

## **Emotional skills and competence questionnaire (ESCQ) as a self-report measure of emotional intelligence<sup>#</sup>**

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**Abstract:** Studies of emotional intelligence (EI) initially appeared in academic journals in the early 1990s. The majority of studies on emotional intelligence have relied on self-ratings. In spite of the critics of self-report scales, there are a large number of self-report measures of EI present in recent literature. The main aim of this paper is to present the constructing procedure, together with the basic psychometric properties of Emotional Skills and Competence Questionnaire (ESCQ) as a self-report measure of EI. Originally, this measure was developed in Croatian settings, using the theoretical framework from the Mayer-Salovey emotional intelligence model. The ESCQ instrument has been translated into several languages. The results have showed that ESCQ has three subscales with decent reliability. They share some amount of common variance with similar well-established constructs such as alexithymia, social skills, and personality traits, but they are not correlated with cognitive abilities. However, due to its sufficient reliability, a great deal of unique variance remains. This unique variance of the ESCQ scales has an incremental contribution in explaining life satisfaction and empathy (as the crucial criteria for EI), and has significant relations with relevant real-life criteria such as quality of leadership, health risk behaviors, and school achievement.

**Key words:** emotional intelligence, self-report measures. Emotional Skills and Competence Questionnaire (ESCQ), psychometric properties, life satisfaction and empathy

## **Vprašalnik emocionalne inteligentnosti ESCQ kot samooценjevalna mera emocionalne inteligentnosti**

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**Povzetek:** Raziskave emocionalne inteligentnosti (EI) so se v znanstvenih revijah začele pojavljati v zgodnjih devedesetih letih. Večina teh raziskav je za merjenje uporabljala samoocenjevalne vprašalnike. Kljub kritikam samoocenjevalnega pristopa obstaja danes cela vrsta samoocenjevalnih vprašalnikov za merjenje EI. V prispevku predstavljamo vprašalnik Emotional Skills and Competence Questionnaire (ESCQ), njegov nastanek in merske karakteristike. Vprašalnik je bil oblikovan na Hrvaškem, izhajal pa je iz teoretične osnove Mayer-Salovey modela emocionalne inteligentnosti kot sposobnosti.

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Preveden je v več jezikov. Rezultati raziskav kažejo, da ima ESCQ tri podlestvice, ki so notranje konsistentne. Vprašalnik ESCQ ima določen del skupne variance s podobnimi konstrukti kot je aleksitimija, socialne spretnosti, osebnostne lastnosti, vendar pa ni povezan s kognitivnimi sposobnostmi. Vendar velik delež variance zaradi njegove zadostne zanesljivosti ostaja specifičen. Ta specifičen del variance kaže na dodaten doprinos k razlagi zadovoljstva z življenjem in empatije (kot kritičen kriterij emocionalne inteligentnosti) in ima pomembne relacije tudi z relevantnimi življenjskimi kriteriji, kot je npr. kvaliteta vodenja, tveganege vedenja za zdravje, učni uspeh...

**Ključne besede:** čustvena inteligentnost, samoocenjevanje, Vprašalnik emocionalne inteligentnosti ESCQ, psihometrične značilnosti, zadovoljstvo z življenjem, empatija

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American Dialect Society selected emotional intelligence as the “most useful” new word of 1995. It refers to an ability to recognize the meaning of emotional patterns and to solve the problems that appear in emotional context.

Studies of emotional intelligence (EI) initially appeared in academic articles in the early 1990s (Mayer & Gaschke, 1988). There are several definitions of EI. The most comprehensive definition describes EI as a four-level set of abilities, as follows: *a) the ability to perceive accurately, appraise, and express emotion; b) the ability to access and/or generate feelings when they facilitate thought; c) the ability to understand emotions and emotional knowledge; and d) the ability to regulate emotions to promote emotional and intellectual growth* (Mayer & Salovey, 1997).

