

EMOTIONAL INTELLIGENCE IN THE PORTUGUESE ACADEMIC CONTEXT: VALIDATION STUDIES OF “THE EMOTIONAL SKILLS AND COMPETENCE QUESTIONNAIRE” (ESCQ)

Luísa Faria¹ and Nelson Lima-Santos²

¹University of Porto; ²Fernando Pessoa University (Portugal)

Abstract

This study presents the validation of the *Emotional Skills and Competence Questionnaire* (ESCQ; Tăksić, 2000, 2001) in the Portuguese academic context, comparing it with the original Croatian version. It consists of 45 items divided into three subscales – Perceiving and understanding emotion, Expressing and labelling emotion, and Managing and regulating emotion. This self-report measure of emotional intelligence, based on Mayer and Salovey’s model, has already been tested in different cultures. It was administered collectively during regular academic hours to a Portuguese sample of 730 students, 381 from high-school and 349 from university. Overall, alpha values were good and similar to those of the original version ($>.80$), except for *managing and regulating emotion* (.67). Confirmatory factor analysis was undertaken to verify the factor structure of the ESCQ and revealed that the best fit model has two correlated factors (.55; perception and expression), including only 11 items from the original scale ($r^2 > .30$). Both sensibility and discriminative power proved to be satisfactory. The ESCQ revealed promising results, but further validation studies with larger samples are needed.

KEY WORDS: *emotional competence, self-report measure, construct validity, confirmatory factor analysis.*

Resumen

Este artículo presenta la validación del “Cuestionario de competencias y habilidades emocionales” (*Emotional Skills and Competence Questionnaire*, ESCQ; Tăksić, 2000, 2001) en el contexto académico portugués y compararlo con la

versión croata original. El ESCQ es una medida emocional de autoinforme, basada en el modelo de Mayer y Salovey, con 45 ítems y tres subescalas: Percibir y comprender la emoción, Expresar y nombrar la emoción, y Manejar y regular la emoción. Fue aplicado colectivamente durante las clases regulares a 730 alumnos de Portugal, 381 de la enseñanza secundaria y 349 universitarios. Globalmente, los valores de alfa fueron buenos y parecidos a los de la versión original ($> 0,80$), excepto en Manejar y regular la emoción (0,67). El análisis factorial confirmatorio mostró que el modelo con mejor ajuste contiene dos factores correlacionados (0,55; percepción y expresión), incluyendo solamente 11 ítems de la escala original ($r^2 > 0,30$). La sensibilidad y el poder discriminativo fueron satisfactorios. Estos resultados son prometedores, pero se necesitan otros estudios de validación con muestras más amplias en el futuro.

PALABRAS CLAVE: *competencia emocional, medida de autoinforme, validez de constructo, análisis factorial confirmatorio.*

Introduction

Emotional intelligence as one of the most novel, popular, and innovative concepts in psychology, combines emotion with intelligence, accepting the fact that "emotion makes thinking more intelligent and that one thinks intelligently about emotions" (Mayer & Salovey, 1997, p. 5).

One of the definitions of emotional intelligence that better captures this close relation between intelligence and emotion is "*the ability to perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth*" (Mayer & Salovey, 1997, p. 5).

The popularity of this construct was not followed by an effort to create and develop measures capable of capturing its multidimensional nature, and researchers are eager to develop an instrument capable of assessing the construct in a multidimensional perspective, capturing all its specificities by gathering together the dimensions of perceiving and recognizing emotions, understanding, analysing and expressing emotions.

Conte (2005) states that emotional intelligence can be assessed through three types of measures or approaches: (i) self-report personality based; (ii) ability-based; or (iii) observer/informant approach.

Through the comparison of self-report with ability measures, Mayer, Caruso and Salovey (1999) consider that self-report emotional intelligence measures appear to assess personality characteristics or even emotional competencies, rather than intelligence, and that ability measures capture better the domains of human performance such as emotional intelligence. Nevertheless, serious concerns remain for all the emotional intelligence measures, both scoring concerns for the ability measures, several of which were developed in an intelligence testing tradition, and discriminant validity concerns for self-report measures (Conte, 2005).

