Links between Creativity and Personality Traits in Students of Artistic and Social Profile

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Abstract

The article analyzes the links between creativity and personality traits in students of artistic and social profiles to understand more fully how different aspects of creativity are associated with personality traits such as psychoticism, extraversion and neuroticism. The study found that more creative by creative personality scale students of artistic profile score better in extraversion scale than the less creative students, and more creative students of social sciences score better in psychoticism scale than less creative students of social profile. Also some tendencies of statistically significant differences were observed: more creative students of artistic profile gather more scores in psychoticism scale than less creative students, more creative students of social sciences gather more scores in extraversion scale and fewer scores in neuroticism scale than less creative their peers. Moreover, a tendency of statistically significant difference among students of artistic profile was pointed out: more creative by divergent thinking aspect – fluency students have a more expressed trait of psychoticism than less creative students.

Keywords: creativity, divergent thinking, creative personality, personality traits.

Introduction

Creative personality has been the main area in creativity research field already for five decades (Chavez-Eakle, Lara and Cruz-Fuentes, 2006). Csikszentmihalyi (1996) after thirty years of observation of creative people argues that creative personality from other differs in its complexity. Maybe this reason determines that researchers fail to define creative personality. Another problem is manifoldness of the construct of creativity. According to Stenberg (2006), creativity is determined by intellectual ability, knowledge, motivation, personality and environment. Due to this Batey and Furnham (2006) note that studies of creativity could not be based on one measurement, but should analyze more aspects of creativity.

The largest discrepancy occurs when researchers do not define what they are studying: traits or processes connected to creativity, or creativity revealed in human behavior and their achievements. Traits and abilities connected to creativity may be called creative potential, yet creativity that is reflected by behavior and performance – creativity as an achievement (Ivcevic, 2009). Creativity as an achievement is a unique feature, great creativity, which is assessed for a particular product (images, books, scientific discoveries). When authors examine creativity as achievement, they select only those participants who have been evaluated by teachers, peers or other competent experts as being very creative (Gough, 1979; Domino, 1974). In literature creative potential is often identified as creative process accessible to everyone or everyday creativity (Ivcevic, 2009; Ivcevic and Mayer, 2009; Richards, 2001).

The creative potential is mostly defined by estimation one of the cognitive abilities – divergent thinking. Divergent thinking is the ability to generate a number of alternative decisions of problem solving. The main parameters of divergent thinking are fluency – the ability to generate as many ideas as possible, and originality – the ability to generate new and useful ideas as many as possible (Grakauskaite-Karkockiene, 2006). However, many authors points out that divergent thinking is only part of creativity and should not be treated as equivalent of creativity (Eysenck, 1993; Gough 1979; Batey and Furnham, 2006).

In relation to how authors define creativity, they distinguish creative personality traits. The proponents of creativity as an achievement investigate exceptionally creative individuals and thus distinguish specific characteristics. Parloff et al. (1968) found that creative individuals have characteristics as unconventionality, independence, autonomy, self-regulation, strength and assertiveness. Kelly (2005) adopted image of creative personality as self-confident. In a large study with specially selected creative individuals Gough (1979) has identified 30 features, of which 18 are more common in creative people and 12 – more specific to less creative persons. So creativity is indicated by such adjectives as:
capable, clever, confident, egotistical, humorous, individualistic, informal, insightful, intelligent, interests wide, inventive, original, reflective, resourceful, self-confident, sexy, snobbish and unconventional. Adjectives, which are often preferred by less creative people: affected, cautious, commonplace, conservative, conventional, dissatisfied, honest, interests narrow, mannerly, sincere, submissive and suspicious. Sundarajan (2004) by studying personality characteristics of Chinese poets found out that their personality profiles correspond to creative personality features distinguished in Western countries, such as autonomy, unconformity, openness to new experience and internal motivation.

The proponents of creative potential measure link between creativity as divergent thinking or as set of characteristics and personality traits. Creativity is associated with the most Big Five traits, and especially openness to experience (Wolfradt and Pretz, 2001; Cholias, Perri and Brodersen, 2005; Silvia et al., 2008; Batey and Furnham, 2006). The meta-analysis by Feist (1998) shows that more creative individuals are more open to experience, confident, self-accepting, ambitious, dominant, hostile, impulsive and less obeying rules than less creative persons. Burch et al. (2006) ascertained that more creative persons are more open and less agreeable.

