Development of an objective methodology for measurement of emotional intelligence. Emotional intelligence and socio-demographics of employees in Russian organizations

Elena SERGIENKO
Institute of Psychology of the Russian Academy of Sciences, Moscow, Russia

Elena KHLEVNAYA
Plekhanov Russian University of Economics, Moscow, Russia

Ekaterina OSIPENKO
EMOTIONAL Intelligence Lab, Moscow, Russia

Abstract. **Purpose.** Development of a Russian-language online method «Emotional Intelligence Test, EIT» and determining the respondents' emotional intelligence. Determination of important socio-demographic variables in emotional intelligence. **Study design.** Hypothesis: the EIT methodology is valid and reliable, can be used to objectively measure emotional intelligence of employees of Russian organizations within the framework of emotional intelligence as an ability. **Study sample:** 1043 people aged 20-72. Respondents: Russian-speaking professionals working in Russian organizations. **Results.** Women compared to men have significantly higher results in the strategic domain of Emotional Intelligence, some sections of understanding emotions, tasks for managing emotions. Men show significantly higher scores in understanding emotions, assessed using dynamic tasks. Comparisons of age groups showed significant differences between younger and older respondents. **Findings.** EIT is an objective and valid method of measuring emotional intelligence. EIT can be used to measure emotional intelligence of employees of Russian corporations, which will allow better analysis of the activities of employees and indicate future opportunities for the development of competencies. Women have higher scores in most sections of the strategic domain of emotional intelligence, which is consistent with previous studies. However, men have higher scores in the “dynamics” section, which may indicate a higher ability of men to perceive and understand emotions in dynamic situations. These data have no analog in previous studies, which indicates the need for further research. Variables were identified that would be particularly important in future studies of the relationship between emotional intelligence and professional performance. **Value of results.** The methodology of EIT can be used to establish the role of Emotional Intelligence in the effectiveness and psychological well-being of a person and become a reliable tool for assessing a person's ability for social interaction and self-efficacy. Research in this area is important to understand the role and place of emotional intelligence as a human resource of self-efficacy and to create a reliable technology that contributes to organizational development.

**Key words:** emotional intelligence; Emotional Intelligence Test; EIT; TEI; MSCEIT; ability model; organizational psychology.
Introduction

The relevance of research on emotional intelligence in the organizational aspect

The current scientific interest in the subject of emotional intelligence can be explained by the increasing level of uncertainty in the world with its destabilizing effect in the context of global changes in the economic sphere. The scientific construct of emotional intelligence was first described and conceptualized by J. Mayer and P. Salovey. In 1990, they jointly published a paper titled «Emotional Intelligence», in which they have defined emotional intelligence (EI) as a cognitive ability to process information contained in emotions (Salovey, Mayer, 1990). Over the following years, with the acquisition and analysis of new data, J. Mayer and P. Salovey improved and refined their model of emotional intelligence, and in 1997 they jointly published the updated concept of EI (Mayer, Salovey, 1997). In this updated version, EI was defined as a set of four discrete abilities or branches: 1) the ability to identify or perceive one’s emotions and emotions of others and express them; 2) the ability to use emotions in problem-solving and to facilitate thinking; 3) the ability to understand and analyze emotions; 4) the ability to manage one’s own emotions and the emotions of others. In recent decades, emotional intelligence has also been described by other researchers as a personality trait (Schutte, Malouff, 1999; Schutte, Malouff, Hall, Haggerty, Cooper, Golden, Dornheim, 1998).

Emotional intelligence has justifiably gained popularity in recent decades, and since 1990, this concept has attracted many practitioners and researchers. The reasons for such popularity are the desire to more fully explain and evaluate the adaptive emotional capabilities of a person, allowing her to interact with other people in an effective way, as well as the predictive ability of EI in various types of social activities (Mayer, Salovey, Caruso, 2002; Lopes, Brackett, Nezlek, Schütz, Sellin, Salovey, 2004).

In the international research practice of organizations, it was found that the higher the level of EI, the higher the person’s productivity in the workplace (O’Boyle, Humphrey, Pollack, Hawver, Story, 2011). Employees with a high level of EI have higher results in terms of job satisfaction, loyalty to the organization and lower results in terms of «labor turnover» (Miao, Humphrey, Qian, 2016). The higher the EI level of a person in college, the higher their salary level 10–12 years after starting their career (Rode, Arthaud-Day, Ramaswami, Howes, 2017). EI is also associated with effective macro-level decision-making (Azouzi, Jarboui, 2014) and team efficiency in high-cost management activities (Farh, Seo, Tesluk, 2012). EI is positively associated with well-being, ability to cope with difficulties, and competence of workers. It is negatively associated with perceived stress, which indicates that people with high EI levels use more effective coping strategies for dealing with stress, which in turn increases their subjective well-being (Por, Barriball, Fitzpatrick, Roberts, 2011). Researchers also find empirical evidence of a positive relationship between EI and components of psychological well-being — self-esteem, life satisfaction, and self-acceptance (Carmeli, Yitzhak-Halevy, Weisberg, 2009).