Currently several comprehensive models of emotional intelligence provide alternative theoretical frameworks for operationalization of the construct. These models do not contradict one another, but they do take somewhat different perspectives on the nature of emotional intelligence. According to these conceptualizations EI can be assessed via three types of measurement, as: *a) a self-report measure*, *b) an observer/informant measure*, and *c) an ability conception*. Ability measures have the advantage of representing an individual’s performance level on a task, while self-report measures are filtered through a person’s self-concept and impression management motives (Mayer, Salovey, & Caruso, 2000).

A debate has emerged in the EI literature regarding whether or not self-report measures provide an accurate assessment of one’s standing on this construct. Petrides and Furnham (2000, 2001) have proposed a new conceptualization of EI that is directly relevant to this discussion. They make a distinction between *trait emotional intelligence* and *ability emotional intelligence*, claiming that these two expressions are two separate constructs rather than two different ways of measuring the same construct. Trait EI encompasses behavioral dispositions and self-perceived abilities, and is measured through self-report. An ability measure of EI concerns actual capabilities and is supposed to assess one’s own maximum performance (Petrides & Furnham, 2001). In recent years, there has been a strong movement for shifting

from ability and aptitude testing to *competence* testing. Pervin (1990) encouraged researchers to “call attention to the person’s *cognitive activities* – the operations and transformations that people perform on information, in contrast to some store of cognitions and responses that a person *has*” (p. 117).

Different studies have revealed a clear relationship between trait emotional intelligence and personality. Thus, emotional intelligence seems to be related to Neuroticism, Extraversion and Agreeableness (Davies, Stankov, & Roberts, 1998), and there is some evidence that the construct is also related to Openness to Experience (Schutte et al., 1998). According to this research, emotional intelligence should be associated with high scores for extraversion, openness, agreeableness and conscientiousness.

The majority of studies on emotional intelligence have relied on self-ratings. Although self-report assessment of emotional intelligence has been criticized (Mayer, Caruso & Salovey, 1999; Petrides & Furnham, 2000), the target person has the greatest access to information that is relevant for judging her/his own competences. The problem with the EI self-report scales is that they can be fairly similar to personality scales. But the relevant difference between indicators of intelligence and personality is that the former refer to “maximum-performance”, whereas the latter refer to “typical performance” (Barchard & Hakstian, 2004). Although self-report measures have been criticized as too subjective and less valid, it has been shown that these measures of EI are valid and have satisfactory psychometric properties (e.g., O’Connor & Little, 2003). In addition, Bandura (1977) has claimed that people commonly behave according to their thoughts and feelings. In spite of the critics of self-report scales, there are a large number of self-report measures of EI present, and current literature (Schulze & Roberts, 2005) cites 15 different EI scales.

Relevance of trait EI is recognized in many different areas, such as in the workplace, in clinical and educational psychology, for learning and achievement, as well as in inter- and intra-personal skills and competences.

EI is viewed as a predictor of success in the workplace through its significant association with transformational leadership, through its ability to foster workgroup cohesiveness and strengthen commitment to the organization, and through its ability to permit self-esteem (Abraham, 2005). Numerous perspectives on the role of leaders’ emotional intelligence in improving performance and positively influencing the employees in their organizations are found in literature reviews. Some of these perspectives look at the traits of the leader, some at the characteristics of the situational context, and others on the “process” between leaders and employees. However, all of them have the basic goal to understand how, why, and when leaders will have a positive influence on employees and productivity. Emotional intelligence is of “special relevance to leadership and revolves around the fact that leadership is an emotion-laden process, both from leader and a follower perspective” (George, 2000, p. 1047).

As Goleman (1997) claimed, executives’ EI is the most important variable that

differentiates average from excellent leaders. Each of the characteristics that differentiate the stars from non-stars represents an emotional intelligence competency (Bailey, 2000). A leader with higher EI will be better able to engender a higher level of positive emotion within an organization. The negative extreme is the ranting and raving boss, with no concern for employees' feelings.

Several constructs related to EI, such as alexithymia, are important in clinical research (Parker, Taylor, & Bagby, 2003). When it comes to EI and social skills, emotionally intelligent individuals are assumed socially effective, since emotion-based abilities provide a framework for the assessment of interpersonal skills.