Talking about personality characteristics associated with creativity calls for a discussion on the the specificity of creativity. Although creativity exists in all areas of life, it is mostly investigated in scientific and artistic activities as artistic and intellectual creativity. And while authors disagree whether these fields of creativity have more in common or are more distinct, previously referred creative personality traits are characteristic to both artistic and intellectual creativity. However, Feist (1998) notes that representatives of artistic professions are distinguished from representatives of scientific professions for emotional instability, coldness, rules and norms rejection. Batey and Furnham (2006) notice that personality traits are associated with creativity in different ways, depending on whether it is artistic, intellectual or everyday creativity. Thus, in the analysis of links between creativity and personality traits it is important to consider the specificity of creativity.

Another triad of personality traits associated with creativity – psychoticism, extraversion and neuroticism by Eysenck (1993). An introvert is usually defined as a timid, quiet individual, contrarily to extravert, who is freely communicating, open and more sociable. Person with more expressed trait of neuroticism shows more emotional responses to various stimuli, experience more uncertainty and anxiety. The third and the most studied trait of Eysenck (1993) – psychoticism. A person having a strongly expressed trait of psychoticism distinguishes for indiscriminate courage, ignorance of global ideas, norms and manifestation of strong emotions (Boeree, 2006).

In the theory by Eysenck (1993), creativity is mostly associated with the trait of psychoticism. According to him, psychoticism is necessary for the occurrence of creativity, and it is determined genetically. Folley (2006) explains that the trait of psychoticism leads to the ability to express unusual ideas and is required for the expression of creativity. Burch et al. (2006) detected the link between divergent thinking aspect – originality and the trait of psychoticism. The authors explain that artists scored better in divergent thinking task, because they are not afraid to appear ridiculous and foul, or to depart from rules and norms. However, there are some studies that had not found connection between creativity and this trait (Woody and Cladridge, 1977; Kline and Cooper, 1986). Batey and Furnham (2006) summarized that creativity as originality depends on the trait of psychoticism, which allows individuals to create new and exciting ideas, based on the information, which might have appeared irrational for uncreative persons.

The other two personality traits pointed out by Eysenck are not so easily linked with creativity. Wolfradt and Pretz (2001), by studying creativity and personality traits in students of various professions found that creativity is negatively associated with the trait of neuroticism. Creative students have demonstrated less of the trait of neuroticism. Burch et al. (2006) compared students of artistic and non-artistic profiles and found out that students of artistic profile scored more in creativity and trait of neuroticism than students of non-artistic profile. Drawing on the results of meta-analysis, Batey and Furnham (2006) argue that the trait of neuroticism is strongly positively associated with artistic creativity and negatively associated with intellectual and everyday creativity. Thus creative representatives of artistic professions tend to have a stronger trait of neuroticism and those who are more creative representatives of scientific or everyday creativity tend to be more emotionally stable than less creative individuals.

Analysis of link of creativity and extraversion/introversion is complicated. The meta-analysis by Feist (1998) shows that creativity is linked to introversion. Ivcevic, Bracket and Mayer (2007) also found a negative connection between divergent thinking and extraversion. However, there are some discrepant studies. Wolfradt and Pretz (2001) found that more creative students expressed more extraversion than their less creative peers. The authors explained that this inadequacy occurred due to young age of participants. According to them, creative individuals become more introverted with higher level of achievements. The meta-analysis by Batey and Furnham (2006) showed that extraversion is positively related to everyday creativity and negatively related to artistic and intellectual creativity. Hence, creativity as a process occurring in population is more common in extraverted people, yet exclusively creative persons are more introverted.

Creativity is a necessity exclusively characteristic to human beings, helping to adapt and realize themselves in life more successfully (Rothenberg, 2006). That is why creativity should be developed and practiced. Establishment of links between creativity and personality would make it easier to identify and encourage creative individuals to develop their creative potential (Parloff et al., 1968).

Thus, there still are some uncertainties in conjunction with links between creativity and personality traits by Eysenck (1993). Connections differ due to specification of creativity construct, they depend on whether is examined intellectual or artistic creativity. Previous researches ascertained that manifestation of creativity aspects differ...
due to participants’ profession (Charyton and Snelbecker, 2007; Gough, 1979). Our previous article illustrated the same problem, there students of artistic profile were more creative than students of social sciences according to creativity as set of characteristics and less creative according to divergent thinking aspect of fluency. Moreover, manifestation of personality traits differed because of participants studied profession (Saprana viciute, Perminas and Sinkariova, 2010). In obedience to analyzed literature, the presumption is raised that links between creativity and personality traits may differ due to the field of study, which participants are studying in university – social sciences or artistic profile. Students of social sciences study society sciences like psychology or economy. Students of artistic profile are in artistic training programs of visual arts, music or artistry.