Emotional intelligence is also interconnected with the communicative adaptation of employees. M. Hendon, L. Powell and H. Wimmer conducted a study of the correlation between the level of emotional intelligence and communication adaptation among information technology (IT) specialists (Hendon, Powell, Wimmer, 2017). Using a sample of information technology specialists from the United States who have been working in the field of information technology for two or more years ($N = 111$, 55 women). The authors determined that there is a significant positive relationship between emotional intelligence and communication adaptation of IT professionals ($r = 0.658$, $n = 111$, $p < 0.0005$).

P. Dhani and T. Sharma also conducted a study on the impact of the level of emotional intelligence on the performance of IT staff (Dhani, Sharma, 2017). In particular, they focused their attention on gender differences in these relationships. The research sample consisted of 157 mid-level IT
managers from Delhi, India. In the sample, there were 82 (52.2%) males and 75 (47.8%) females. According to the results of statistical data analysis, a significant difference in the level of emotional intelligence in men and women was found ($t = -5.988$, $p < 0.001$). Female employees were also more productive and efficient in their work than their male counterparts. The results of this study indicate significant gender differences, showing that female employees have a higher level of EI than their male counterparts and that women are more effective than men in their professional activities in the field of IT.

The level of EI as an ability across the four branches (perceiving, facilitating, understanding, managing) is also differently associated with various indicators related to the effectiveness and psychological well-being of a person. The higher level of EI in the “perceiving” branch, the higher the level of social relations (Elfenbein, Foo, White, Tan, Aik, 2007), mental health and productivity at work (Hall, Andrzejewski, Yopchick, 2009). For recruiters, a higher level in the “perceiving” and “understanding” branches is associated with the achievement of greater joint benefits during negotiations (Schlegel, Mehu, van Peer, Scherer, 2018), and the higher the levels of the “management” branch, the higher the levels of cognitive control (Gutiérrez-Cobo, Cabello, Fernández-Berrocal, 2017). Inadequate cognitive control, in turn, is associated with impulsivity and forms of addictive behavior (Volkow, Wang, Tomasi, Baler, 2013). Moreover, it was demonstrated that EI acts as a moderator in stressful situations (Extremera, Rey, 2015; Limonero, Fernández-Castro, Soler-Oritja, Álvarez-Moleiro, 2015; Peña-Sarrionandia, Mikołajczak, Gross, 2015; Slaski, Cartwright, 2003) and is positively associated with physical (Martins, Ramalho, Morin, 2010), mental and psychosomatic health (Schutte, Malouff, Thorsteinsson, Bhullar, Rooke, 2007).

Emotional intelligence is also positively associated with leadership, indicators of the effectiveness of leadership behavior, and overall leadership effectiveness (Walter, Cole, Humphrey, 2011). Moreover, leaders have higher emotional intelligence than subordinates (Siegling, Nielsen, Petrides, 2014; Siegling, Sfeir, Smyth, 2014). Emotional intelligence predicts loyal company behavior and counterproductive working behavior even after taking into account other variables that are associated with emotional intelligence (Miao, Humphrey, Qian, 2016; O’Boyle et al., 2011). A higher level of EI is also associated with higher efficiency of managers, and research shows that EI explains those increases in efficiency, that are not explained either by personal factors or by the individual’s level of IQ (Rosete, Ciarrochi, 2005). For example, E. Altındağ and Y. Kösedağı conducted a study of the relationship between emotional intelligence of managers, innovative corporate culture, and employee productivity (Altındağ, Kösedağı, 2015). The survey sample consisted of 305 respondents. According to the results of the statistical analysis of the data obtained, it was concluded that the emotional intelligence of managers had a significant impact on employee productivity. It was revealed that managers with high emotional intelligence had a direct and positive impact on company employees. Results of factor, correlation, and regression analyses also showed that innovative corporate culture is significantly interconnected with the productivity of employees.

In Russian psychology, emotional intelligence is researched in scientific and methodological aspects (Andreeva, 2011; Lyusin, 2004; Sergienko, Vetrova, 2009) and the applied aspect in works devoted to the study of emotional intelligence in organizations. Russian researchers established the relationship of EI with the efficiency of activity (Khlebnaya, 2012), with leadership (Belokon, 2008), in management activities (Petrovskaya, 2007), with burnout syndrome among doctors (Vasilyeva, 2016). Studies on the relationship between EI and business performance look at the professional activities of managers, teachers, doctors, military personnel, athletes, etc. For example, research by T. A. Pankova led to the following conclusions: managers with a high level of EI are more satisfied with their activities and less prone to emotional burnout, they are capable of more efficient work, which is manifested in higher job satisfaction (Pankova, 2010). Physiotherapists and psychiatrists
show an inversely proportional relationship between higher level of EI and the severity of emotional exhaustion, depersonalization, reduction of personal achievements (Vasilieva, 2016). A positive relationship was also found between the level of EI and individual effectiveness in management, which is expressed in the degree of achievement of key performance indicators (KPI) (Khlevnaya, 2012).