Self-report measures of emotional intelligence capture "people's endorsements of descriptive statements about themselves" and clearly depend on the accuracy

of a person's self-concept (Brackett & Mayer, 2003). Although self-report measures have been criticized as too subjective and less valid because of strong social desirability tendencies, in more recent years there have been strong movements towards shifting from *ability and aptitude testing* to *competence testing* (Pervin, 1990).

The efforts to adapt a self-report measure to the Portuguese cultural context are based on the fact that the new measure here presented revealed face validity, evident from the source of its items, both on existing scales and on people's opinion (experts and students in psychology of emotion), and showed incremental validity in predicting several outcomes, over personality measures. Therefore, the "Emotional Skills and Competence Questionnaire" (ESCQ, Täksić, 2000, 2001; Täksić, Jurin, & Cvenic, 2001), a Croatian self-report instrument, is a measure capable of assessing several facets of emotional competence in Mayer and Salovey's perspective, and its adaptation to the Portuguese context will be presented, with a view to developing a measure capable of assessing this construct in the Portuguese academic context.

Several cross-cultural studies in different countries have evidenced the potentialities of the ESCQ. In the Croatian context, its original context, the ESCQ shares up to 28% of common variance with the scales derived from similar constructs (personality traits, self-concept, social skills, and coping strategies), good reliability values of the scales, and incremental validity in explaining life satisfaction as the crucial criterion for emotional intelligence, skills and competence (Täksić, 2005).

In the Finnish context there is evidence supporting the concurrent validity of the ESCQ, as it was positively associated with self-concept dimensions such as energy, anthropocentricity, talent, dominance and extroversion, and negatively associated with anxiety. Emotional competence seems to be associated, then, with what is called 'positive psychology' (Räty, 2005).

The Swedish version of ESCQ presents negative correlations with stress in adults, and positive correlations with subjective-health measures, showing consistent and expected patterns: in particular, musculoskeletal complaints ($r = -.38$; $p < .01$) and psychosomatic complaints ($r = -.40$; $p < .01$) were negatively related to the "Manage and Regulate Emotion" scale of the ESCQ (Molander, Holmström, & Jansson, 2005).

In the Slovene context, results indicate that up to 38% of variance of the ESCQ could be explained by the Big Five: globally speaking, a high emotional intelligence person is more extroverted and open to experiences, more conscientious and somewhat more emotionally stable and agreeable (Avsec, 2005).

The findings with the Spanish ESCQ present relationships in the expected direction between ESCQ subscales and important life criteria: positive and significant correlations among ESCQ and satisfaction with life, happiness and mental health were confirmed. Regarding predictive validity, the ESCQ showed higher predictive power than TMMS in explaining happiness and satisfaction with life (Extremera & Fernández-Berrocal, 2005).

The Japanese version of the ESCQ has a negative relationship with neuroticism, whereas it has a positive relationship with the subscales in Big Five and Self-Esteem (Toyota, 2005). These results are consistent with previous ones, reporting a positive

relationship of the ESCQ with emotional stability and the other four subscales in the Big Five (Tăksić, 2002).

According to the literature, the ESCQ proved to be a reliable and valid measure in various cultural contexts, evidencing convergent, concurrent, and predictive validity.

Considering this evidence, the main aim of the present work is to present the results of validation studies of the ESCQ in the academic setting and to compare them with those of the original Croatian version, presenting the results of confirmatory factor analysis, undertaken to test its factor structure (Faria & Lima-Santos, 2006, 2009; Faria et al., 2006; Lima-Santos & Faria, 2005). The psychometric qualities of the ESCQ – internal consistency by Cronbach's alpha, construct validity by confirmatory factor analysis, sensibility, and discriminative power – are explored and discussed, and practical guidelines for the future use of the ESCQ are drawn.

Method

Participants

The sample was composed by 730 Portuguese high-school and university students, 61% female (see table 1), 28.6% were aged from 15 to 16, 36.7% were aged 17 or 18, and 34.2% were older than 18 years. The university students were undergraduate in Psychology (29.8%), in Sport and Physical Education (29.2%), in Dental Medicine (26.6%) and in Engineering and Architecture (14.3%).