Therefore, the purpose of this study is to identify links between personality traits and creativity in students of artistic and social profile. This study examined creative potential regardless of participants’ creative achievements. However, creativity analysis was performed from two perspectives: creativity as a set of characteristics and as divergent thinking. This allows examining how different aspects of creativity are associated with personality traits such as psychoticism, extraversion and neuroticism.

Method
Sample
The respondents were 29 male and 88 female students from various Lithuanian universities, the total of 117 students of artistic profile and social sciences. Since the questionnaires were distrubuted for filling out outside the classroom, a natural drop out of participants occurred: 350 questionnaires were distrubuted, only 117 were returned. Distribution of participants by profession studied is presented in Table 1.

In Table 1 we can see the distribution of participants by the professions studied. Students of artistic and scientific professions were questioned in order to detect the differences of links between creativity and personality traits depending on studied profession. Questionnaires were distrubuted to students of artistic profile from various specialties to form a sample, which would better reflect students of artistic profile. Psychology students were chosen from social profile that comparison with other authors’ works would be more precisely (Burch et al., 2006; Upmanyu, Bhardwaj and Singh, 1996). The age of the respondents ranged from 20 to 44, mostly 22 years old students. The average age of subjects is 22.53 ± 2.908.

Psychometric measures
- The Lithuanian version of questionnaires by Hans and Sybil Eysenck (Eysenck, Gostautas and Pakula, 1991).
- The authors Hans and Sybil Eysenck, Goštautas and Pakula adapted the methodics for Lithuanian population. The questionnaire is intended for measuring personality traits in adults. The Lithuanian version of questionnaire consists of 101 question, of which 85 are included into four scales: psychoticism (P) –18, extraversion (E) – 21, neuroticism (N) – 24 and lie (L) – 22 issues. Answers to the questions are twofold, respondents choose whether the statement applies to them or not. Validity of the questionnaire is justified by negative correlations between scales. Internal reliability of the questionnaire is relatively high. In the standardization of questionnaire to Lithuanian population there were established such values of Cronbach alpha: E- 0.8, N- 0.81, L- 0.82, P-0.62 (Eysenck, Gostautas, Pakula, 1991). In this study, values of Cronbach alpha confirm results of standardization: E- 0.8, N- 0.84, L- 0.8 and P- 0.63. The reliability of this study is reflected by the average of the lye scale (7.86±4.12), which is lower than in normative (12.83±4.7).
- Gough Creative Personality Scale (CPS, 1979) (Dow, 2003).
- The questionnaire by H.G. Gough is intended to measure creativity. This is self-assessing measurement of creative potential, based on personality characteristics, which respondent marks as suiting him or not. There were carried out a two-way translation of questionnaire. Creative Personality Scale (CPS) consists of 30 adjectives, which are positively and negatively related to creative individuals. 18 adjectives are associated to creative personality in a positive way and 12 – in a negative. Creativity index is calculated by adding selected traits associated with creativity in positive way and subtracting marked characteristics, which is negatively related to creative personality. Higher scores identify creativity. Validity of CPS had been confirmed in 1700 respondents as properly differentiating creative individuals and

| Distribution of participants by sex, profession studied and university |
|-----------------------------|------------------|----------------|--------------|
| **Profile**                 | **Profession**   | **Male** | **Female** | **Total**   |
| Artistic                    | Performance (piano, strings, wind) | 11      | 15         | 26 (22.3%) |
|                             | Acting           | 8       | 10         | 18 (15.4%) |
|                             | Painting         | 1       | 7          | 8 (6.8%)   |
| Social                      | Psychology       | 1       | 47         | 48 (41.0%) |
|                             | Economics and management | 8       | 9          | 17 (14.5%) |
| **Total**                   |                  | 29      | 88         | 100        |

Table 1
reflecting creative achievements. Cronbach alpha had ranged from 0.73 to 0.81 (Gough, 1979). In this study, Cronbach alpha is 0.7.

