

Psychological Topics 20 (2011), 3, 413-424

Original scientific paper – UDC – 159.942.072-057.874(497.5:469)

Vocabulary of Emotions Test (VET): A Cross-cultural Validation in Portuguese and Croatian Contexts

Ana Costa, Luísa Faria

Faculty of Psychology and Education, University of Porto, Portugal

Vladimir Takšić

Department of Psychology, Faculty of Humanities and Social Sciences,
University of Rijeka, Croatia

Abstract

This article discusses the adaptation and cross-cultural validation of the Vocabulary of Emotions Test (VET) in the Portuguese and Croatian contexts, an Emotional Intelligence ability measure with 35 items, which assesses individual's ability to understand emotion. Based on Mayer and Salovey's (1997) theoretical framework of emotional intelligence, VET was originally developed in Croatian academic settings by Takšić, Harambašić and Velemir (2003). This study involved 1119 secondary school students, 682 Portuguese and 437 Croatian, attending different grades and courses. Overall, in both Croatian (original version) and Portuguese (adapted version) contexts, VET evidenced good psychometric properties particularly concerning sensibility, difficulty item analysis and reliability, although slightly better indicators were found in the Croatian original version. Moreover, cultural and gender differences were found, benefiting Portuguese students and girls.

Keywords: emotional intelligence, validation, cross-cultural research, secondary school students, ability-based measure

Introduction

Since Goleman's suggestion that successful life outcomes depend more on emotional than on cognitive intelligence (Goleman, 1995), there has been a considerable growing interest in the concept of Emotional Intelligence (EI). In fact, despite its recent debut, the research in the field of EI has expanded admirably over the last decade.

✉ Luísa Faria, Faculty of Psychology and Education, University of Porto, Rua Alfredo Allen, 4200-135 Porto, Portugal. E-mail: lfaria@fpce.up.pt.

This research was supported by Portuguese National Science Foundation Doctoral Grant (FRH/BD/72596/2010) awarded to Ana Costa and supervised by Luísa Faria.

Although the concept of EI was formally described by Salovey and Mayer (1990), several definitions of EI, more complementary than contradictory (Ciarrochi, Chan, & Caputi, 2000), have emerged since then. The most comprehensive one defines EI as an original performance-based model which 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).

Even though it operates in a unitary form, four different branches can be considered in this model (Mayer, Salovey, & Caruso, 2000). The first branch, *emotional perception and identification*, implicates recognizing and inputting information from the emotional system. The second and third branches of the model, *emotional facilitation of thought* and *emotional understanding*, involve the further processing of emotional information, highlighting problem solving. While the second branch, emotional facilitation of thought, involves the use of emotion to enhance cognitive processes, the third branch, emotional understanding, implies the cognitive processing of emotion. The fourth category of emotional management, involves *self-emotional management and management of emotions in others* (Mohorić, Takšić, & Duran, 2010).

Although the discussion about the variety of EI conceptualizations might have contributed to the lack of agreement about the respective assessment, the measures' methodological problems (self-report vs. ability) have been restraining their scope and heuristic value. Actually, nowadays, the debate takes place around the measures' validity and the use of self-reported instruments instead of classic ability tests (Ciarrochi, Chan, & Bajgar, 2001).

Current literature has been questioning if self-report measures may or may not provide an accurate assessment of the EI construct. In fact, one of the main methodological critics to self-reported measures is the evidence that this type of measures only assesses the individual's beliefs about their own emotional competence (Ciarrochi et al., 2001; Schutte et al., 1998). Also, self-reported measures, similarly to the assessment of other psychological constructs, include the lack of reliability on individual's opinion and understanding, as his/her higher vulnerability to social desirability factors (Roberts, Zeidner, & Matthews, 2001; Schutte et al., 1998).

In response to those limitations, several authors endorse the development of objective indicators of EI, based on the personal ability and performance (Mayer, Caruso, & Salovey, 1999), and argue that the assessment of the individual's perceptions of competence tends to be insufficient and that the classic performance and ability measures should be the core of research of EI.