However, the vast majority of Russian research on EI is carried out in the framework of mixed models or trait models. Mixed models and trait models conceptualize EI as personal characteristics, motivational traits, and other non-cognitive mental components. This view of EI implies that measurement of the level of emotional intelligence should be carried out using self-report measures, such as traditional personality questionnaires. According to this point of view of EI as a mixture of a number of parameters, this construct is more similar to stable character traits (Petrides, Pita, Kokkinaki, 2007) and, thus, is more resistant to change. Also, mixed models and trait models suggest that a higher number of components, such as social skills or motivation, are taken into account in the learning process, and it will probably be harder to learn them since they are mediated by already established and crystallized personality traits to a greater extent. The limitations of these models are “demarcation of versions of emotional intelligence from similar concepts and their theoretical justification” (Sergienko, Vetrova, 2009, p. 25).

In general, it can be concluded that the results of both foreign and Russian research indicate a positive relationship between the level of EI of people and the indicators of their professional activities. A higher level of EI correlates with higher rates of satisfaction at work, productivity, sociability, efficiency, etc. Consequently, emotional intelligence may be one of the key aspects of developing organizationally important skills among corporate employees (Brackett, Salovey, 2006). However, for a more accurate determination of the development opportunities for employees and the organization as a whole, a methodology is needed to objectively determine the level of emotional intelligence of employees, taking into account the organizational context of Russian corporations. Such a methodology will allow not only to analyze the relationship of the emotional intelligence of employees with organizational effectiveness, but also indicate future opportunities for the development of their competencies.

**Methods for Measuring Emotional Intelligence**

An important place in modern scientific literature is taken by the discussion of methods for measuring the level of emotional intelligence. As discussed above, several EI models are distinguished in science: ability model, trait model, and mixed model. These models are classified according to the measurement methods used in these approaches.

According to the point of view of EI as a mixture of different traits that is used in trait models and mixed models, EI is more similar to stable traits (Petrides, Pita, Kokkinaki, 2007) and, thus, more resistant to change. Mixed models and trait models use the tools of self-assessment and self-report, which are based on the subjective feelings of people. In the following paragraph, we will consider the measurements of the level of emotional intelligence which are based on self-report questionnaires and currently available to the researchers and practicing psychologists.

One of the most commonly employed methodologies is the Bar-On Emotional Quotient Inventory (EQi; Bar-On, 1997), which is widely used to measure emotional intelligence in terms of mixed EI models. In Russian practice, a number of self-reporting methods were also created for measuring EI as a character trait. For example, the method “EmIn,” proposed by D. V. Lusin, is also based on self-report, which corresponds to the author’s ideas about the EI construct as a combination of cognitive abilities and personal characteristics. The EmIn questionnaire consists of 46 statements, regarding which the respondent expresses her degree of agreement or disagreement with the use of a four-

point scale. These statements are distributed across five subscales: understanding other people’s emotions; management of other people’s emotions; understanding of one’s own emotions; managing one’s own emotions; expression control. These five subscales are combined into four scales of a higher order: interpersonal EI, intrapersonal EI, understanding of emotions; managing emotions (lusin, 2004).

However, self-reporting techniques are not a suitable method for assessing cognitive-affective abilities, since they are based on subjective assessments and are subject to greater social desirability (brackett, rivers, shiffman, lerner, salovey, 2006). Therefore, they cannot be used to evaluate emotional intelligence as an ability. This requires methods based on tasks with correct and incorrect answers.

The Mayer—Salovey—Caruso Emotional Intelligence Test (msceit, v2.0; mayer, salovey, caruso, sitarenios, 2003) is a standardized test with correct and incorrect answers for measuring the level of emotional intelligence. MSCEIT is based on the model of EI as an ability and uses task-based, rather than questionnaire, methods. The MSCEIT methodology includes two subtests for each of the four branches of emotional intelligence.

The MSCEIT V2.0 is an objective method for determining the level of EI, which has a higher degree of reliability in interpretation and analysis of the results in contrast to self-reporting methods. The structure of MSCEIT V2.0 allows one to determine the overall indicator of the level of EI, which consists of two domains: experiential EI and strategic EI. Experiential EI consists of the ability to perceive emotions and the ability to use emotions in problem-solving. Strategic EI consists of the ability to understand and analyze emotions and the ability to consciously manage emotions. The structure of MSCEIT V2.0 and the types of tasks aimed at determining the level of development of EI in each of the branches are described in Figure 1.