- Wallach and Kogan Divergent Thinking Battery (Wallach and Kogan, 1965).
- An instrument for measuring divergent thinking. Professor Nathan Kogan gave the permission of method administration. The author also gave advice about administration of study and interpretation of data. A two-way translation of battery was carried out. This method is composed of five scales in verbal and visual parts. Verbal part includes scales of examples, alternatives, similarities and visual part – lines and shapes. While each of the original scale is composed of a number of issues, in this study, after consultation with author, one or two tasks from each scale were selected. The total number of tasks was nine. In the verbal part participants are asked to list as many responses as they can think about. For example, ‘name all the things they can think of that move on wheels’. In the visual part they are asked to tell as many associations they can think of with presented pictures. 11,760 responses were fed into Excel for review. Interpretation of the questionnaire was slightly adjusted according to the recent studies (Silvia et al., 2008). Instead of ordinary uniqueness score, originality index was calculated by giving one point for unusual response and two points for unique response. If answer is provided by only 5 percent of participants it is unusual, if only by one participant the answer is unique. In this way originality index was counted for each scale. The scales were standardized, transformed into T scores and finally summed to one originality scale. Higher scores identify more original thinking. Also the index of fluency was calculated for each scale by adding all the answers, sums there standardized and transferred to T scores. Finally all the scales were added to one fluency scale. Higher scores indicate more fluent thinking (Wallach and Kogan, 1965). In this study scales of divergent thinking are highly compatible; Cronbach alpha of originality is 0.93, fluency – 0.91.

- Demographic indicators – participants were asked to indicate their sex, age, high school and future profession.

Procedure

Questionnaires were distributed to students for filling in outside the classroom to ensure the greatest validity by not limiting their time. Inevitably, this led to a great drop out of potential participants. The following instruction was given: ‘in fulfilling the tasks, be creative as possible’, because previous studies demonstrated that such instruction increases the occurrence of creativity (Silvia et al., 2008). For the data analysis statistical analysis system SPSS 16.0 and MS Excel 2007 software package were used.

Results

In order to find out how personality traits are linked to various aspects of creativity, students were divided into more and less creative in all three aspects – according to creative personality scale, original responses and the amount of responses in divergent thinking tasks. Into more and less creative groups students were divided by terciles. First and second tercile together reflected less creative persons, and third tercile – more creative students.

In order to reveal links between personality traits and creativity as a set of characteristics in social and artistic profile students, expression of personality traits was compared in groups of more and less creative students. Middle ranks were compared with nonparametric Mann-Whitney criterion, due to non-compliance of sample distribution to normal distribution. In order to define links between creativity and personality traits according to profession studied, comparison of middle ranks was made in artistic profile students and social sciences students separately. The results are presented in Table 2.

Table 2 shows that the trait of extraversion significantly differs in more and less creative by creative personality scale students of artistic profile. Artistic profile students with higher potential to be creative are more extraverted than less creative students. Also, more creative students of social sciences expressed more psychoticism than less creative students of social sciences. The tendency of statistically significant difference (p=0.058) was observed: more creative by creative potential students of artistic profile have a more expressed trait of psychoticism than less creative students. It is likely that in a larger population this difference would be statistically significant. The trait of neuroticism does not differ in more or less creative students of artistic profile. A tendency of statistically significant difference among students of social sciences was observed: more creative students have expressed more extraversion and less neuroticism than less creative students.

Next, in order to clarify how personality traits of students differ depending on the expression of divergent thinking, there were compared expressions of personality traits in more and less creative by thinking originality and fluency students of artistic and social profile separately. Nonparametric Mann-Whitney criteria were used to compare middle ranks of personality traits. Comparison of personality traits in more and less creative, according to originality, students of artistic and social profile is presented in Table 3.

Table 3 shows that students who gathered more scores in originality scale do not significantly differ by personality traits from students who gathered fewer scores. Although more creative by thinking originality artistic profile students have a bigger average of all three-personality traits, yet there is no statistically significant difference when middle ranks are compared.

More creative students of social sciences have more expressed traits of psychoticism and extraversion, yet less expressed trait of neuroticism; however differences are not statistically significant. Table 4 provides a comparison of the personality traits in more and less creative by fluency scale students of social and artistic profile.
In Table 4 we can see that more creative according to fluency of thinking scale students do not significantly differ by personality traits from less creative students. However, there is a tendency of significant difference in artistic profile students that more creative according to fluency of thinking students have a more expressed trait of psychoticism than their less creative peers. In other words, students of artistic profile who had given more answers in divergent thinking tasks have more expressed trait of psychoticism than students who had given less answers. In order to look deeper into connections of creativity and personality traits correlations, correlations were established between more and less typical characteristics of creative personality and Eysenck personality traits – psychoticism, extraversion and neuroticism. Spearman correlations between characteristics positively and negatively linked with creativity and Eysenck personality traits can be seen in Table 5 and Table 6. Only statistically significant correlations and tendencies of significant correlations are highlighted in the tables. In Table 5, there are correlations between psychoticism, extraversion, neuroticism and adjectives positively linked to creative personality.