Actually, EI's performance measures have the advantage of assessing directly an individual's performance level on a task, unlike the self-reported measures (Ciarrochi et al., 2001; Schutte et al., 1998). Also, similarly to measures of general

intelligence, performance-based tests of EI present problems which have a correct answer (Mayer, 2001; Mayer, Salovey, & Caruso, 2004), and objective and pre-determined scoring data (Ciarrochi et al., 2001). However, differentiation of correct answers for stimuli with emotional contents seems to be a problem of the ability based EI, and, thus, it becomes difficult to apply the exact criteria to the scoring of tasks (Roberts et al., 2001). Also, issues related with psychometric qualities seem to limit the research with ability-based measures (Matthews, Roberts, & Zeidner, 2004). In addition, these instruments have higher associated costs and resources, which could restrain their application in several contexts (Goldenberg, Matheson, & Mantler, 2006).

Despite the general discussion concerning the utility of self-report measures versus ability-based measures of EI, little empirical work has been conducted in this regard. In fact, literature reveals an absent, or at best, a weak correlation between the two types of EI measures (e.g., Barchard & Hakstian, 2004; Brackett & Mayer, 2003; Ciarrochi, Deane, & Anderson, 2002). Nonetheless, these findings are consistent with the results of the assessment in general intelligence (Paulhus, Lysy, & Yik, 1998).

Therefore, the researchers' current concern is to search for valid and useful EI measures (Ciarrochi et al., 2002; Mayer et al., 1999; Salovey & Mayer, 1990), particularly addressing performance or ability-based measures.

This study, sharing the current perspective, intends to promote the clarification of EI assessment by presenting a study of the validity of an ability measure of EI.

This measure is based on the stricter and more operational EI's conceptualization of Mayer and Salovey (1997), which considers EI as a competence or ability. In this case, EI is understood as a set of abilities restricted to the constructs in the domains of intelligence (Mayer, Roberts, & Barsade, 2008). Therefore, EI should have similar characteristics to other types of intelligence, being related to other abilities and being developed with age and experience (Mayer et al., 2004; Neisser et al., 1996). For these reasons, EI is expected to be correlated moderately with other intelligences, such as verbal intelligence (Mayer & Salovey, 1997). In fact, literature has been confirming the hypotheses of association between EI and verbal intelligence or SAT verbal scores (Mayer et al., 1999; Van Rooy, Viswesvaran, & Pluta, 2005).

Frequently, ability-based measures developed verbal stimulus or tasks in order to assess different emotional intelligence abilities or skills (e.g. stories, progressions, relativity MSCEIT's subtests, Mayer & Salovey, 1997). This is the particular case of The Vocabulary of Emotions Test (VET) (Takšić et al., 2003), which assesses the competence to recognize the meaning of emotionally saturated words, through the presentation of verbal stimulus.

Some of the shortcomings of the present EI abilities tests were avoided by the authors in the constructing of VET. First of all, the too complex content of items (vignettes) with low reliabilities as a consequence, especially in different cultural

settings. Second, EI tests content was often mentioned as being quite different from the content of well established cognitive tests. Following these, VET was constructed having the same form as ordinary classical vocabulary test (e.g. from California Tests of Mental Maturity battery), which is a well established and confirmed measure of crystallized intelligence, but with emotions as a target word. Third and maybe the most important reason for constructing VET was the availability of correct answer (according to the dictionary) which is one of the biggest and still unsolved problems in MSCEIT and other EI tests.