In 2010, researchers from Russia conducted the adaptation of MSCEIT V2.0 on a Russian-language sample. Adaptation of the methodology was carried out by E. A. Sergienko, I. I. Vetrova, A. A. Volochkov, and A. Yu. Popov (Sergienko, Vetrova, Volochkov, Popov, 2010; Sergienko, Vetrova, 2009). The retest reliability of the total MSCEIT scores was quite high (r = 0.86; measured with an interval of three weeks).
However, during the adaptation and standardization of the MSCEIT V2.0 methodology for the Russian sample, some problems were identified. Some test assignments showed a weak level of validity, and, thus, need further refinement and adaptation in the Russian-language sample. In particular, during the translation and reverse translation of MSCEIT V2.0 questions, linguistically appropriate emotion names were used, rather than names that were logical to the context. Also, the names of feelings were used instead of the names of emotions in some cases. Respondents, among other things, indicated that part of the test questions was hard to understand, and the stimulus material — faces and images — was not close to Russian-speaking culture.

Thus, in the process of standardization and adaptation of MSCEIT V2.0, it became apparent that there was a need to create a Russian-language methodology for measuring the level of emotional intelligence, taking into account the peculiarities of the Russian-speaking sample. As a result, the decision was made to develop the online Emotional Intelligence Test (EIT) method (Sergienko, Khlevnaya, Vetrova, Kiseleva, 2017).

Development of a Russian-language Online Method for Measuring Emotional Intelligence

The concept of EI as an ability developed by J. Mayer, P. Salovey, and D. Caruso, on which the MSCEIT V2.0 methodology is based (Mayer, Salovey, 1997; Mayer et al., 2003), as well as the psycho-evolutionary theory of emotions of R. Plutchik (Plutchik, 1990), were used as the theoretical basis for the EIT methodology. R. Plutchik’s theory defines emotions as evolutionary adaptation- and genetically-based mechanisms of communication and survival. According to R. Plutchik, emotions can be compared to each other in three main parameters — intensity, similarity, and polarity. Therefore, a three-dimensional structural model can be used to represent the relationship between emotions: intensity-similarity-polarity. Such a model assumes the existence of primary and mixed emotions. The combination of the two theories allows the creation of a consistent theoretical substantiation of the new EIT methodology — the emotional intelligence test.

Ordinary people, not actors, close and understandable to Russian-speaking culture, showing one of the basic emotions according to the theory of R. Plutchik (Plutchik, 1990), were used to create

![Figure 2. The structure of the Emotional Intelligence Test (Sergienko et al., 2017)](image-url)
the stimulus material of the Emotional Intelligence Test. In sections that use pictures and narrative tasks to determine the level of EI, abstract pictures were used, and situations that were better suited to Russian-speaking culture were described, respectively.

In addition to the eight main sections that make up MSCEIT V2.0 (Figure 1), the purpose of which is to measure abilities across the four branches of EI separately, the ninth section was included in the Emotional Intelligence Test methodology, aimed at measuring EI abilities across two branches at the same time: identification of emotions and understanding of emotions. This section allows the assessment of the level of connectedness and the degree of mutual influence of individual branches of EI. The structure of the Emotional Intelligence Test and the types of tasks aimed at determining the level of EI development in each of the branches are shown in Figure 2.

Since previous studies that used the English-language and Russian-language versions of MSCEIT indicated no significant differences when administering the test using written and electronic versions (Sergienko, Vetrova, 2017), the EIT methodology was created for use in electronic form. The objectives of our study are to test the hypothesis that the EIT methodology is valid and reliable and can be used to objectively measure the level of emotional intelligence of employees of Russian organizations within the framework of the EI as an ability model, as well as to determine the socio-demographic variables that will be especially important to pay attention to in future studies of the relationship of EI and professional activities.

**Study Design**

In our research, we consider emotional intelligence in terms of the ability model and hypothesize that the level of emotional intelligence can be objectively measured using the Russian-language online EIT methodology. Checking the EIT methodology for validity and reliability, as well as establishing correlation between the indicators of the EIT methodology and the Russian-language version of the MSCEIT V2.0 methodology, will determine if it is possible to objectively measure the level of emotional intelligence of employees of Russian organizations. A statistical analysis of the correlations between the level of emotional intelligence and socio-demographic data will allow us to determine the variables that will be especially important to pay attention to in future studies of the relationship between emotional intelligence and professional activity.

**Research sample**

The sample of the study consisted of 1043 people working in Russian organizations, aged 20-72 years (520 women, 487 men, average age 35.9 years). Respondents were Russian-speaking professionals working in multi-branch Russian corporations in various positions from the level of linear management to the level of top management.

**Reliability assessment and validation of the psycho-diagnostic methodology**

In assessing the reliability and validation of the psychodiagnostic methodology of the Emotional Intelligence Test, we used data obtained from the testing results of 1043 people.

**Analysis of the correlations between the level of emotional intelligence and socio-demographic data**

To determine the level of emotional intelligence of the respondents, the Emotional Intelligence Test was used. The methodology of EIT allows the determination of the general level of development of EI, as well as the level of development of four components of emotional intelligence: perception of emotions, facilitation of thought with the use of emotions, analysis and understanding of emotions, and management of emotions (Sergienko et al., 2017).
EIT data from 1043 people were used in the statistical analysis of correlations between the level of EI and the socio-demographic data of the respondents. Summary data by gender and age of respondents are presented in Table 1.