<table>
<thead>
<tr>
<th>Personality traits</th>
<th>Less creative</th>
<th>More creative</th>
<th>p</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>(\bar{x})</td>
<td>SD</td>
<td>Middle ranks</td>
</tr>
<tr>
<td>Psychoticism</td>
<td>31</td>
<td>2.77</td>
<td>2.19</td>
<td>23.26</td>
</tr>
<tr>
<td>Extraversion</td>
<td>12.97</td>
<td>3.64</td>
<td>20.21</td>
<td></td>
</tr>
<tr>
<td>Neuroticism</td>
<td>12.29</td>
<td>4.81</td>
<td>27.58</td>
<td></td>
</tr>
</tbody>
</table>

Table 2

Comparison of personality traits of more and less creative according to originality of thinking in students of artistic and social profile

<table>
<thead>
<tr>
<th>Personality traits</th>
<th>More creative</th>
<th>Less creative</th>
<th>p</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>(\bar{x})</td>
<td>SD</td>
<td>Middle ranks</td>
</tr>
<tr>
<td>Psychoticism</td>
<td>33</td>
<td>3.15</td>
<td>2.22</td>
<td>26.06</td>
</tr>
<tr>
<td>Extraversion</td>
<td>14.39</td>
<td>3.83</td>
<td>26.20</td>
<td></td>
</tr>
<tr>
<td>Neuroticism</td>
<td>11.67</td>
<td>4.54</td>
<td>25.45</td>
<td></td>
</tr>
</tbody>
</table>

Table 3

Comparison of personality traits of more and less creative according to fluency of thinking in students of artistic and social profile

<table>
<thead>
<tr>
<th>Personality traits</th>
<th>More creative</th>
<th>Less creative</th>
<th>p</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>(\bar{x})</td>
<td>SD</td>
<td>Middle ranks</td>
</tr>
<tr>
<td>Psychoticism</td>
<td>39</td>
<td>2.92</td>
<td>2.18</td>
<td>27.42</td>
</tr>
<tr>
<td>Extraversion</td>
<td>14.56</td>
<td>3.75</td>
<td>26.74</td>
<td></td>
</tr>
<tr>
<td>Neuroticism</td>
<td>11.51</td>
<td>4.24</td>
<td>24.90</td>
<td></td>
</tr>
</tbody>
</table>

Table 4
Table 5

Correlations between personality traits and more common characteristics in creative person in students (n=117)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Psychoticism</th>
<th>Extraversion</th>
<th>Neuroticism</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R</td>
<td>p</td>
<td>R</td>
</tr>
<tr>
<td>Capable</td>
<td>0.120</td>
<td>0.197</td>
<td>0.154</td>
</tr>
<tr>
<td>Clever</td>
<td>0.190</td>
<td>0.040</td>
<td>0.218</td>
</tr>
<tr>
<td>Confident</td>
<td>0.268</td>
<td>0.003</td>
<td>0.041</td>
</tr>
<tr>
<td>Egotistical</td>
<td>0.302</td>
<td>0.001</td>
<td>0.013</td>
</tr>
<tr>
<td>Humorous</td>
<td>0.093</td>
<td>0.321</td>
<td>0.413</td>
</tr>
<tr>
<td>Individualistic</td>
<td>0.069</td>
<td>0.462</td>
<td>0.015</td>
</tr>
<tr>
<td>Informal</td>
<td>0.172</td>
<td>0.064</td>
<td>0.036</td>
</tr>
<tr>
<td>Insightful</td>
<td>0.042</td>
<td>0.656</td>
<td>0.208</td>
</tr>
<tr>
<td>Intelligent</td>
<td>-0.095</td>
<td>0.306</td>
<td>0.226</td>
</tr>
<tr>
<td>Interests Wide</td>
<td>-0.043</td>
<td>0.647</td>
<td>0.153</td>
</tr>
<tr>
<td>Inventive</td>
<td>0.162</td>
<td>0.081</td>
<td>0.137</td>
</tr>
<tr>
<td>Original</td>
<td>0.146</td>
<td>0.115</td>
<td>0.203</td>
</tr>
<tr>
<td>Resourceful</td>
<td>0.086</td>
<td>0.354</td>
<td>0.338</td>
</tr>
<tr>
<td>Self-confident</td>
<td>0.033</td>
<td>0.727</td>
<td>0.348</td>
</tr>
<tr>
<td>Sexy</td>
<td>0.095</td>
<td>0.309</td>
<td>0.302</td>
</tr>
<tr>
<td>Snobbish</td>
<td>0.184</td>
<td>0.047</td>
<td>-0.027</td>
</tr>
<tr>
<td>Unconventional</td>
<td>0.318</td>
<td>0.0001</td>
<td>0.133</td>
</tr>
</tbody>
</table>