Instrument

The ESCQ (Tăksić, 2000, 2001; Tăksić, Jurin, & Cvenic, 2001), originally developed in the Croatian cultural context, in academic and labour settings, using

Table 1
Sample distribution by academic level, sex, and school grade

Academic level	Sex		Woman	Man	Total
	Grade				
Secondary	10 th		152	65	217
	12 th		101	63	164
	T		253	128	381
University	1 st		107	139	246
	2 nd		85	18	103
	T		192	157	349
	Total		445	285	730

the theoretical framework of the emotional intelligence model (Mayer & Salovey, 1997), includes a total of 45 items, ranging from "Never" to "Always", and presents three dimensions or subscales: "Ability to perceive and understand emotion", with 15 items, "Ability to express and label emotion", with 14 items, and "Ability to manage and regulate emotion", with 16 items.

The items of ESCQ were generated by a standard procedure: experts and students in psychology of emotion were informed about the concept of emotional intelligence, especially regarding the details of the sixteen categories in Mayer-Salovey's model.

After that, they were asked to write as many items as they could remember during a brainstorming process: close to 300 items were collected, together with others already used in acknowledged scales (Faria et al., 2006).

The collected items were refined by experts and personality psychologists, being placed into the sixteen categories according to the model, if at least two judges placed them in the same category (Faria et al., 2006).

Then, a sample of 381 high-school students was taken. The correlations among each category (subscales) were examined, and common factor analysis was applied. Scree-tests suggested the existence of three significant factors: Perception and understanding of emotion, Expression and labelling of emotion, and Management and regulation of emotion (Tăksić, 1998; Tăksić, Jurin, & Tăksić, 2001). The items in each scale were retained according to high loading with common factor, in respect of positive connotation or orientation (Faria et al., 2006).

Procedure

The ESCQ was collectively administered together with a socio-demographic questionnaire in the Portuguese academic setting, during regular academic hours. All the participants took part voluntarily, with both confidentiality and anonymity being guaranteed.

The English version of the scale (Tăksić, 2001) was translated into Portuguese and back-translated into English, through the collaboration of the Portuguese and Croatian authors (Maneesriwongul & Dixon, 2004).

Results

Reliability and internal consistency

The alpha values for the dimensions of the ESCQ according to school grade evidenced that Ability to perceive and understand emotion (15 items) and Ability to express and label emotion (14 items) had the highest alpha values, while Ability to manage and regulate emotions (16 items) had the lowest alpha value of all, exactly as in Tăksić's (2001) studies (from .71 to .73), probably reflecting the diverse nature of the items that involve both positive and negative emotions in interpersonal

Table 2
Alpha values for the secondary, university and total sample

Subscales	N° items	Secondary (n= 381)		University (n= 349)		Total (N= 730)	
		<i>n</i>	<i>Alpha</i>	<i>n</i>	<i>Alpha</i>	<i>N</i>	<i>Alpha</i>
Perceive and understand emotion	15	377	.84	347	.84	724	.84
Express and label emotion	14	373	.84	343	.83	716	.84
Manage and regulate emotion	16	375	.67	346	.64	721	.67
Global emotional competence scale	45	363	.90	340	.88	703	.89

situations (table 2). Alpha values for the Global Emotional Competence Scale were the highest and were slightly superior to those obtained with the Croatian samples (from .88 to .89).

In conclusion, the alpha values of the subscales suggested consistency of their items, indicating a good internal consistency for the dimensions of Ability to perceive and understand emotion and Ability to express and label emotion, and an acceptable internal consistency for the dimension of Ability to manage and regulate emotions. Alpha values for both secondary and university samples were similar.

Validity and confirmatory factor analysis

Confirmatory factor analysis (CFA) was undertaken using EQS 6.1 to verify the structure of the ESCQ in the Portuguese cultural context. The estimates were measured for the entire sample due to its higher number of participants.