The creation procedure started by the authors with searching for the words from Croatian Dictionary (Anić, 1994) that have to meet two criteria in their meaning usually used in searching for the exact word of emotions: "HOW" do I feel and "WHAT" do I feel. Doing this, 221 words that have matched both criteria were chosen and given to the experts (three university professors from different departments of psychology in Croatia). Those experts, who deal with emotions in their work in different ways, were supposed to choose which words are emotionally saturated according to the above criteria. The words chosen for the preliminary version of the Test should be confirmed by at least two experts, and after this selection procedure 210 words remained. The next step was to extract the exact meaning of every chosen word from Croatian dictionary (Anić, 1994). After that, other five alternatives for multiple choices were chosen for each target word (emotion) by two independent experts according to the following rules: at least two alternatives must be as close as possible in meaning with the correct answer, two others must have the same emotional tone (pleasant or unpleasant), and one is opposite or worded "not listed", when some of the items have no correct answer.

After that, test items were formed for each of the 210 words, which consisted of "target words" (emotionally saturated words) together with six alternatives, among which, one was correct according to the dictionary.

Empirical evaluation on the sample of secondary school students resulted in the exclusion of the items whose correlation with total score was lower than .30 (Nunnally & Bernstein, 1994). A hundred and two items remained in a longer version of VET with Cronbach's alpha reliability between .87 and .93 in different samples. An additional selection searched for items with item difficulty between .30 and .70, which led to a shorter version of VET with 35 items, used in this study. General psychometric properties are described in Instrument's section.

Therefore, this study aims to contribute to the clarification of the validity of the EI measures, particularly through the adaptation and validation to the Portuguese context of one ability-measure of EI, the Vocabulary of Emotions Test (VET), and the comparison study with the results of the Croatian original version of the instrument.

Method

Participants

This study involved 682 Portuguese secondary school students (53.2% boys), with ages ranging from 14 to 21 years ($M=15.50$; $SD=.77$), attending the 10th grade of several courses, and 437 Croatian secondary school students (81.5% girls), with ages ranging from 14 to 19 years ($M=15.57$; $SD=1.12$), enrolled in the 1st (22.7%), 2nd (24.7%), 3rd (25.2%) and 4th grades (27.5%), also from several courses.

Instrument

The Vocabulary of Emotions Test (VET) was originally developed in Croatia by Takšić et al. (2003), in the academic context with secondary school students, and it is based on Mayer and Salovey's (1997) model, regarding the ability to Understand Emotion (third branch of the model). VET has the same format of any other classic vocabulary test and it comprises 35 items, which correspond to emotionally saturated target-words. The subject has to choose one adjective (from 6 available) which is the correct answer to the target word (emotion). This test has a correct answer, based on a solution from a Croatian dictionary (Anić, 1994). There was no correction for guessing.

The original version of VET evidenced good psychometric properties: moderate correlations with other Intelligence tests (California Tests of Mental Maturity – Vocabulary Test: $r=.67$, $p<.001$, and Logical Thinking: $r=.33$, $p<.001$), and Emotional Intelligence tests (Analysis of Emotions Test: $r=.46$, $p<.001$), and explains 44% of specific variance over and above classic intelligence tests. Moreover, results have shown that VET has proper reliabilities in various samples (range of $\alpha=.88$ - $.92$; Takšić & Mohorić, 2008).

Procedure

The VET was adapted with the purpose of being used in the Portuguese academic context. The English version of the instrument was translated to Portuguese and then was subjected to a retroversion process to English by an English proficient expert, in order to confirm the reliability of the translations. Once there was no significant divergence between the new English version and the original one, the Portuguese version of the instrument was accepted.

Before data collection, VET's Portuguese version was subjected to individual sessions of aloud reflection with 7 secondary school students with similar characteristics to the final sample of the study. The results collected within these sessions led to small changes, particularly referring to the higher adequacy and

simplicity of the items, according to the specific characteristics of the sample in study, secondary school students.

VET and a Socio-Demographic Questionnaire were answered individually by each participant, in collective administrations, either for Portuguese or Croatian samples. Testing was conducted in classrooms during school time, and with the presence of the researcher and a teacher. The objectives of the study as well as the confidence and anonymity guaranties were explained to the participants. On average, the filling time of the VET was 15 minutes for both samples, with no time limit.