Table 6

Correlations between personality traits and characteristics less common in creative personalities in students (n=117)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Psychoticism</th>
<th>Extraversion</th>
<th>Neuroticism</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>r</td>
<td>p</td>
<td>r</td>
</tr>
<tr>
<td>Affected</td>
<td>0.217</td>
<td>0.019</td>
<td>-0.025</td>
</tr>
<tr>
<td>Cautios</td>
<td>-0.121</td>
<td>0.195</td>
<td>-0.178</td>
</tr>
<tr>
<td>Commonplace</td>
<td>-0.089</td>
<td>0.339</td>
<td>-0.445</td>
</tr>
<tr>
<td>Conservative</td>
<td>0.105</td>
<td>0.262</td>
<td>-0.152</td>
</tr>
<tr>
<td>Conventional</td>
<td>-0.110</td>
<td>0.237</td>
<td>-0.097</td>
</tr>
<tr>
<td>Dissatisfied</td>
<td>0.214</td>
<td>0.021</td>
<td>0.086</td>
</tr>
<tr>
<td>Suspicious</td>
<td>0.219</td>
<td>0.018</td>
<td>-0.089</td>
</tr>
<tr>
<td>Honest</td>
<td>-0.223</td>
<td>0.016</td>
<td>0.069</td>
</tr>
<tr>
<td>Mannerly</td>
<td>0.182</td>
<td>0.049</td>
<td>0.153</td>
</tr>
<tr>
<td>Interests narrow</td>
<td>0.122</td>
<td>0.189</td>
<td>-0.144</td>
</tr>
<tr>
<td>Sincere</td>
<td>0.256</td>
<td>0.005</td>
<td>0.092</td>
</tr>
<tr>
<td>Submissive</td>
<td>0.003</td>
<td>0.979</td>
<td>-0.201</td>
</tr>
</tbody>
</table>

In Table 5 we see which characteristics of creative personality are linked with psychoticism, extraversion and neuroticism. Moderate relations were observed between the trait of psychoticism and such characteristics as ‘confident’, ‘egotistical’ and ‘unconventional’. Also a little bit weaker correlations were established between the trait of psychoticism and characteristics often chosen by creative personality such as clever, informal and snobbish. Also a tendency of significant correlations between trait of psychoticism and inventiveness was observed. Extraversion strongly correlated with certain characteristics of creative personality, so extraverts often describe themselves as humorous, self-confident, resourceful, sexy, insightful, intelligent, clever and original. Trait of neuroticism is linked with adjectives attributed to creative personality only in negative way. Thus one may assume that persons who have expressed trait of neuroticism weaker are likely to have following characteristics attributed to creative personality such as self-confident, insightful, interests wide, resourceful and confident. Table 6 shows how the same personality traits are associated with characteristics attributed to less creative personality.

Correlations resulted in Table 6 are slightly unexpected. The trait of psychoticism is positively associated with five characteristics less special for creative personality. In this study such characteristics as affected, dissatisfied, suspicious, mannerly and sincere is linked with trait of psychoticism, but, according to Gough (1979), with less creative individuals. Only honesty, which is uncommon to a creative personality, is linked with the trait of psychoticism in a negative way. As expected, creativity correlates negatively with characteristics, less special for creative individuals. Less extraverted persons more often tend to be cautious, conventional and submissive. Also weaker but significant correlations were identified between
the trait of neuroticism and features not characteristic for creative personality. One may assume that a person who is conventional, suspicious and submissive may have the trait of neuroticism more expressed.

Thus it is likely that a more expressed trait of psychoticism is going to have creative personality characteristics as ‘clever’, ‘confident’, ‘egotistical’, ‘informal’, ‘inventive’, ‘snobish’, ‘dishonest’ and ‘unconventional’; however, probably they are going to have characteristic not specific to creative personality also, such as ‘affected’, ‘dissatisfied’, ‘suspicious’, ‘mannerly’ and ‘sincere’. Extraverts more often describe themselves with characteristics attributed to creative personality. Those who have a more expressed trait of psychoticism tend to attribute characteristics uncommon to creative individuals to themselves.

**Discussion**

The issue of creative personality is still relatively new and not yet exhausted. The article reflects the need to analyze links between creativity and personality traits. This study attempted to answer the following question how different aspects of creativity are linked with the Eysenk personality traits in students studying different professions. The study corroborated the complexity and multiplicity of the creativity construct separating different links between creativity aspects and personality traits.