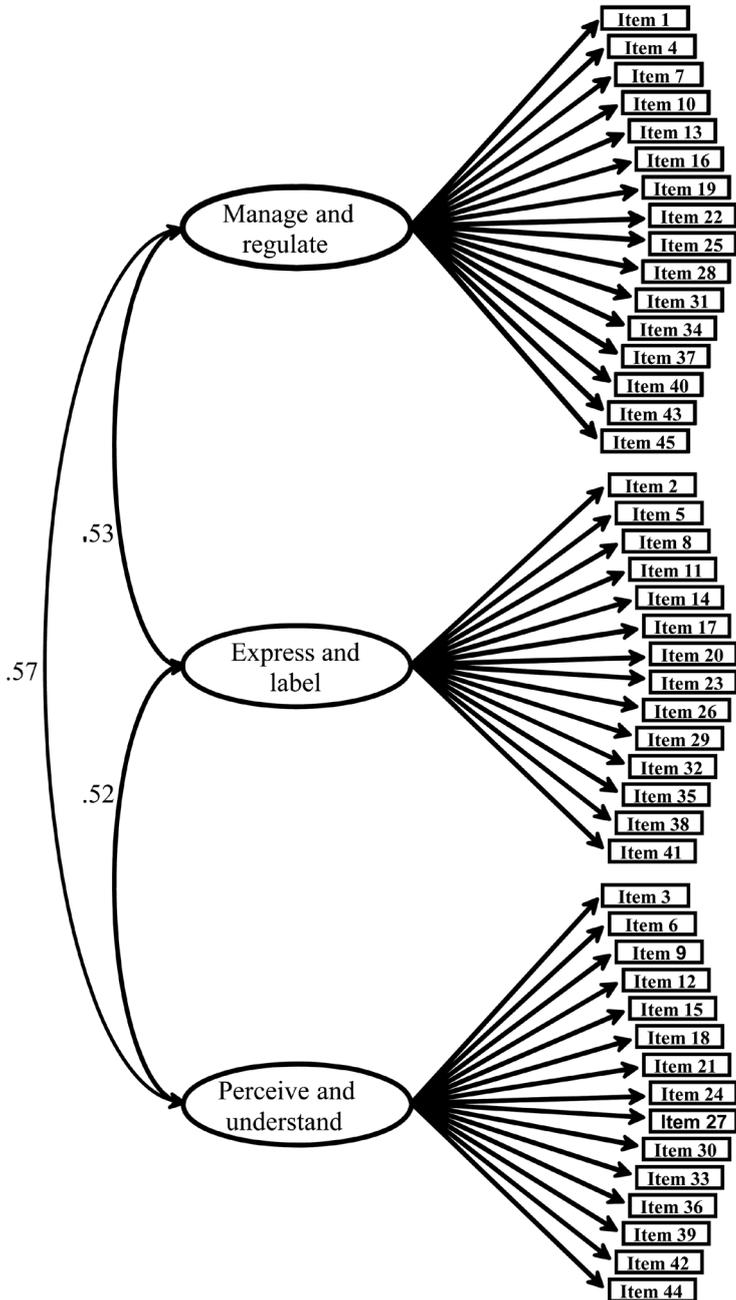
For the evaluation of the fit of the tested models, the following fit indices were considered: χ^2 , CFI (comparative fit index), RMR (root mean-square residual) and RMSEA (root mean-square error of approximation). The χ^2 analyses the discrepancy between the observed and the theoretical model. If a certain model has a statistically significant χ^2 , it means that the observed model differs from the theoretical one. Since the value of χ^2 is affected by the dimension of the sample (Schumacker & Lomax, 1996), we also considered three other indices for a more exhaustive fit analysis. Thus, the CFI was used, which compares the observed model with a null model (a model with no estimates). The CFI ranges from 0 to 1. Values above .90 and .95 indicate an acceptable and a good fit respectively (Byrne, 1994).

Another index was the RMR, which provides a summary of the magnitude of the residuals. The value of the RMR should be inferior to .05 (Byrne, 1994). Finally, the last index – RMSEA – analyses the approximation of the observed model to the population model. Consequently, this index should have a *p* value inferior to .05. Models with RMSEA values superior to .01 should be rejected and those with values between .08 and .05 or inferior to .05 should be kept in the analyses (Byrne, 1994).

The first model – the theoretical model – is presented in figure 1 with three factors, 16 items loading on the “Ability to manage and regulate emotion” factor,

Figure 1

Theoretical model of the “Emotional Skills and Competence Questionnaire” and correlations among factors



14 items loading on the “Ability to express and label emotion” factor, and 15 items loading on the “Ability to perceive and understand emotion” factor.

The hypothesis states that for the entire sample the items of the three subscales would load only on their latent variable, either the ability to manage and regulate emotion, the ability to express and label emotion, or the ability to perceive and understand emotion.