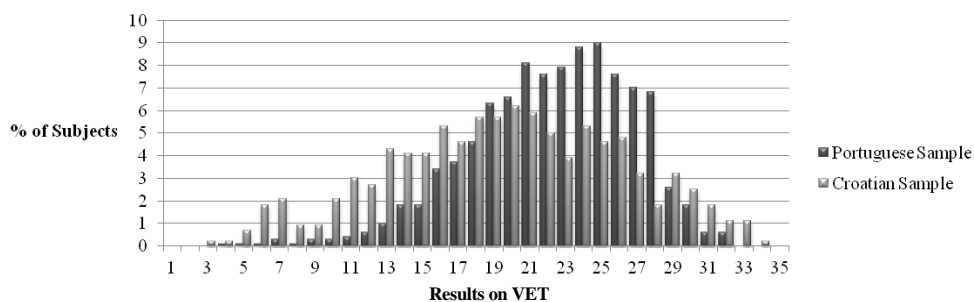
Results

Vocabulary of Emotions Test Psychometric Properties

Sensibility Analysis

Concerning the total scores on VET, the Portuguese sample had results between 3 and 30 points, while the Croatian's total results ranged from 3 to 34, from the 0 to 35 possible points which correspond, respectively, to the absence or the totality of correct answers on VET (Figure 1).

Figure 1. *Distribution of VET results in the Portuguese and Croatian samples*



The sensibility indicators of VET presented satisfactory results for both samples, particularly, referring to the central tendency, distribution and dispersion indicators: (1) the mean and median values were close to each other; (2) none of the absolute skewness and kurtosis' coefficients were superior to 1; and (3) the minimum and the maximum values were sufficiently distant from each other to assure the dispersion of the results on VET (Table 1).

Table 1. *VET's psychometric properties as a function of country comparison*

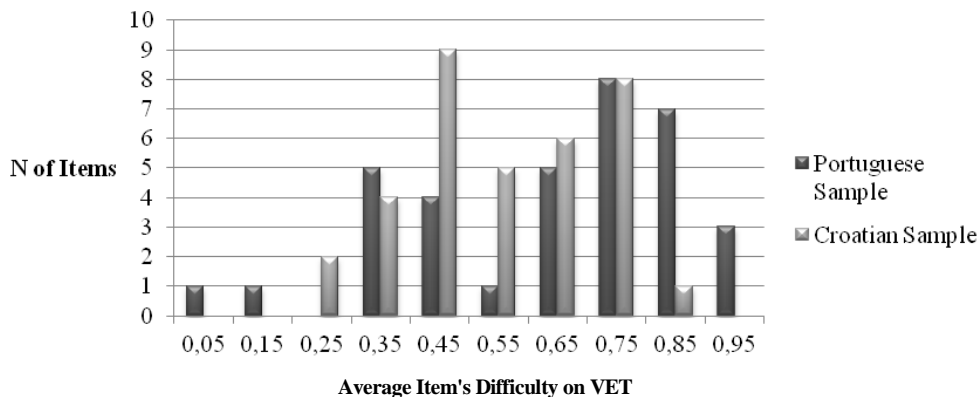
VET'S Psychometric Properties		Portuguese Sample (N=682)	Croatian Sample (N=437)
Measures of central tendency, distribution and dispersion	<i>M</i>	22.38	19.52
	Median	23.00	20.00
	<i>SD</i>	4.57	6.57
	Skewness	-0.66	-0.11
	Kurtosis	0.65	-0.54
	Min	4	3
	Max	32	34
Average Item's Difficulty		<i>M</i> =0.65 <i>SD</i> =0.41	<i>M</i> =0.56 <i>SD</i> =0.47
Reliability (Cronbach's alpha)		.71	.84
Average Inter-item Correlation		.07	.13

Item Difficulty Analysis

Particularly in what concerns VET's item difficulty, both samples revealed satisfactory results, even though the Croatian version presented better discriminative values ($M=0.56$; $SD=0.47$) than the Portuguese (Table 1).