Links between creativity as a set of characteristics attributed to creative personality and personality traits found in this study contributes to previous studies carried out in the foreign countries. Eysenck (1993) wrote that the trait of psychoticism is linked with creativity as feature. In this study the trait of psychoticism is also connected to creativity as a set of characteristics. More creative according to creative personality scale students of social sciences have more expressed trait of psychoticism. Also there is a tendency of statistically significant difference that more creative students of artistic profile have more expressed trait of psychoticism.

Assessing separate characteristic, it was noted that the trait of psychoticism is linked to both more common to creative personality characteristics and not special for creative personality characteristics. There may be some explanations for this. First, this double-sidedness might be due to the prediction that psychoticism is not strongly associated with creativity. Secondly, adjectives that Gough (1979) had associated with creative personality may not reflect creativity of this sample due to cultural differences. It was found that person who has more expressed trait of psychoticism more often ascribe to himself characteristics such as suspicious, affected and sincere. In this case, sincerity may serve as openness, suspicion as mistrust and all inconsistencies and contradictions only reaffirm ignorance of social norms and ideas in a person with an expressed trait of psychoticism.

It can be argued that extraversion is the most closely connected with characteristics attributed to creative personality as it relates in positive way with mostly characteristics common to creative personality and in negative way with characteristics more common to less creative personality. Moreover, more creative by creative personality scale students of artistic profile are more extraverted than less creative their peers. Also there is the same tendency of statistically significant difference in students of social sciences.

Expression of the trait of neuroticism does not differ in more and less creative by creative personality scale students of artistic profile. But there is a tendency of significant difference in students of social sciences. There might be that in population this difference would be statistically significant. So, more creative by creative personality scale students of social sciences have more expressed trait of neuroticism than less creative their counterparts. Also trait neuroticism is positively linked with adjectives more common to less creative persons and negatively linked with characteristics attributed to creative personality. This confirms that more expressed trait of neuroticism is more common to less creative individuals.

In the study by Wolfradt and Pretz (2001), more creative individuals were characterized by emotional stability and extraversion, as in this study. While, according to Feist (1998), more creative artists are more introverted and have more expressed trait of neuroticism, this study does not confirm this assumption. This can be explained by the fact that there was not evaluated level of achievements. Maybe some students in this sample do not necessarily relate their future with professional carrier of artist. Probably, explored students exhibited more so-called everyday creativity rather than purely artistic creativity.

Batey and Furnham (2006), summarizing the most recent studies, argue that everyday creativity, unlike the potential of creativity, is linked with the trait of psychoticism, emotional stability and extraversion which is reflected in this study by the links between creativity as set of characteristics and personality traits.

However, another important aspect of creativity – divergent thinking and both of its components has not been related to personality traits. Except for a tendency of statistically significant difference in students of social sciences, those students who have more fluent thinking have more expressed trait of psychoticism than not so fluently thinking ones. This study is not the first that received similar results. In the study by Burch et al. (2006), originality of thinking was associated with personality traits, but fluency – not. In the study by Upmanyu et al. (1996) divergent thinking did not correlate with any personality traits. Silvia et al. (2008) performed regression analysis and showed that divergent thinking is not related to traits of extraversion and neuroticism.

The tendency that more creative by aspect of fluency have a more expressed trait of psychoticism confirms that out of the three Eysenck personality traits, psychoticism is more closely related to creativity. In this study, the trait of psychoticism is associated with two of three component of creativity – creativity as a set of characteristics and as fluency of thinking. In addition, the only trait of psychoticism in all the comparisons were more expressed in group of more creative students, although not always significantly. Thus, this research confirms the theory by Eysenck that creativity is associated with psychoticism.

Thus different relationships between aspects of creativity and personality traits contribute to the idea by Batey and Furnham (2006) that divergent thinking can not
be admitted as an equivalent of creativity, but rather as part of it. As it was intended in this study, research should take into account as much as possible aspects of creativity. Also there should be analyzed possible cultural differences. This study analyzed occurrence of everyday creativity in students not taking into account the level of their achievements. As mentioned above, everyday creativity is associated with personality in different way than artistic and intellectual creativity, which is assessed in light of achievements (Batey and Furnham, 2006). Thus, in further studies it would be relevant to compare how links between personality traits and creativity differ in relation to the level of achievements.