**Study procedure**

The Emotional Intelligence Test was presented to respondents in electronic format since the test is an online method for determining the level of emotional intelligence. Analysis of the results was carried out using the methods of mathematical statistics: correlation analysis, regression analysis, factor analysis, cluster analysis.

Table 1. The distribution of the sample by age and gender (\(N = 1043\))

<table>
<thead>
<tr>
<th>Age, years</th>
<th>Men, (N)</th>
<th>Men as % of the overall sample</th>
<th>Women, (N)</th>
<th>Women as % of the overall sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>20—29</td>
<td>91</td>
<td>9</td>
<td>166</td>
<td>165</td>
</tr>
<tr>
<td>30—39</td>
<td>228</td>
<td>22.7</td>
<td>191</td>
<td>19.0</td>
</tr>
<tr>
<td>40—49</td>
<td>142</td>
<td>14.1</td>
<td>128</td>
<td>12.7</td>
</tr>
<tr>
<td>50 and over</td>
<td>26</td>
<td>2.6</td>
<td>35</td>
<td>3.5</td>
</tr>
<tr>
<td>Overall</td>
<td>486</td>
<td>48.4</td>
<td>519</td>
<td>51.6</td>
</tr>
</tbody>
</table>

**Results**

**The results of testing the EIT method for validity and reliability**

The results of evaluating the reliability and validity of the Emotional Intelligence Test methodology showed that EIT has a high degree of reliability (Cronbach’s \(\alpha\) of the general level of \(EI = 0.93\)), structural and factor validity (\(\chi^2 = 39.87, RMSEA = 0.027 (0.001; 0.044), CFI = 0.99\)), the theoretical validity of the method is confirmed by sufficiently high correlations between the indicators of the EIT method and the MSCEIT V2.0 method (at the level of generalized indicators \(r_s = 0.51\)).

Table 2. Means of levels of emotional intelligence in groups of men and women (\(N = 1043\)).

<table>
<thead>
<tr>
<th>Scale</th>
<th>Women</th>
<th>Men</th>
<th>Differences in Student’s (t)-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall EI</td>
<td>.363</td>
<td>.360</td>
<td>(t(1004) = 1.647, p = .100)</td>
</tr>
<tr>
<td>Experiential domain</td>
<td>.356</td>
<td>.353</td>
<td>(t(1004) = 1.222, p = .222)</td>
</tr>
<tr>
<td>Perception</td>
<td>.321</td>
<td>.318</td>
<td>(t(1004) = 1.435, p = .152)</td>
</tr>
<tr>
<td>Faces</td>
<td>.355</td>
<td>.349</td>
<td>(t(1004) = 1.682, p = .093)</td>
</tr>
<tr>
<td>Pictures</td>
<td>.305</td>
<td>.308</td>
<td>(t(1004) = -.831, p = .406)</td>
</tr>
<tr>
<td>Situations</td>
<td>.313</td>
<td>.310</td>
<td>(t(1004) = 1.823, p = .069)</td>
</tr>
<tr>
<td>Facilitation</td>
<td>.419</td>
<td>.417</td>
<td>(t(1004) = .698, p = .485)</td>
</tr>
<tr>
<td>Facilitation</td>
<td>.446</td>
<td>.446</td>
<td>(t(1004) = -.085, p = .932)</td>
</tr>
<tr>
<td>Empathy</td>
<td>.379</td>
<td>.372</td>
<td>(t(1004) = 1.653, p = .099)</td>
</tr>
<tr>
<td>Strategic domain</td>
<td>.386</td>
<td>.381</td>
<td>(t(1004) = 2.052, p = .04)</td>
</tr>
<tr>
<td>Understanding</td>
<td>.398</td>
<td>.399</td>
<td>(t(1004) = -.252, p = .801)</td>
</tr>
<tr>
<td>Changes</td>
<td>.439</td>
<td>.419</td>
<td>(t(1004) = 3.788, p &lt; .001)</td>
</tr>
<tr>
<td>Blends</td>
<td>.392</td>
<td>.379</td>
<td>(t(1004) = 3.456, p = .001)</td>
</tr>
<tr>
<td>Dynamics</td>
<td>.345</td>
<td>.390</td>
<td>(t(1004) = -8.290, p &lt; .001)</td>
</tr>
<tr>
<td>Managing</td>
<td>.373</td>
<td>.361</td>
<td>(t(1004) = 3.951, p &lt; .001)</td>
</tr>
<tr>
<td>Emotion management</td>
<td>.353</td>
<td>.343</td>
<td>(t(1004) = 3.197, p = .001)</td>
</tr>
<tr>
<td>Impact on the emotions of others</td>
<td>.400</td>
<td>.385</td>
<td>(t(1004) = 3.374, p = .001)</td>
</tr>
</tbody>
</table>

*Note: highlighted bold are significant differences (according to the results of the analysis at the level of \(p < 0.05\)).*
Results of Gender and Age Differences in the Level of Emotional Intelligence

A comparison was made of the indicators of general emotional intelligence, as well as individual domains, branches, and sections in groups of men and women. Significance of differences was assessed using Student’s t-test for independent samples. The results are presented in Table 2.

