EMOTIONAL INTELLIGENCE AND BIG-FIVE PERSONALITY FACTORS IN FEMALE STUDENT SAMPLE

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Abstract
The aim of this study is to figure out possible connectedness between emotional intelligence and five big personality factors in female students selected from social sciences faculties. The evaluated sample comprised 66 healthy students, of Macedonian nationality, mean age 18.9 ± 0.63 years. As psychometric instruments, we used the EI-test and NEO-PI-R, both with eligible metric characteristic and already used in the Republic of Macedonia. Statistical analysis was performed using Sta17, both descriptive and inferential statistics including medians, standard deviations, and two-tailed Pearson's correlation. The obtained results for emotional intelligence showed an average anxiety level (M = 77.35), extraversion (M = 50.91) and a realistic outlook on life (M = 81.64), high self-confidence (M = 44.44) and generally satisfactory empathy (M = 85.39). Personality characteristics obtained with NEO-PI-R showed high extroversion (M = 123.70), low agreeableness (M = 105.82) and consciousness (M = 104.67), as well as mild neuroticism (M = 91.33) and openness (M = 117.45). The results confirmed a high positive correlation between anxiety, optimism, and empathy; and between self-confidence and empathy within the EI test. Within NEO-PR-R there was a positive correlation between factors Extroversion and Openness to Experience and a negative correlation between the factors Extroversion and Agreeableness. However, just one negative correlation is noted, between Extroversion from EI and Openness to experience from NEO-PR-R (-0.25; p < 0.05). We concluded that similar facets measured with different psychometric instruments have different basic concepts. The obtained results, although they figure out some support from other research, also differ from other studies. It is important for us to follow the obtained results and to provoke further research on a bigger and more diverse sample.

Key words: personality traits, emotional intelligence, students.

Introduction
This study was provoked by the perception of continuous changes that was already a style of living in our country. Namely, we are witnessing an increase of the pathology in everyday life, from an increased amount of psychosomatic to psychiatric pathology, as well as a different kind of social pathology. Behaviourally, we are observing the persistence of constant changes, especially among the student population. The changes were predicted in the research done during 2003–2004 (Stoimenova, 2005), and therefore we decided to conduct the new research that would check the postulated hypothesis. We assumed that there was notable change in the level of affective regulation among the student population, and that it would be somehow subtly reflected on the level of emotional intelligence.

The aim of this article is the assessment of the female student population for emotional intelligence and big-five personality factors. A
particular interest was to find the correlation between emotional intelligence and its facets with the big personality factors.

For a better understanding of the mentioned concepts, in the following text we will describe some important explanations.

1. Emotional Intelligence – concept, nature, measurement

Emotional intelligence (EI) refers to the ability to perceive, control and evaluate emotions. Some researchers suggest that emotional intelligence can be learned and strengthened, while others claim that it is an inborn characteristic. It can be divided into ability EI and trait EI. The distinction between trait and ability emotional intelligence was introduced by 2000.

Peter Salovey and John D. Mayer have been the leading researchers on emotional intelligence. In their influential article "Emotional Intelligence," they defined emotional intelligence as: "the subset of social intelligence that involves the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (Salovey, Mayer, 1990).

The term became widely known with the publication of Goleman's book "Emotional Intelligence – Why it can matter more than IQ" (1995). Goleman has followed up with several further popular publications on a similar theme that reinforce use of the term.

The model introduced by Daniel Goleman outlines five main EI constructs:

1. Self-awareness – the ability to know one's emotions, strengths, weaknesses, drives, values and goals and recognize their impact on others while using gut feelings to guide decisions;
2. Self-regulation – involves controlling or redirecting one's disruptive emotions and impulses and adapting to changing circumstances;
3. Social skill – managing relationships to move people in the desired direction;
4. Empathy – considering other people's feelings especially when making decisions;
5. Motivation – being driven to achieve for the sake of achievement.

The most prominent measures of ability EI are the Multifactor Emotional Intelligence Scale (MEIS Mayer, Caruso, & Salovey, 1999) and its successor, the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer, Salovey, and Caruso, 2002) The first measure of EI in general, and of trait EI in particular, the TMMS, is loosely based on the original model by Salovey and Mayer (1990). In this research, we used the EI test proposed in "The Complete Book of Intelligence Tests" by Carter Philip, 2005.