Higher emotional intelligence serves as a protective factor for smoking risk factors in adolescents (Trinidad, Unger, Chou, & Johnson, 2004), and risk behavior defined as use of alcohol, tobacco and marijuana (Brackett, Mayer, & Werner, 2004). Adolescents with higher emotional intelligence are also more likely to report positive relations with others, as well as perceived parental support, and are less likely to report negative interactions with close friends (Lopes, Salovey, & Straus, 2003). High EI people also are high in empathy (e.g., because they perceive others' emotions more clearly), life satisfaction, warmth of upbringing (Mayer et al., 1999), openness to feelings, and quality of relationships. They are higher in self-esteem and lower in neuroticism (e.g., because people high in neuroticism and/or low self-esteem do not manage their emotions as well as others) (Smith & Petty, 1995).

The aim of this paper is to present the *Emotional Skills and Competence Questionnaire* (ESCQ) as a self-report measure of emotional intelligence. The construction procedure is described, together with the basic psychometric properties. The relations with well-established constructs and criteria are presented and commented on.

## **Emotional skills and competence questionnaire (ESCQ)**

Because self-reported measures do not reflect actual performance, "it might be better to say that these measures assess emotional "competence" rather than intelligence" (Ciarrochi, Chan, Caputi & Roberts, 2001, p. 44). To avoid misunderstandings and criticism regarding to self-rating scales and their ability to assess intelligence, the scale was therefore named the *Emotional Skills and Competence Questionnaire* (ESCQ).

Originally, ESCQ was developed in Croatian settings using the theoretical framework from the emotional intelligence model (Mayer & Salovey, 1997). ESCQ has been translated into English by means of back-translation technique (Van de Vijver and Hambleton, 1996). By the same technique translations have been carried out into several languages from the English version as follows: Portuguese (Faria & Lima Santos, 2005), Spanish (Extremera & Fernández-Berrocal, 2005; Mikulić, 2008), Swedish (Molander, Holmström, & Jansson, 2005), Finnish (Räty, 2005), Japanese (Toyota, 2005; Toyota, Morita & Takšić, 2007), French (Lapierre 2008),

Italian (Maurizio Bertollo, personal communication), Chinese-Mandarin (Xu, 2008) and Hindu (Tabassum Rashid, see in this issue). Translation into Slovene language (Avsec, 2005) was performed directly from Croatian.

### Construction procedure of the scales

The items of ESCQ have been generated by a standard procedure: experts in psychology of emotion, as well as students, have been informed about the concept of emotional intelligence, especially regarding the detailed descriptions of the 16 categories in Mayer-Salovey's model (Mayer & Salovey, 1997). After that, they were asked to write as many items as they could think of during a brainstorming process. Close to 300 items were collected, together with items that were already used in acknowledged scales (Averill & Thomas-Knowles, 1991; Mayer, Caruso, Ziegler & Dryden, 1989; Mayer & Stevens, 1994; Salovey, Mayer, Goldman, Turvey & Palfai, 1995).

The next step was to refine the collected items, by asking experts and personality psychologists to sort the items into the 16 categories in accordance with the model. Items were kept in the scale if at least two-thirds of judges placed them in the same category. The final step had the main purpose to find out the best possible combination of items, maintaining internal consistency. A pool of 137 items was distributed to the sample of 381 high school students in age of 14 to 19 years (Takšić, 2001b; Takšić, Jurin, & Cvenić, 2001). The correlations among each category (subscales) were examined, and common factor analysis was applied. Scree-tests suggested the existence of three significant factors.

The present version of Emotional Skills and Competences Questionnaire (ESCQ, Takšić, 2001b) consists of 45 items divided into three subscales:

- a) The Perceive and Understand emotions scale has 15 items (e. g., *When I see how someone feels, I usually know what has happened to him*),
- b) The Express and Label emotions scale has 14 items (e. g., *I am able to express my emotions well*), and
- c) The Manage and Regulate emotions scale has 16 items (e. g., *When I am in a good mood, every problem seems soluble*).

Subjects were asked to rate the items at 5-point scales (1-never, 2-seldom, 3-occasionally, 4-usually, 5-always).