As can be seen from Table 2, women have significantly higher results compared to men in the strategic domain, as well as in some sections of understanding of emotions (changes and blends) and in the sections of managing emotions (emotion management and impact on the emotions of others). On the other hand, men demonstrate significantly higher results in understanding emotions, assessed by the dynamic tasks.

The results of the comparison of the levels of emotional intelligence in respondents of different ages are shown in Table 3.

Table 3. Age differences in emotional intelligence (N = 1043).

<table>
<thead>
<tr>
<th>Scale</th>
<th>20—29</th>
<th>30—39</th>
<th>40—49</th>
<th>Over 50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall EI</td>
<td>.358 (.036)</td>
<td>.362 (.034)</td>
<td>.365 (.027)</td>
<td>.361 (.028)</td>
</tr>
<tr>
<td>Experiential domain</td>
<td>.352 (.039)</td>
<td>.355 (.037)</td>
<td>.358 (.030)</td>
<td>.353 (.036)</td>
</tr>
<tr>
<td>Perception</td>
<td>.317 (.034)</td>
<td>.320 (.031)</td>
<td>.322 (.028)</td>
<td>.320 (.030)</td>
</tr>
<tr>
<td>Faces</td>
<td>.348 (.061)</td>
<td>.353 (.058)</td>
<td>.355 (.057)</td>
<td>.352 (.058)</td>
</tr>
<tr>
<td>Pictures</td>
<td>.310 (.052)</td>
<td>.306 (.053)</td>
<td>.307 (.052)</td>
<td>.299 (.055)</td>
</tr>
<tr>
<td>Situations</td>
<td>.307 (.034)</td>
<td>.312 (.029)</td>
<td>.315 (.026)</td>
<td>.315 (.029)</td>
</tr>
<tr>
<td>Facilitation</td>
<td>.416 (.063)</td>
<td>.418 (.066)</td>
<td>.422 (.053)</td>
<td>.412 (.060)</td>
</tr>
<tr>
<td>Facilitation</td>
<td>.445 (.071)</td>
<td>.444 (.078)</td>
<td>.453 (.063)</td>
<td>.437 (.080)</td>
</tr>
<tr>
<td>Empathy</td>
<td>.373 (.072)</td>
<td>.378 (.074)</td>
<td>.374 (.066)</td>
<td>.374 (.062)</td>
</tr>
<tr>
<td>Strategic domain</td>
<td>.378 (.044)</td>
<td>.385 (.041)</td>
<td>.388 (.037)</td>
<td>.387 (.030)</td>
</tr>
<tr>
<td>Understanding</td>
<td>.392 (.054)</td>
<td>.400 (.049)</td>
<td>.401 (.049)</td>
<td>.400 (.045)</td>
</tr>
<tr>
<td>Changes</td>
<td>.428 (.087)</td>
<td>.426 (.084)</td>
<td>.430 (.088)</td>
<td>.449 (.080)</td>
</tr>
<tr>
<td>Blends</td>
<td>.380 (.065)</td>
<td>.388 (.062)</td>
<td>.386 (.060)</td>
<td>.393 (.060)</td>
</tr>
<tr>
<td>Dynamics</td>
<td>.354 (.090)</td>
<td>.374 (.087)</td>
<td>.376 (.089)</td>
<td>.336 (.088)</td>
</tr>
<tr>
<td>Managing</td>
<td>.361 (.051)</td>
<td>.367 (.050)</td>
<td>.372 (.046)</td>
<td>.373 (.036)</td>
</tr>
<tr>
<td>Emotion management</td>
<td>.337 (.054)</td>
<td>.350 (.052)</td>
<td>.355 (.047)</td>
<td>.350 (.044)</td>
</tr>
<tr>
<td>Impact on the emotions of others</td>
<td>.392 (.069)</td>
<td>.390 (.069)</td>
<td>.395 (.069)</td>
<td>.404 (.046)</td>
</tr>
</tbody>
</table>

Note: Standard deviations are shown in parentheses. Highlighted bold are significant differences (according to the results of analysis of variance at the level of p < 0.05).

Pairwise comparisons of age groups, with correction for multiple comparisons by the Tukey method, showed significant (at the level of p < 0.05) differences in the section Situations between the groups of 20–29 and 40–49 year old’s, in the section Dynamics between the group of 20–29 and the groups of 30–39 and 40–49 and between the older group and groups of 30–39 and 40–49 year old’s, in the section Emotion management between the group of 20–29 and groups of 30–39 and 40–49 year old’s. Differences in the understanding of emotions and the domain of strategic emotional intelligence between groups of 20–29 and 40–49 year old’s were also obtained.