2. Personality – concept, nature, measurement

Personality refers to the combination of characteristic patterns of behaviour, thoughts and feelings that form an individual distinctiveness. The necessity to figure out the appropriate taxonomy for personality characteristics, put factor analysis into, results in the distinction of five large categories that was incorporated in two models: Golberg's "Big Five" (Saucier & Goldberg, 1996) and Costa and McCrea's OCEAN model (Costa & McCrae, 1985, 1988, 1992). For the purposes of this research paper, we will concentrate on Costa and McCrea's OCEAN model, where OCEAN is an acronym that refers to Openness, Conscientiousness, Extraversion, Agreeableness and Neuroticism. According to Digman, the importance of this model lies in its high validity in personality assessment, especially pointing to personality structure, that makes its perfect for research purposes (Digman, 1990). Although it is not so good when personality dynamics are to be assessed, it is worth mentioning that till now the obtained results support its use in the field of counselling and points to its sensitivity in the face of pathology (McCrae & Costa, 1991; Smith & Williams, 1992). The model is experientially founded. The "core" factors are made up of 6 other subordinated factors (traits).

Namely, the Neuroticism factor refers to the number and strength of the stimulus that are necessary for individual experience of negative emotions. According to Pervin, Neuroticism is a personality dimension defined by stability and low anxiety on one side and low stability and high anxiety on other (Pervin, 1990). It is made up of anxiety, angry hostility, depression, self-consciousness, impulsivity and vulnerability. The Extroversion factor is characterised with clear interest and approach to others with
an acceptance of possible risk (Ewen, 1998: 289). Its facets are: warmth, gregariousness, assertiveness, activity, excitement and positive emotions. Openers to experience as a factor refers to the human capacity to adjust, activate and act within new situations and with new ideas, therefore conformity versus creativity defines its polarities. Its facets are: fantasy, aesthetics, feelings, actions, ideas and values. The Agreeableness factor is a primary dimension of interpersonal tendencies and refers to the quality of cooperation with others, and consists of: trust, straightforwardness, altruism, compliance, modesty, and tender-mindedness. The Conscientiousness factor relates to the control of impulses and made up of the following facets: competence, order, dutifulness, achievement, striving, self-discipline and deliberation.

It is important to note that each of these five personality factors represents a range between two extremes. In the real world, most people lie somewhere between the ends of each dimension.

McCrae and his colleagues (McCrae, 1991, McCrae, R.R, & Costa, P.T, 1997; McCrae, R. R, Terracciano, A. 2005) have found that the big five traits are also remarkably universal. Yet the five personality dimensions are not only universal: they also have biological origins (Jang, et al. 1996).

Methodology
We conducted this research during the spring semester 2012/2013 on a sample of 66 healthy female students, mean age 18.9 ± 0.63 years. The sample was selected randomly, including only females for a better interpretation of the results. For the assessment, we used two psychometric tools: the Emotional Intelligence Test and NEO-PI-R, both previously used on a Macedonian population. The metric characteristics of the tests satisfied the norms and were sufficient for the research purposes.

For measuring Emotional Intelligence we used the EI test proposed in *The Complete Book of Intelligence Tests* by Carter Philip, 2005. The test comprised five subtests for evaluation of: anxiety level, extroversion/introversion, optimism, self-confidence and sensibility (empathy). All subtests comprised 25 statements rated by using a 5-point Likert scale.

The anxious/relaxed subtest comprises 25 statements with 1–5 possible answers most applicable to the examinee. A total score 90–125 means an overly anxious nature who finds it very difficult to relax completely; a total score 65–89 means average anxiety; a total score less than 65 means a relaxed attitude to life.

The extrovert/ introvert subtest also comprises 25 statements with three possible answers. Scores of 40–50 points means extroversion; 25–39 points – average extroversion; less than 25 points indicate introversion.

The optimist/pessimist subtest gives the general outlook on life. A total score of 90–125 means eternal optimism; a total score 65–89 means realism; a total score of less than 65 means a predominantly pessimistic outlook on life.

The assessment of the self-confidence subtest gives several possibilities: 40–50 points means a high self-confidence factor; 25–39 points means an average self-confidence factor and less than 25 points means a below average self-confidence factor.

The empathy subtest assesses the sensitivity of the person. A total score of 90–125 means a very caring person who is deeply touched by the feelings of others; a total score of 65–89 means a generally tender-hearted person who would never wish to hurt other peoples’ feelings deliberately. A total score of less than 65 indicates a high degree of toughness.

The NEO-PI R (Form S) used in this research is a self-evaluation personality inventory that consists of 240 items that define all five core dimensions. Each of them has six facets, in total 30, that are covered by eight items each, in total 48 per core dimension, or 240 in grand total.