### Basic psychometric properties

In different studies with Croatian version of ESCQ, the Cronbach alphas  $\alpha$  were between .81 and .90 for Perception and Understanding scale; for the Express and Label emotions scale  $\alpha$  was between .78 and .88; and for the Manage and Regulate

emotions scale internal consistency measured with  $\alpha$  ranged from .67 to .78. There were moderate positive correlations between the subscales (.35–.51) that allowed for forming a linear combination measure of overall emotional competence with the internal consistency between  $\alpha = .88$  and  $\alpha = .92$  (Takšić, 2001b).

Confirmatory factor analysis performed on a large sample of high school students ( $N = 1460$ ) came with satisfactory goodness of fit indexes (GFI = .87, AGFI = .86, RMSEA = .055) and confirmed the three-factor structure (Takšić, 2005).

### **Convergent, divergent, and concurrent validity**

In an attempt to estimate convergent and divergent validity, the ESCQ subscales and total scores were compared with the scales that measure similar constructs (personality traits, self-concept, social skills, and coping strategies).

As expected, the highest correlations emerged with Schutte's self-report emotional intelligence scale (SSREI; Schutte, et al., 1998), where the correlations with PU, EL, MR subscales and with the total score were .59, .48, .48, and .65, respectively. Alexithymia, defined as the difficulty in identifying and describing feelings and having externally oriented thinking (Bagby, Parker, & Taylor, 1993; Parker, Taylor, & Bagby, 2003), is a similar but reverse concept of emotional intelligence and competence, and is negatively correlated with ESCQ subscales and total score (–.34, –.50, –.42, and –.53; Takšić, 2001b).

Among social skills measured by Social Skills Inventory (SSI; Riggio & Trockmorton, 1986), the highest correlations with ESCQ subscales and total score have showed emotional sensitivity (.50, .37, .24, and .52) and social expression (.34, .45, .34, and .50; Takšić, 1998). The relationships are in right direction, because emotional sensitivity and perception ability from ESCQ and understanding of emotion (PU) from SSI have much in common, as have expression and labeling emotion (EL) with social expression.

### **Relations with personality traits**

Among the Big Five dimensions, the highest correlation has been found with openness/intellect (.50, .25, .44, and .52; Takšić, 2001a), stressing the connection of emotional ability with cognitive aspects of the personality system. This quasi-ability factor of personality is somewhat similar to intelligence, at least with the words people usually use to describe intelligent people (e.g., imaginative, sensitive, flexible, curious and independent) (McCrae, 2000). The evidence for a relationship between emotional intelligence and Intellect/Autonomy is scarce (Schutte et al., 1998). Shafer (1999) studied the relationship between the Big Five and an indicator of Social Intelligence and found that the Intellect/Autonomy was strong and the most potent Big Five predictor of social intelligence.

The correlations with the other four dimensions of the Big Five are somewhat

lower, but also positive, especially with the EL and MR subscales, as well as with the total score in ESCQ. They are in a range that allows one to conclude that ESCQ has divergent validity from well-known personality traits for the Big Five taxonomy (see also Avsec, Takšić, & Mohorić, this issue).

Based on results from several studies (Davies et al., 1998; Roger & Najarian, 1989; Van der Zee, Thijs, & Schakel, 2002), one can expect a positive relationship between emotional intelligence and Extraversion. Extraverts are open to others and tend to be unreserved and informal in their contacts with other people. These characteristics can be related to what Gardner (1983) referred to as “interpersonal intelligence”.

Individuals high in Agreeableness tend to be friendly and warm, tend to have respect for others, and tend to be sensitive to other people’s wishes. These characteristics are probably related to the cognitive and behavioral processes directed to the emotions of others. The higher relationship emerged with the EL subscale ( $r = .41$ ; Takšić, 2001a).

Based on literature reviews, there is little reason to expect a relationship between emotional intelligence and Conscientiousness. The carefulness, reliability, persistence, and goal-directedness of individuals high in this trait has no conceptual resemblance to the monitoring and interpreting of and coping with emotions.

Emotionally unstable individuals are worried, easily provoked, depressive, and vulnerable. The ability to cope with emotions is very similar to the Emotional Stability construct so a positive relationship between emotional intelligence and Emotional Stability can be expected (Davies et al., 1998; Roger & Najarian, 1989). Bagby, Parker, & Taylor (1994) found a negative relationship between scales of the Toronto Alexithymia Scale and Emotional Stability.