The values of the fit indices are presented in table 3. Given the unsatisfactory fit to the theoretical model, we tested a reconfigured model of the ESCQ, whose structure did not include items with loadings lower than .30, leaving out all the items of the “Ability to manage and regulate emotion” factor and several items

Table 3

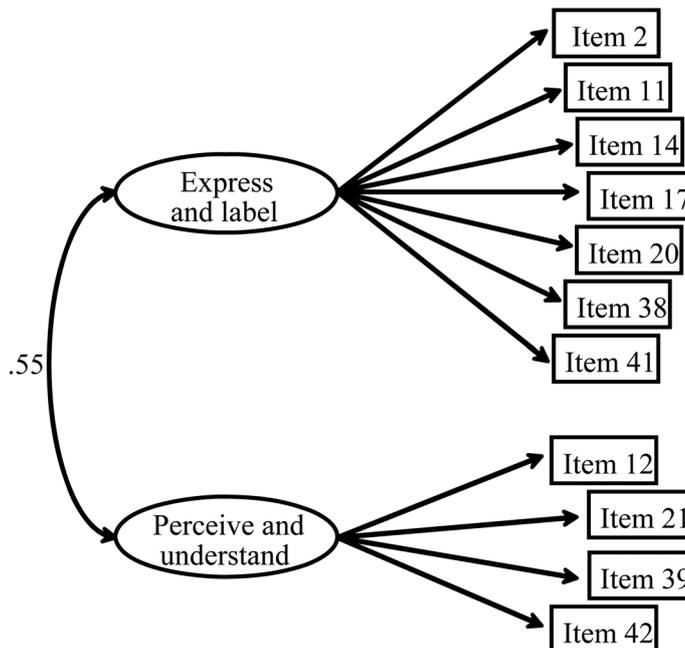
Values of fit indices for the theoretical and the reconfigured models of the ESCQ

Models	χ^2	<i>gl</i>	χ^2/gl	CFI	RMR _{st}	RMSEA
Theoretical	2 869.8*	940	3	.74	.06	.05
Reconfigured	266.8*	42	6	.92	.05	.09

Notes: CFI= Comparative Fit Index; RMR_{st} = Root Mean-Squared Residuals (standardized); RMSEA= Root Mean-Squared Error of Approximation. * χ^2 statistically significant at $p < .001$.

Figure 2

Reconfigured model of the “Emotional Skills and Competence Questionnaire” and correlation between factors



originally belonging to the other two factors, that evidenced high error variances and low loadings on the latent factors.

Consequently, the remaining 11 items represented only two of the three original factors: "Ability to express and label emotion" (F2 with 7 items), and "Ability to perceive and understand emotion" (F3 with 4 items). The 7 items of F2 are related with the expression and the description of emotions (e.g., express emotions with words, express well emotions, express the way I feel, describe my emotional state). The 4 items of F3 are related with the perception of emotions (e.g., to perceive mood changes in my friends, to perceive when someone feels upset).

The configuration of the new model is presented in figure 2. The alpha values for F2 (.86) and F3 (.72) were acceptable.

Sensibility: descriptive statistics and discriminative power

In tables 4 and 5 we can observe that for both subsamples: (i) the values of the mean and of the median are close to each other for all the dimensions of emotional competence; (ii) the minimum and the maximum values are at great distance one from another; and (iii) the coefficients of asymmetry and kurtosis are mostly inferior to 1.

Table 4

Values of central tendency, dispersion and distribution (secondary n= 381)

Subscales	<i>M</i>	<i>Me</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>	<i>Asymmetry</i>	<i>Kurtosis</i>
Perceive and understand	67.2	68.0	8.00	37.0	86.0	-.446	.406
Express and label	63.4	64.0	9.13	28.0	83.0	-.606	.802
Manage and regulate	75.1	75.0	7.45	46.0	93.0	-.349	.486
Global emotional competence	205.6	207.0	20.85	121.0	261.0	-.548	1.079

Table 5

Values of central tendency, dispersion and distribution (university n= 349)

Subscales	<i>M</i>	<i>Me</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>	<i>Asymmetry</i>	<i>Kurtosis</i>
Perceive and understand	65.4	66.0	7.40	39.0	90.0	.024	.728
Express and label	63.0	64.0	7.85	36.0	84.0	-.263	.218
Manage and regulate	72.9	73.0	6.48	56.0	96.0	.153	.312
Global emotional competence	201.4	201.0	17.60	148.0	270.0	.215	.903

For the university subsample the minimum values were always higher in comparison with those of the secondary subsample.