The Figure 2 reveals that, although the distribution of VET's items through the item difficulty's values occurred for both samples, the Portuguese version has shown a greater dispersion of item's difficulty and reached more extreme values than the Croatian one.

Figure 2. Distribution of Average Item's Difficulty on VET for the Portuguese and Croatian Samples



Reliability

The results of VET's reliability presented an adequate internal consistency in both the original (Croatian) and the Portuguese adapted version of the instrument (Table 1). In fact the Croatian version obtained a superior alpha coefficient (.84) when compared with the Portuguese adapted version ($\alpha=.71$), although the difference was non significant ($F=0.55$, $df=680/435$, $p>.05$). Also, the average inter-item correlation has revealed a higher value for the Croatian version of the instrument (.13).

Validity: Differential Analysis

Student's cultural and gender differences were tested for VET total results. Significant differences in mean scores of cultural context, gender and in the interaction of cultural context and gender were observed (Table 2).

In fact, the results revealed that the Portuguese students scored higher on VET than the Croatian ones (Table 2). Also, significant gender effects were found in the total sample, benefiting the girls.

In order to examine the particular student's cultural context and gender differences, Games-Howell Post-Hoc analyses for non-homogeneity variance samples were calculated. Although significant differences were evidenced on VET's results between Croatian boys and girls, no similar differences were found in the Portuguese sample. Moreover, both Portuguese girls and boys scored higher than Croatian girls and boys.

Table 2. Comparison of means and standard-deviations for VET, considering the significant effects of gender and cultural context

					<i>F(1,1114)</i>		
Gender	Cultural Context	<i>N</i>	<i>M</i>	<i>SD</i>	Gender	Cultural Context	Gender x Cultural Context
Girls	1. Portugal	457	22.69	4.35			
	2. Croatia	355	20.16 _{1,3,4}	6.41			
	Total	812	21.58	5.49			
Boys	3. Portugal	224	21.74	4.94			
	4. Croatia	81	16.58 _{1,2,3}	6.44	32.82**	94.49**	10.99**
	Total	305	20.37	5.83			
Total	Portugal	681	22.38	4.57			
	Croatia	436	19.49	6.56			
	Total	1117	21.25	5.61			

**p<.01.

Discussion

The results of the present study suggested that VET's Portuguese adapted version revealed to be consistent with the Croatian original version. Although both the adapted and the original versions have demonstrated good psychometric properties, particularly in what concerns the sensibility, the item analysis, the reliability of the instrument, and the differential validity, in general the VET's Croatian version has exhibited slightly better results.

The good sensibility of VET was able to be confirmed in both versions of the instrument. Featuring adequate normal distributions, all of the sensibility parameters were fulfilled for the original and adapted versions of the instrument. In particular, the Portuguese distribution on VET's results had a higher negative skewness value which means that more students had higher total scores which could suggest that this is an easier version of VET.

Concerning the item analysis, particularly VET's item difficulty, the results have shown satisfactory average values for both versions, close to the .50 recommended (Anastasi & Urbina, 2000). However, despite the good average on VET's item difficulty for both samples, some items were considered as having extreme positions in the scale, which could mean that they are presenting themselves as being too easy or too difficult to the secondary school students studied. This particular case was more explicit in the Portuguese version of the instrument. Probably, this fact could be due to the items' adaptation procedure. Therefore, the analysis and possible refinement of the items which presented this type of functioning is recommended.

Moreover, the reliability's results revealed that both versions of VET presented satisfactory internal consistency. In fact, the alpha coefficients reached the .84 value on the Croatian version and a lower value (.71) on the Portuguese version.

The differences observed in psychometric properties, particularly in what concerns VET's item analysis and reliability could be due to a different proportion of the gender in the Croatian sample (the majority of the sample are girls). In particular, the fact that girls are better both in EI (Mayer et al., 1999; Mayer & Geher, 1996) and linguistic skills (Geary, 1998; Maccoby & Jacklin, 1974; Neisser et al., 1996) could lead to better results in the processing of the emotionally saturated words in the Croatian sample, producing a more homogenous repertoire of answers, which contributed to better values of this version of the instrument.