The ESCQ subscales and the total score also have highly positive correlations with maintaining positive mood (.35, .45, .55, and .59, respectively), especially if they are compared to correlations with negative mood (–.15, –.21, –.38, –.32, respectively; Takšić, 2002).

With Block’s ego-resiliency concept, defined as “the linkages of the ego structures that keep the personality system within tenable bounds or permit the finding again of psychologically tenable adaptation modes” (Block & Kremen, 1996, p. 350), the correlations were .47, .36, .49, and .55, respectively. Possible explanation about strong relationship between EI and Block’s construct of ego-resiliency is that one of its most important descriptions is ability to recover quickly after stressful and unpleasant events (Block & Kremen, 1996). C. Saarni (1999) in her definition of emotional competence treats resilience as basic ingredient.

### **Relations with cognitive ability**

The correlations of ESCQ with various measures of cognitive abilities were found to be very low and insignificant (Takšić, 1998; Takšić, Štokalo & Kolić-Vehovec,

2003). The findings are very expected because of strong effect of different methods of measurement, namely self-reported vs. ability approach.

### **Gender differences**

According to previous studies with self-reported EI (Petrides & Furnham, 2000), females have shown higher scores. A majority of studies on ESCQ (Takšić, 1998; Takšić, Mohorić & Munjas, 2006) came up to the same conclusion. Among ESCQ subscales, Perception and Understanding emotions subscale has demonstrated the biggest and constant differences, while Managing and regulating emotions subscale are mainly not affected by gender influence, but some study came up with finding that males are somewhat better in that kind of EI ability (Takšić, 1998). For Expressing and Labeling emotions subscale the results are not consistent, but majority of them (cf. Takšić et al., 2006) demonstrated higher scores for females.

In cross-cultural studies (Takšić et al., 2007; Takšić et al., 2009) on ESCQ conducted in nine countries from three continents, significant gender effect was found only for Perceiving and understanding emotions subscale. A country-gender interaction was found to be significant for this subscale and Expressing and labeling emotion subscale, showing that females are better only in three countries (Slovenia, Spain and Japan).

### **Developmental changes**

According to developmental hypotheses proposed by the authors (Mayer & Salovey, 1997), EI abilities should increase during a life span. The main reason is that EI is based on emotional knowledge (Izard, 2001) with strong relationship with verbal abilities, as the most important factor for crystallized intelligence.

Due to dearth of relevant data, it is hard to find definitive conclusions about developmental changes in self-reported (and trait) EI. Using Trait Emotional Intelligence Questionnaire (TEIQue), the authors Petrides and Furnham (2006) have found positive, but weak correlation ( $r=0.16$ ) with age. What is more interesting for our findings, they mentioned theoretically plausible curvilinear effects (especially quadratic components; Petrides, Furnham, & Mavroveli, 2007). This curvilinear U-relationship was found in a study on adolescents aging from 12 to 19 years of age (Vučenović, 2009) using ESCQ. Youngest (7th grade) and oldest (11th and 12th grade) adolescents estimated their EI abilities (perceiving and understanding, and expressing and labeling emotions) higher than adolescents did in age of 15 and 16 years (10th and 11th grade).

In a sample of 467 Italian teachers mean aged 46.30 years ( $SD = 8,51$ , range 24 to 60 yrs), Simone Catalano (personal communication) found similar correlations between total ESCQ and age ( $r = .13$ ) as Petrides and Furnham (2006). The highest correlation was with the Perceiving and understanding emotions subscale (.16), with



Expressing and labeling emotion subscale was  $r = .13$ , and no correlation was found with Managing and regulating emotions subscale.

### **Predictive validity of ESCQ**

Psychometric literature stresses the importance of the predictive validity of every newly established psychological instrument in a validation procedure. As mentioned previously, empathy is a crucial criterion for emotional intelligence, and it is interesting that higher correlations have been found between the ESCQ scale and the cognitive aspect of empathy (.45, .20, .41, and .44), than with its emotional aspect (.43, .15, .09, and .27; Takšić, 1998). These findings support the connection of emotional intelligence, skills, and competencies with cognition.