Thus, it is possible to talk about significant age differences only in sections Dynamics (the lowest values are observed in the younger and older groups of respondents) and Emotion management (due to the low score obtained by the younger group). Separate comparisons of age groups in men and women showed no significant differences between groups of respondents of different ages.
Discussion

Assessment of the validity and reliability of the methodology of the Emotional Intelligence Test showed that the technique is valid and reliable and, therefore, is an objective method for measuring the level of emotional intelligence of employees of Russian organizations. The EIT methodology, as a task methodology, is built by analogy with intelligence tests, which allows for a more reliable assessment of the respondent’s EI level than the questionnaire methods provide (Sergienko et al., 2017).

Statistical analysis of the data revealed significant statistical differences in the level of emotional intelligence between men and women. Differences between these groups are observed mainly in relation to the strategic domain and its sections and branches. In women, in general, a higher level of emotional intelligence was observed in the “emotion management” branch and the “changes” and “blends” sections in the understanding and analysis of emotions branch. In men, a higher level of emotional intelligence was observed only in the “dynamics” section in the branch of understanding and analysis of emotions.

A higher level of emotional intelligence in women is consistent with the results of previous studies. Most studies of emotional intelligence as an ability, which also consider the effect of gender on the level of EI, indicate that women have higher emotional intelligence abilities than men (Fernández-Berrocal, Cabello, Castillo, Extremera, 2012). Brackett et al. conducted a study of emotional intelligence as an ability on a sample of 330 university students and found that women had a higher level of overall emotional intelligence (Brackett, Mayer, Warner, 2004). Day and Carroll conducted a similar study and also found that women have higher levels of emotional intelligence (Day, Carroll, 2004).

Higher levels of EI of women in the strategic domain of emotional intelligence are consistent with the results of only some previous studies (Goldenberg, Matheson, Mantler, 2006), and differ from others. In contrast to our results, L. Castro-Schilo and R. W. Kee revealed that women had higher rates in the experiential domain of EI than men (Castro-Schilo, Kee, 2010). Also, in a study by H. H. McIntyre, mixed results were found — women received higher scores in identifying, using and understanding emotions, but not in management (McIntyre, 2010). But N. Extremera and P. Fernández-Berrocal revealed that women were ahead of men in all indicators of EI as an ability (Extremera, Fernández-Berrocal, 2009).

Both biological and social factors can be used to explain this difference between men and women (Nolen-Hoeksema, Jackson, 2001). The biological explanation suggests that women’s biochemistry is better adapted to identify her own emotions and those of others. In support of this idea, some brain structure research suggests that areas of the brain that are involved in emotional processing may be better developed in women than in men (Baron-Cohen, 2003). Also, some studies have found that the processes of the cerebral processing of emotions in men and women are different (Craig, 2009).

An explanation focused on social factors indicates that men are taught throughout life to minimize certain emotions, such as sadness, guilt, and fear (Sanchez-Nunez, Fernández-Berrocal, Montañés, Latorre, 2008). Moreover, women are more concerned with maintaining a positive tone in their own and other people’s emotions, in order to prevent the deterioration of interpersonal relations and to support the creation of positive social interactions (Nolen-Hoeksema, Jackson, 2001).

The fact that we have found a higher level of emotional intelligence in men in section “dynamics” in the branch of understanding and analysis of emotions can be explained by the fact that tasks of this type were first conceptualized and tested in the EIT methodology, and therefore have no analogues in others tests of emotional intelligence as an ability. Our results may indicate that men cope better with tasks aimed at identifying and understanding of emotional stimuli in dynamic situations.
Analysis of data on the level of emotional intelligence, dependent upon the age of respondents, showed that age differences are small and mainly relate to the components of the strategic domain of emotional intelligence.

Younger and older respondents showed the lowest results in tasks on dynamics in the branch of understanding and analysis of emotions. Lower rates among young respondents are consistent with some previous studies indicating that EI develops with age and depends on a person’s experience. For example, N. Extremera et al., in a sample of 946 respondents aged 16 to 58 years, found that older people show significantly better results on all branches of emotional intelligence compared to younger respondents (Extremera, Fernández-Berrocal, Salovey, 2006). On the other hand, low rates in elderly respondents are also consistent with the results of some previous studies. Palmer and colleagues, in a study of 431 respondents, found that older respondents received lower ratings for the branch of identification of emotions (Palmer, Gignac, Manocha, Stough, 2005). This is consistent with a meta-analysis that found that older people have age-related problems with identifying emotions (Ruffman, Henry, Livingstone, Phillips, 2008). These results can be explained by the fact that tasks on dynamics are aimed at identifying two branches of emotional intelligence at once: identification and understanding of emotions. Thus, young respondents will receive lower results in this section than older respondents, since understanding emotions requires experience, and older respondents will receive lower results in this section than young respondents, as the ability to identify emotions worsens with age (Ruffman et al., 2008).