As for the discriminative power of the items: (i) the most chosen answer alternatives were "Frequently" and "Always", evidencing that the participants perceived themselves as competent with regard to perceiving and understanding others' emotions and expressing and managing their own emotions; (ii) the items 1, 13 and 40 (Ability to manage and regulate emotion), 6, 18, 24, 30, 33 and 36 (Ability to perceive and understand emotion), and 11 and 29 (Ability to express and label emotion) concentrated greater percentage of answers in central alternatives ("Occasionally" and "Usually") in both subsamples; (iii) the university subsample, when compared to the secondary one, revealed low percentages of higher answer alternatives ("Frequently" and "Always"), and greater percentages of central answer alternatives ("Occasionally" and "Usually").

Discussion

The "Emotional Skills and Competence Questionnaire", a Croatian self-report instrument (Tăksić, 2000, 2001; Tăksić, Jurin, & Cvenic, 2001), proved to be a measure capable of assessing several facets of emotional competence in Mayer and Salovey's perspective, but further studies are needed in order to clarify its factor structure in the Portuguese context.

Nevertheless, several cross-cultural studies in different countries have evidenced the potentialities of the ESCQ, and despite the concerns about the discriminant validity of self-report measures (Conte, 2005) there is evidence that ESCQ is a reliable and valid measure evidencing convergent, concurrent, predictive, and incremental validity in different cultures (Avsec, 2005; Extremera & Fernández-Berrocá, 2005; Molander, Holmström, & Jansson, 2005; Rätty, 2005; Tăksić, 2005; Toyota, 2005).

Our attempt to adapt a self-report measure to the Portuguese cultural context that proved valid and reliable allowed us to conclude that, overall, the results of the Portuguese validation studies of the ESCQ pointed to good alpha values, similar to those of the original version (>.80), except for the "Ability to manage and regulate emotion" which proved to be less satisfactory (.67), confirming the results obtained in other countries.

Therefore, the evaluation of the dimension of "Ability to manage and regulate emotion" should be reconsidered by using other techniques than self-report measures, and also by reconsidering the items which compose this subscale, in order to find better operationalization of the managing and regulating emotion dimension, which has also proved to be a challenge in several other cultural contexts (Faria et al., 2006).

The confirmatory factor analysis (CFA) evidenced unsatisfactory results (low loadings and high error variances of the items), and needs further replication in the future, especially to explore the dimension of Ability to manage and regulate emotion. As for CFA, although the data yielded indices of improved fit, they were not yet entirely satisfactory.

These results thus suggested that the eliminated items may be actually correlated with other items requiring further investigation in the future. Therefore, the reconfigured model in this study should be tested in further studies with new samples.

The sensibility of the dimensions and the discriminative power of the items proved to be satisfactory. However, research is needed on the potential for faking in self-report measures (Conte, 2005).

Furthermore, it would be interesting to pursue the validation studies of the ESCQ, testing its invariance according to academic level.

Finally, for future improvement of this scale, the challenge involves the capacity to combine homogeneous situations, in order to guarantee the internal consistency and homogeneity of the scales, with the need to diversify the aspects that better represent this scale.

In conclusion, the ESCQ is a multidimensional instrument capable of measuring emotional competence in the Portuguese cultural context, and of allowing the pursuit of cross-cultural comparisons in the near future.