A life satisfaction and empathy were chosen as the main criteria by the authors of the theory of EI theory (Mayer et al., 2000). They presumed that every instrument that has the intention to measure EI must show positive relationship with those two constructs. The ESCQ scale satisfies these criteria. Following the idea proposed by Salovey and Mayer (1990) that an emotionally intelligent person does not ask how much he will earn in life, but he tends to be happy in his/her life, satisfaction was established as the main criterion for concurrent and incremental validity procedures. The ESCQ scales significantly contributed to explaining the variance in life satisfaction, even when they were the last variables entered in the regression equation ( $\Delta R^2 = .047$ ,  $p = .007$ ; Takšić & Mohorić, 2009) after those from self concept, and from Social Skills Inventory (Riggio & Trockmorton, 1986). The stepwise regression analyses demonstrated strong evidence and superiority of emotional management skills for the competences in establishing life satisfaction among variables derived from the self-concept construct (Takšić, 1998, 2002).

The highest predictive validity of ESCQ subscales and total score has been found for quality of leadership defined according to Yukl's taxonomy (Yukl, 1994). Correlations with abilities of perceiving and understanding, expressing and labeling, managing and regulating subscale, and total score were .46, .46, .52, and .61, respectively (Takšić, Tkalčić, & Brajković, 2001). This supports many theoretical claims about the significant role of emotional abilities and competences in the leadership process (Cooper & Sawaf, 1998; Goleman, 1997; Ryback, 1998).

Adolescents with higher results in ESCQ are significantly less involved in health risk behaviors like smoking, drinking alcohol and using drugs (Takšić & Rafajac, 2002). EI have been found to be more relevant protective factor in female adolescent sample. Among many socio-demographic variables and personality characteristics, significant contribution have been found for the MR scale demonstrating the importance of an ability of managing and regulating of emotions in protecting adolescents from engaging in unhealthy and risky behaviors.

Because ESCQ is not an ability test, it was not very reasonable to expect that it would have significant correlations with school achievement. However, there

have been found that the relationship is significant for the PU and MR subscales, if not very strong ( $r = .19$  and  $.21$ , respectively). Moreover, total ESCQ has significant contribution in explaining the variance of school achievement over and above four classical tests of intelligence from California Tests of Mental Maturity (CTMM;  $\Delta R^2 = .041$ ,  $p = .05$ ), stressing the importance of the ability of managing and regulating emotions ( $\beta = 0.196$ ,  $p = .007$ ; Takšić et al., 2003). The same trend was found for a test of general intelligence (Takšić, 1998), this trend also confirmed in follow up study with the same tests from CTMM (Takšić & Mohorić, 2007).

## Conclusive remarks and general guidelines for the future

In conclusion, it could be said that ESCQ exhibited good psychometric properties in several cultural settings (Faria et al., 2006), confirming three-factor structure. It shares some amount of common variance (up to 28%) with the scales derived from similar constructs. However, due to the sufficient reliability of the scales, a great deal of unique variance remains (more than 40%). This unique variance of the ESCQ scales has an incremental contribution in explaining life satisfaction as the crucial criterion for emotional intelligence, and even for school achievement.

The relation of ESCQ with related constructs support the hypothesis that emotional competence is not only a “old wine in a new bottle”, but is a distinct construct of so called (positive) “emotional traits” (Mayer, 2001) that could be operationalized. One of the authors of Big Five concept McCrae (2000) claimed: “EI appears as a variable on the boundary between personality and cognition” (p. 268).

The ESCQ has proved to be a reliable and valid measure of emotional competence in varied contexts, evidencing construct, convergent, divergent and concurrent validity.

However, as reliability of the *Manage and Regulate Emotion* scale turned out to be somewhat low in several of the studies, improvements of the formulation of some of its items might help to raise its value. The structure of ESCQ in different countries and languages needs to be examined via confirmatory factor analysis. In addition, it would be interesting to consider more thoroughly the issue of gender differences and developmental changes.

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