Both cultural and gender differences were found in VET's results. The Portuguese students revealed higher values of emotional intelligence than Croatian students. Although the significant difference between the two cultural contexts, these results could also stress the fact that the Portuguese version could be considered easier than the Croatian one.

Also, although no differences between genders were observed in the Portuguese context, in general, girls revealed more emotional intelligence than boys. The results suggested that females might be better at understanding emotions as compared to males. Other researchers (Mayer et al., 1999; Mayer & Geher, 1996) have found similar results with females scoring higher on measures of emotional intelligence, supporting the validity of VET. Moreover, Portuguese boys and girls revealed themselves as having more emotional intelligence than both Croatian girls and boys.

This article presents a first step within a major goal developing alternative and valid measures of EI. However, this study is not free of limitations. In particular, regarding the use of verbal ability-based measures it would be important to explore if VET's results are due to cognitive processing of emotional information rather than individuals verbal skills. Moreover, genders should have been equally distributed in order to clarify group comparisons. Overall, the results shown in both Croatian original and Portuguese adapted versions of VET had good psychometric properties, particularly concerning the instrument's sensibility, item analysis and reliability.

Throughout the above, it is possible to state that the *Vocabulary of Emotions Test* has revealed congruent properties through the different socio-cultural contexts. Therefore, the psychometrics properties evidenced within this study justify the potentiality of using VET on the academic context in the future. Nonetheless, the need for conducting further investigations is not excluded, particularly the replication of studies and the exploration of differential items functioning analysis through different contexts, in order to contribute to VET's validation as an Emotional intelligence ability-based instrument.

References

- Anić, V. (1994). *Croatian Dictionary* [Rječnik hrvatskoga književnog jezika, 3]. Zagreb: Noviliber.
- Anastasi, A., & Urbina, S. (2000). *Testagem psicológica*. Porto Alegre: Artmed Editora.
- Barchard, K.A., & Hakstian, A.R. (2004). The nature and measurement of emotional intelligence abilities: Basic dimensions and their relationships with other cognitive ability and personality variables. *Educational and Psychological Measurement*, 64, 437-462. doi: 10.1177/0013164403261762
- Brackett, M.A., & Mayer, J.D. (2003). Convergent, discriminant and incremental validity of competing measures of emotional intelligence. *Personality and Social Psychology Bulletin*, 29, 1147-1158. doi: 10.1177/0146167203254596
- Ciarrochi, J., Chan, A.Y.C., & Bajgar, J. (2001). Measuring emotional intelligence in adolescents. *Personality and Individual Differences*, 31, 1105-1119. doi: [http://dx.doi.org/10.1016/S0191-8869\(00\)00207-5](http://dx.doi.org/10.1016/S0191-8869(00)00207-5)
- Ciarrochi, J., Chan, A.Y.C., & Caputi, P. (2000). A critical evaluation of the emotional intelligence construct. *Personality and Individual Differences*, 28, 539-561. doi: 10.1016/S0191-8869(99)00119-1
- Ciarrochi, J., Deane, F.P., & Anderson, S. (2002). Emotional intelligence moderates the relation between stress and mental health. *Personality and Individual Differences*, 32, 197-209.
- Geary, D.C. (1998). *Male, female. The evolution of human sex differences*. Washington, D.C.: American Psychological Association.
- Goleman, D. (1995). *Inteligência emocional* [Emotional Intelligence]. Lisboa: Temas e Debates.
- Goldenberg, I., Matheson, K., & Mantler, J. (2006). The assessment of emotional intelligence: A comparison of performance-based and self-report methodologies. *Journal of Personality Assessment*, 86, 33-45. doi: 10.1207/s15327752jpa8601_05
- Maccoby, E.E., & Jacklin, C.N. (1974). *The psychology of sex differences*. Stanford, C.A.: Stanford University Press.
- Matthews, G., Roberts, R.D., & Zeidner, M. (2004). Seven myths about emotional intelligence. *Psychological Inquiry*, 15, 179-196.
- Mayer, J.D. (2001). A field guide to emotional intelligence. In J. Ciarrochi, J.P. Forgas, & J.D. Mayer (Eds.), *Emotional intelligence in everyday life* (pp. 3-24). Philadelphia: Taylor & Francis.
- Mayer, J.D., Caruso, D., & Salovey, P. (1999). Emotional intelligence meets traditional standards for an intelligence. *Intelligence*, 27, 267-298. doi: 10.1016/S0160-2896(99)00016-1
- Mayer, J.D., & Geher, G. (1996). Emotional intelligence and the identification of emotion. *Intelligence*, 22, 89-113.