References

- Avsec, A. (2005, July). *Emotional Skills and Competence Questionnaire*: reliability and validity of a Slovene version. Oral presentation at the 9th European Congress of Psychology, Granada, Spain.
- Brackett, M. A., & Mayer, J. D. (2003). Convergent, discriminant, and incremental validity of competing measures of emotional intelligence. *Personality and Social Psychology Bulletin*, 29, 1-12.
- Byrne, B. (1994). *Structural equation modeling with EQS and EQS/Windows – Basic concepts, application and programming*. California: Thousand Oaks.
- Conte, J. M. (2005). A review and critique of emotional intelligence measures. *Journal of Organizational Behavior*, 26, 433-440.
- Extremera, N., & Fernández-Berrocal, P. (2005, July). *Emotional Skills and Competence Questionnaire (ESCQ): adaptation to Spanish, reliability and its relationship with well-being indexes*. Oral presentation at the 9th European Congress of Psychology, Granada, Spain.
- Faria, L., & Lima-Santos, N. (2006). Competência emocional: adaptação e validação intercultural do Emotional Skills and Competence Questionnaire (ESCQ). [Emotional competence: adaptation and validation of the Emotional Skills and Competence Questionnaire (ESCQ)]. In C. Machado, L. Almeida, M. A. Guisande, M. Gonçalves, & V. Ramalho (Eds.), *Actas da XI Conferência Internacional de Avaliação Psicológica: Formas e Contextos* (pp. 349-356). Braga: Psiquilíbrios.
- Faria, L., & Lima-Santos, N. (2009). Validation of the Emotional Skills and Competence Questionnaire (ESCQ) in the Portuguese academic context. *Horizons of Psychology Official Journal of the Slovenian Psychological Association*, 18, 55-71.
- Faria, L., Lima-Santos, N., Täksić, V., Rätty, H., Molander, B., Holmström, S., Jansson, J., Avsec, A., Extremera, N., Fernández-Barrocal, P., & Toyota, H. (2006). Cross-cultural validation of the Emotional Skills and Competence Questionnaire (ESCQ). *Psicologia*, 20, 95-127.

- Lima-Santos, N., & Faria, L. (2005). Inteligência emocional: adaptação do "Emotional Skills and Competence Questionnaire" (ESCQ) ao contexto português. [Emotional intelligence: adaptation of the "Emotional Skills and Competence Questionnaire" (ESCQ) to the Portuguese context]. *Revista da Faculdade de Ciências Humanas e Sociais da UFP*, 2, 275-289.
- Mayer, J. D., Caruso, D. R., & Salovey, P. (1999). Emotional intelligence meets traditional standards for an intelligence. *Intelligence*, 27, 267-298.
- Mayer, J. D., & Salovey, P. (1997). What is emotional intelligence? In P. Salovey, & D. J. Sluyter (Eds.), *Emotional development and emotional intelligence. Educational implications*. New York: BasicBooks.
- Maneesriwongul, W., & Dixon, J. K. (2004). Instrument translation process: a methods review. *Methodological Issues in Nursing Research*, 48, 175-186.
- Molander, B., Holmström, S., & Jansson, J. (2005, July). *ESCQ-45 as related to self-rated job stress and health*. Oral presentation at the 9th European Congress of Psychology, Granada, Spain.
- Pervin, L. A. (1990). *Handbook of personality: theory and research*. New York: Guilford.
- Räty, H. (2005, July). *Perceived emotional competence and self-concept*. Oral presentation at the 9th European Congress of Psychology, Granada, Spain.
- Schumacker, R. E., & Lomax, R. G. (1996). *A beginner's guide to structural equation modeling*. Mahwah, NJ: Lawrence Erlbaum.
- Täksić, V. (1998). *Validacija konstrukta emocionalne inteligencije*. [Validation of the emotional intelligence construct]. Unpublished doctoral dissertation, University of Zagreb, Croatia.
- Täksić, V. (2000, May). *Convergent and divergent validity of the Emotional Skills and Competence Questionnaire*. Paper presented at the XII Days of Psychology, Zadar, Croatia.
- Täksić, V. (2001, July). *Emotional Skills and Competence Questionnaire*. Poster presented at the 7th European Congress of Psychology, London, United Kingdom.
- Täksić, V. (2002, October). *The importance of emotional intelligence (competence) in positive psychology*. Paper presented at the First International Positive Psychology Summit, Washington, DC, USA.
- Täksić, V. (2005, July). *Basic psychometric properties of Emotional Skills and Competence Questionnaire (ESCQ) in Croatian samples*. Oral presentation at the 9th European Congress of Psychology, Granada, Spain.
- Täksić, V., Jurin, Z., & Cvenic, S. (2001). Operacionalizacija i faktorsko-analiticka studija konstrukta emocionalne inteligencije. [Operationalization and factor-analytic study of the emotional intelligence construct]. *Psihologijske Teme*, 8-9, 95-109.
- Toyota, H. (2005, July). *Emotional Skills and Competence Questionnaire: development of a Japanese version*. Oral presentation at the 9th European Congress of Psychology, Granada, Spain.

RECEIVED: May 5, 2011

ACCEPTED: December 2, 2011