All items are rated using a 5-point Likert scale in a span from 1 to 5 whereby 1 is strongly disagree and 5 is strongly agree. The NEO-PI-R has been translated into many languages, including Macedonian, using the method of back translation to establish cross-language equivalence.

The score obtained on each dimension defines the factor operationally, and therefore: Neuroticism, as well Extroversion, Openness to Experience, Agreeableness, and Consciences, are operationally defined through an obtained score on NEO-PI-R in a span from 0 to 192 respectively. For the purposes of the research
we transformed the raw scores in a T test for further analysis.

The obtained results were statistically analysed using STAT 17. Analysis involved both descriptive and inferential statistics, including means, standard deviations, and two-tailed Pearson's correlation coefficients. The results are presented in tables, and discussed further.

**Results**

The samples comprised female students selected randomly from the Social Sciences Faculty, N = 66, mean age 18.9 ± 0.63 years, all of Macedonian nationality.

Table 1 Present mean values and standard deviation obtained for sets included in emotional intelligence.

<table>
<thead>
<tr>
<th>Facet</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>77.35</td>
<td>13.76</td>
<td>66</td>
</tr>
<tr>
<td>Extroversion</td>
<td>50.91</td>
<td>9.46</td>
<td>66</td>
</tr>
<tr>
<td>Optimism</td>
<td>81.64</td>
<td>13.82</td>
<td>66</td>
</tr>
<tr>
<td>Self-confidence</td>
<td>44.44</td>
<td>10.50</td>
<td>66</td>
</tr>
<tr>
<td>Empathy</td>
<td>85.39</td>
<td>24.82</td>
<td>66</td>
</tr>
</tbody>
</table>

Results showed an average anxiety level, extroversion and a realistic outlook on life, high self-confidence and a generally average level of empathy.

Table 2

<table>
<thead>
<tr>
<th>Facet</th>
<th>M</th>
<th>SD</th>
<th>T-score</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>91.33</td>
<td>25.76</td>
<td>54</td>
<td>66</td>
</tr>
<tr>
<td>E</td>
<td>123.70</td>
<td>20.46</td>
<td>57</td>
<td>66</td>
</tr>
<tr>
<td>O</td>
<td>117.45</td>
<td>18.98</td>
<td>53</td>
<td>66</td>
</tr>
<tr>
<td>A</td>
<td>105.82</td>
<td>18.49</td>
<td>34</td>
<td>66</td>
</tr>
<tr>
<td>C</td>
<td>104.67</td>
<td>24.68</td>
<td>40</td>
<td>66</td>
</tr>
</tbody>
</table>

Results showed that the main personality characteristics of the evaluated students are: high extroversion, low agreeableness and conscientiousness, as well as mild neuroticism and openness.

Table 3

<table>
<thead>
<tr>
<th>Facet</th>
<th>Anxiety</th>
<th>Extraversion</th>
<th>Optimism</th>
<th>Self-confidence</th>
<th>Empathy</th>
<th>N</th>
<th>E</th>
<th>O</th>
<th>A</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>1</td>
<td>.18</td>
<td>.53*</td>
<td>.14</td>
<td>.48*</td>
<td>-20</td>
<td>.09</td>
<td>-.20</td>
<td>-.04</td>
<td>-.06</td>
</tr>
<tr>
<td>Extraversion</td>
<td>.18</td>
<td>1</td>
<td>.07</td>
<td>.21</td>
<td>.06</td>
<td>.10</td>
<td>-.20</td>
<td>-.25*</td>
<td>-.02</td>
<td></td>
</tr>
<tr>
<td>Optimism</td>
<td>.53*</td>
<td>.07</td>
<td>1</td>
<td>-.06</td>
<td>.23</td>
<td>-.03</td>
<td>.22</td>
<td>-.04</td>
<td>-.06</td>
<td></td>
</tr>
<tr>
<td>Self-confidence</td>
<td>.14</td>
<td>.21</td>
<td>-.06</td>
<td>1</td>
<td>.34*</td>
<td>.09</td>
<td>-.09</td>
<td>-.20</td>
<td>.30</td>
<td>.17</td>
</tr>
<tr>
<td>Empathy</td>
<td>.48*</td>
<td>.06</td>
<td>.23</td>
<td>.34*</td>
<td>1</td>
<td>-.20</td>
<td>.01</td>
<td>-.05</td>
<td>.11</td>
<td>.05</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>-.20</td>
<td>.10</td>
<td>-.03</td>
<td>.09</td>
<td>-.20</td>
<td>1</td>
<td>.01</td>
<td>.14</td>
<td>-.20</td>
<td></td>
</tr>
<tr>
<td>Extraversion</td>
<td>.09</td>
<td>-.20</td>
<td>.22</td>
<td>-.09</td>
<td>.01</td>
<td>.10</td>
<td>1</td>
<td>.27*</td>
<td>-.26</td>
<td></td>
</tr>
<tr>
<td>Openness</td>
<td>-.04</td>
<td>-.25*</td>
<td>-.04</td>
<td>-.20</td>
<td>-.05</td>
<td>.01</td>
<td>.27*</td>
<td>1</td>
<td>-.23</td>
<td></td>
</tr>
<tr>
<td>Agreeableness</td>
<td>-.06</td>
<td>.22</td>
<td>-.06</td>
<td>.30</td>
<td>.11</td>
<td>.14</td>
<td>-.26</td>
<td>-.23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consciousness</td>
<td>-.13</td>
<td>-.02</td>
<td>-.18</td>
<td>.17</td>
<td>.05</td>
<td>-.20</td>
<td>-.22</td>
<td>-.15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p < 0.05,  ** p < 0.01