It is important to mention some limitations of this study. Firstly, the sample was not formed in an incident manner, so results of this study must be interpreted as tendencies. For more precise conclusions, there is a need of additional and more profound studies with bigger number of students selected in the incident manner. Also, result of the study might be influenced by drop out of participants, which occurred because of the procedure. Furthermore, a modified version of Wallach and Kogan (1965) Divergent Thinking Battery was used. Although reliability indexes of the scales were adequate, but shortening of the questionnaire might influence other psychometrical characteristics.

**Conclusions**

1. More creative (on the creative personality scale) students of artistic profile have a more expressed trait of extraversion than less creative students. There is a tendency of statistically significant difference that more creative by creative personality scale students of artistic profile have a more expressed trait of psychoticism.
2. More creative by creative personality scale students of social sciences have a more expressed trait of psychoticism than less creative students. There are tendencies of statistically significant difference that more creative by creative personality scale students of social sciences have more expressed traits of extraversion and neuroticism.
3. The trait of psychoticism is associated with such characteristics attributed to creative personality as ‘clever’, ‘confident’, ‘egotistical’, ‘snobbish’, ‘unconventional’, ‘dishonest’ and such characteristics more common in less creative individuals as ‘affected’, ‘dissatisfied’, ‘suspicious’ and ‘mannerly’.
5. The trait of neuroticism is associated negatively with such adjectives attributed to creative personality as ‘egotistical’, ‘insightful’, ‘wide interests’, ‘confident’, ‘sexy’ and ‘self–confident’ and positively with such characteristics more common in less creative individuals as ‘submissive’ and ‘suspicious’.
6. There is a tendency of statistically significant difference in students of student profile, that more creative according to divergent thinking aspect – fluency students have a more expressed trait of psychoticism than less creative students of artistic profile.

**References**

Kūrybiška asmenybė yra geriau prisitaikanti ir efektyvesnė įvairiose gyvenimo srityse, dėl to ji būtų svarbi tikėtina savo savęs turi būti labiname ir ugdoma. Tačiau moksloininkai, nagrinėjantys kūrybiškos asmenybės profilį, nesutaria, kurie asmenybės bruožai atskleidžia kūrybišką kūrybiškumo esmę.

Išskiriami menininis, intelektualinis ir kasdieninis kūrybiškumas, kurie asmenybės bruožų sąsajos gali kurti priklausomai nuo kūrybiškumo tipo.

Statyti atviras sąsajas su asmenybės bruožais kaip jų priskirti kūrybiškumo kaip meninio profilio studentų grupėse. 

Išskirti asmenybės bruožų sąsajas su kūrybiškumo ir asmenybės bruožų sąsajas. Taip pat stebimos statistiškai patikrinimo skirtumo tendencijos, kad kūrybiškesni vertinant kūrybiškumo asmenybės skale, meninio profilio studentai pasižymi stipriausiu išreikštu psychotikės bruožu. Socinialinės mokslų studentų šių skirtumų buvo statistiškai reikšmingos ir ekstraversijos bruožai. Analizuojant, kaip studentų divergentinis mąstymas siejasi su jų asmenybės bruožais atskirai socialinių mokslų ir meninio profilio studentų grupėse, nustatyta, kad labiau ir mažiau kūrybiški studentai pagal divergentinio mąstymo originalumo ir sklandumo aspektų statistiškai reikšmingai nesiskirti. Tačiau nustatyta statistiškai patikrinimo skirtumo tendencija, kad kūrybiškesni, vertinant kūrybiškumą kaip savęjų rinkinių, studentai pasižymi mažiau išreikštu psychotikės bruožu.

Tyrimo rezultatai buvo apdoroti SPSS ir Microsoft Excel programomis.

Analizuojant kūrybiškumo kaip charakteristikų rinkinio ir asmenybės bruožų sąsajas atskirai socialinių mokslų ir meninio profilio studentų grupėse, nustatyta, kad labiau kūrybiškimi, vertinant kūrybiškos asmenybės skale, meninio profilio studentams būdingas labiau išreikštas ekstraversijos bruožas. Taip pat stebima statistiškai patikimo skirtumo tendencija, kad kūrybiškesni vertinant kūrybiškos asmenybės skale, meninio profilio studentai pasižymi stipriausiu išreikštu psychotikės bruožu. 

Pirmiausia šie sunkumai yra sąlygojami kūrybiškos asmenybės bruožų sąsajos su asmenybės bruožais atskirai socialinių mokslų ir meninio profilio studentų grupėse, nustatyta, kad labiau ir mažiau kūrybiški studentai pagal divergentinio mąstymo aspektų statistiškai reikšmingai nesiskirta.

Santrauka

Meninio ir socialinio profilio studentų kūrybiškumo ir asmenybės bruožų sąsajos

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