- Mayer, J.D., Roberts, R.D., & Barsade, S.G. (2008). Human abilities: Emotional intelligence. *Annual Review of Psychology*, *59*, 507-536.
- 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, NY: Basic Books.
- Mayer, J.D., Salovey, P., & Caruso, D. (2000). Emotional intelligence as *Zeitgeist*, as personality, and as a mental ability. In R. Bar-On & J.D.A. Parker (Eds.), *Handbook of emotional intelligence: Theory, development, assessment, and application at home, school, and in the workplace* (pp. 92-117). San Francisco: Jossey-Bass.
- Mayer, J.D., Salovey, P., & Caruso, D. (2004). Emotional intelligence: Theory, findings and implications. *Psychological Inquiry*, *15*, 197-215. doi: 10.1207/s15327965pli1503_02
- Mohorić, T., Takšić, V., & Duran, M. (2010). In search of "the correct answer" in an ability-based emotional intelligence (EI) test. *Studia Psychologica*, *52*, 219-228.
- Neisser, U., Boodoo, G., Bouchard, T.J., Jr., Boykin, A.W., Brody, N., Ceci, S.J., ... Urbina, S. (1996). Intelligence: Knowns and unknowns. *American Psychologist*, *51*, 77-101. doi: 10.1037/0003-066X.51.2.77
- Nunnally, J.C., & Bernstein, I.H. (1994). *Psychometric theory (3rd edition)*. New York: McGraw-Hill, Inc.
- Paulhus, D.L., Lysy, D.C., & Yik, M.S.M. (1998). Self-report measures of intelligence: Are they useful as proxy IQ tests? *Journal of Personality*, *66*, 525-554. doi: 10.1111/1467-6494.00023
- Roberts, R.D., Zeidner, M., & Matthews, G. (2001). Does emotional intelligence meet traditional standards for an intelligence? Some new data and conclusions. *Emotion*, *1*, 196-231. doi: 10.1037//1528-3542.1.3.196
- Salovey, P., & Mayer, J.D. (1990). Emotional intelligence. *Imagination, Cognition and Personality*, *9*, 185-211.
- Schutte, N.S., Malouff, J.M., Hall, L.E., Haggerty, D.J., Cooper, J.T., Golden, C.J., & Dornheim, L. (1998). Development and validation of a measure of emotional intelligence. *Personality and Individual Differences*, *25*, 167-177. doi: 10.1016/S0191-8869(98)00001-4
- Takšić, V., Harambašić, D., & Velemir, B. (2003). *Vocabulary of Emotions Test*. Rijeka: Authors' edition.
- Takšić, V. & Mohorić, T. (2008, July). *Vocabulary of Emotions Test (VET): Ability measure of emotional intelligence*. Paper presented on XXIX International Congress of Psychology, Berlin, Germany.
- Van Rooy, D.L., Viswesvaran, C., & Pluta, P. (2005). An evaluation of construct validity: What is this thing called emotional intelligence? *Human Performance*, *18*, 445-462.

Received: November 25, 2011