compare, within their samples, culturally different individuals and fail to support scalar invariance, whereas the Portuguese gender groups sharing the same cultural background were able to hold for full scalar invariance. In fact, dissimilarities between both cultural settings may be accountable for the particular differences noted at the metric and scalar invariance levels on the present study.

Given the probable influence of culture on the “Express and Label Emotion” dimension highlighted by the results, further cross-cultural comparisons using this dimension should be conducted with caution. Future research involving a particular study and/or rephrasing of some items will likely improve the cross-cultural viability of this ESCQ factor.

Moreover, the development of further studies examining the influence of both gender and different cultural settings on EI’s measurement invariance, particularly involving more countries and languages as also featuring a longitudinal design, should take place in the near future in order to add value to this promising EI’s field.

The current study had particular limitations. In fact, although every effort was made to ensure the comparability of the items, as previously documented, the description and expression of mood, emotions or feelings is likely to vary across cultural groups. Furthermore, because of the nature of cross-cultural studies, the generalization of these results is limited to the analysed contexts. Moreover, the absence of proportionately distributed Croatian gender samples, restrained further invariance analysis for this group, which would have contributed to the discussion of the cultural influence on scalar invariance.

Findings from the present research provided preliminary evidence supporting the utility of the ESCQ in two different cultural contexts and gender groups. Nonetheless, future cross-cultural studies should be able to provide more comprehensive data for the validity of the ESCQ and other EI measures, as well as the scrutiny of the effect of acculturation EI.

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