The obtained results presented in Table 3 show a positive correlation between the facets Anxiety and Optimism (0.53; p < 0.01) and Anxiety and Empathy (0.48; p < 0.01); as well as between the facets Self-confidence and Empathy (0.34; p < 0.01); a negative corre-
tion between the EI facet Extraversion and the factor from NEO-PI-R, Openness to Experience (-0.25; p < 0.05). Within NEO-PR-R there is a positive correlation between the factors Extraversion and Openness to Experience (0.27; p < 0.05) and a negative correlation between the factors Extraversion and Agreeableness (-0.26; p < 0.05). Between facets from EI and NEO-PR-R factors only one negative correlation is noted, between Extraversion from EI and Openness to experience from NEO-PR-R (-0.25; p < 0.05).

Discussion
From the previous studies, it was clear that emotional intelligence is associated with certain factors such as family functioning, and some personality characteristics. The record of studies on the relationship between family functioning and emotional intelligence shows that there are both direct and indirect family influences on EI (Ozbaci, 2006; Gottman, 1998; Walsh, 1993; Manuel, 2002).

The high EI in family members influence development of the EI in children. Gottman pointed out that good parenting includes not only intellectual abilities but also emotional capacities (Gottman, 2008). In addition, Yamada showed that depressed parents are at high risk of facing low emotional stability and behaviour problems in children (Yamada, 2004). Bearing in mind that in the contemporary style of life and family functioning the process of parenting is practically damaged (mainly due to the economic crisis and long working hours), it is expected that children and adolescents will not have a good model for development of EI issues. In this context, obtained results where we recognize high self-esteem as well as empathy give us the possibility to consider that the parenting styles Macedonian parents are using are still functional and have the capacity to support development. Also, it is worth mentioning that in our study, the obtained results showed that students manifest moderate anxiety, extroversion, high self-confidence and a satisfactory level of empathy, but they are very realistic concerning optimism. We can only suppose that this is due to family functioning, as well as the current socio-economic situation mostly under the influence of the economic crisis.

However, results obtained on NEO-PI-R suggest that there is a difference between the results that we have now, compared with those that were gathered 15 years ago. Namely, during 1998–1999 NEO-PI-R was administered to students coming from the humanities as well as technical sciences (Stoimenova, 2000). Compared to that result, it seems that there is something that is changing on the level of some personality traits, especially pointing to Neuroticism, which was above the average. The level of other factors also differs but with not so great magnitude, although it is important to compare those results with some more extended research these days.

Living in a field that is generating anxiety, a capacity for empathy, sharing and optimism, are those who kept the anxiety level on the average, and also boost self-confidence. Our results support this (Table 3). Continuing in that direction, it indirectly points to the emotional intelligence capacities of the students who were supported by a correlation between self-confidence and empathy, too.

It was expected that the large factors of NEO-PI–R would show connectedness, especially on the level of Extroversion and Agreeableness, but it was unexpected that there was a connectedness of Extroversion with Openness to Experience. We can assume that this is due to openness and sensitivity to others from the group, their ideas, values, and probably a new question can arise from that point: Is the change all around us one of the factors that provoke our sensitivity and openness toward our fellows, other human beings?