Moreover, the analysis indicated that younger respondents had lower rates in the “emotion management” section. This can also be explained by the fact that EI develops with age and depends on the person’s experience and, therefore, older respondents will have a more developed ability to control emotions (Extremera, Fernández-Berrocal, Salovey, 2006).

Conclusion

The Russian online methodology for measuring the level of emotional intelligence EIT showed rather high correlations with the MSCEIT V2.0 methodology. Previous studies of emotional intelligence in an organizational context using the MSCEIT V2.0 methodology showed that the overall level of EI is significantly related to the quality of work of employees (Janovics, Christiansen, 2002), positively correlates with job satisfaction (Miao, Humphrey, Qian, 2017). The results for the branches of emotion management and understanding of emotions positively correlate with the positive perception of the leader by her or his subordinates (Giles, 2001), the results for the emotion identification branch show a positive correlation with leadership effectiveness (Kerr et al., 2006). Thus, it can be assumed that the use of the EIT methodology for the study of emotional intelligence in Russian organizations will also provide an opportunity to identify such relationships and, in future, to optimize managerial activities and increase organizational effectiveness.

The obtained correlations between the sections of emotional intelligence and socio-demographic data showed that women have higher rates in most sections of the strategic domain of emotional intelligence, which is consistent with the results of previous studies.

However, it was also found that men had higher rates in the “dynamics” section, which may indicate a higher ability of men to perceive and understand emotions in dynamic situations. These data have no analog in previous studies, which indicates the need for further research in this area.

Variables that would be particularly important to pay attention to in future studies of the relationship between emotional intelligence and professional activity were identified. These variables are the gender of the respondent in the strategic domain of EI and the age of the respondent in tasks of the “dynamics” section in the branch of understanding and analysis of emotions and in
“emotion management” section. However, the study revealed that the gender of the respondent is a more significant variable, which should be taken into consideration in future studies of emotional intelligence.

Thus, it can be concluded that the Russian online methodology EIT provides ample opportunities for use in organizations to establish relationships between emotional intelligence and significant constructs that affect the quality of the professional activity. The methodology of the EIT can be used to establish the role of emotional intelligence in the efficiency of activity and psychological well-being of a person and is also a reliable tool for assessing a person’s levels of social interaction and self-efficacy. It is important to conduct research in this area in order to understand the role and place of EI as a human resource of self-efficacy and to create a reliable technology that contributes to organizational development.

**Financial Support**

This work was supported by the Russian Foundation for Basic Research, project 19-013-00085.

**References**


Received 29.06.2019
Разработана русскоязычная онлайн-методика Тест Эмоционального Интеллекта (ТЭИ) и определены уровни ЭИ респондентов с её помощью. Определены важные социально-демографические переменные в исследовании ЭИ. Дизайн: методология Теста эмоционального интеллекта (ТЭИ) является валидной и надёжной, может использоваться для объективного измерения эмоционального интеллекта (ЭИ) сотрудников в российских организациях в рамках модели ЭИ как способности. Выборка исследования: 1043 человека в возрасте 20-72 лет. Респонденты: русскоговорящие профессионалы, работающие в российских организациях. Результаты: у женщин по сравнению с мужчинами значимо более высокие показатели в стратегическом домене ЭИ, в некоторых разделах понимания эмоций, в разделах управления эмоциями. Мужчины демонстрируют значимо более высокие показатели в понимании эмоций, оцениваемом с помощью заданий на динамику. Сравнения возрастных групп показали существенные различия между молодыми и более старшими респондентами. Выводы: ТЭИ является объективной и валидной методикой измерения ЭИ. ТЭИ может быть использован для диагностики уровня ЭИ сотрудников в российских корпорациях, что позволит лучше проанализировать деятельность сотрудников и указать на будущие возможности для развития их компетенций. Полученные результаты показывают, что женщины имеют более высокие показатели в большинстве разделов стратегического домена ЭИ, что согласуется с результатами предыдущих исследований. Однако мужчины имеют более высокие показатели в разделе «динамика», что может указывать на более высокую способность мужчин к владению идентификацией и пониманием эмоций в динамических ситуациях. Эти данные не имеют аналога в предыдущих исследованиях, что указывает на необходимость дальнейших исследований в этой области. Были определены переменные, на которые следует обратить внимание в будущих исследованиях взаимосвязи ЭИ и профессиональной деятельности. Ценность результатов: ТЭИ может быть использована для установления роли ЭИ в эффективности деятельности и психологическом благополучии человека и в последующем стать надёжным инструментом оценки способности человека к социальным взаимодействиям и повышению самоэффективности. Исследования в этой области являются актуальными с точки зрения понимания роли и места ЭИ как человеческого ресурса жизнедеятельности и самоэффективности, и с точки зрения создания надёжной технологии, вносящей вклад в организационное развитие.

Ключевые слова: эмоциональный интеллект; тест эмоционального интеллекта; ТЭИ; MSCEIT; модель способностей; организационная психология.