Some of our results are supported by other literature results, as follows:

Considering the five-factor model of personality, trait EI measures have been found to have large significant correlations with extraversion (E) and neuroticism (N) (with positive and negative signs respectively) with a smaller significant positive correlations with openness (O), agreeableness (A) and conscientiousness (C) (Dawda & Hart, 2000).

The results obtained in our study correspond to a study conducted with Slovenian and Croatian students (Avsec, 2009) and give us some optimism that our students are relatively positive persons in face of the societal and en-
environmental changes, especially on the level of family functioning.

Furthermore, as Lumiet points out, results of some research projects (Athota, Sagar, Peter, & Jakson, 2009) gave us theoretical evidence which indicated that EI was found to be the strongest predictor of four of the Big Five personality dimensions: extraversion, openness, neuroticism, agreeableness.

Our results give some hypothesis that should be further examined and discussed concerning differences between facet measures on different tests, since each psychometric test measure facet is differently conceptualized. Following that line we can point to an "openness" that does not mean extraversion, nor does agreeability mean extraversion. Neurotic tendencies could be interpreted as a coping mechanism against repression, that is again in favour of still high emotional intelligence functioning.

Research in the area should continue, since the obtained results give us some important remarks about possibilities for further examination of these very important constructs, not just in females but in the whole population, so we should point a little to gender differences, which are as such already discussed in several studies.

Aware that the conducted research has some considerable points for improvement, we want to point out some important findings.

Conclusions

Although in different instruments there are facets with the same name, it is important to clarify their operational definition and to follow it as such, since very often, as in our case here, they differ a lot.

Furthermore, our results show that the female students that choose to study humanistic faculties and to continue with work in the field of helping professions have respectable emotional intelligence capacities. Some of the results are supported by other research projects, some differs from those that conducted in Macedonia 10 to 15 years ago, and some should be retested and followed up in the future.

However, the influence of emotional intelligence and some personality traits on professions is subject of interest, as it has already been shown.

Further research is needed that will cover all the questions raised, and that will point out the results that are necessary for fully understanding some important issues connected with emotional intelligence and its connectedness to personality factors.

REFERENCES


Резиме

EMOCIJOVALNATA INTELEGENCIJA I GOLEMITE PET FAKTORI NA LICNOST KAJ @ЖЕНСКА СТУДЕНТСКА ПОПУЛАЦИЈА

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Цел на оваа студија е да се најде можната поврзаност помеѓу емоционалната интелигенција и големите пет фактори на личност кај женски студенти, избрани од факултетите за социолошки науки.

Испитуваното примерок подразбира 66 здрави студентки од македонска националност, средна возраст 18,9 ± 0,63 години. Како психометрични инструменти ги користевме ЕИhПИhР, обата со соодветни метрички карактеристики, а кои веќе се користени во Р. Македонија. Статистичката анализа е работена со Ста 17, и двата дела воанаачна корелации, а двонасочна Пирсонова корелација.

Добиените резултати за емоционална интелигенција покажаа средно високо ниво на аксионност (M = 77,35), екстраверзија (M = 50,91), висока самодоверба (M = 44,44) и, општо земено, високи ниво на емпатија (M = 85,39). Кај женски студенти, избрани од факултетите за социолошки науки, испитуваното примерок подразбира 66 здрави студентки од македонска националност, средна возраст 18,9 ± 0,63 години. Како психометрични инструменти ги користевме ЕИhПИhР, обата со соодветни метрички карактеристики, а кои веќе се користени во Р. Македонија. Статистичката анализа е работена со Ста 17, и двата дела воанаачна корелации, а двонасочна Пирсонова корелации.
модовербата и емпатијата во склоп на ЕИ-тестот. Преку НЕО-ПИ-Р е добиена висока позитивна корелација помеѓу факторите екстраверзија и отвореност кон нови искуства, како и негативна корелација помеѓу факторите екстраверзија и љубезност. Забележана е негативна корелација помеѓу екстраверзијата од ЕИ и отвореноста кон искуства од НЕО-ПИ-Р. Заклучивме дека слични фасети мерени со разни психометриски инструменти имаат различни базични концепти. Добиените резултати, како претставуваат поддршка на нашето истражување, сепак, се разликуваат од други студии. Важно е за нас да ги следиме добиените резултати што треба да бидат провокација за следни истражувања на поголем и поразличен примерок.

Ключни зборови: црти на личност, емоционална интелигенција, студенти.