



Publisher

<http://jssidoi.org/esc/home>



---

**PERCEIVED CREATIVITY AND THE BIG FIVE PERSONALITY TRAITS OF SPECIALISTS  
TRAINED FOR PROFESSION: TRENDS IN THEIR INTERACTION**

**Kristina Samašonok<sup>1\*</sup>, Agnė Juškevičienė<sup>2</sup>**

<sup>1,2</sup> Vilnius University of Applied Sciences, Saltoniškių Str. 58, Vilnius, Lithuania

E-mails: <sup>1\*</sup>[k.samasonok@vyf.viko.lt](mailto:k.samasonok@vyf.viko.lt) (Corresponding authors); <sup>2</sup>[a.juskeviciene@vyf.viko.lt](mailto:a.juskeviciene@vyf.viko.lt)

Received 15 November 2021; accepted 7 February 2022; published 30 March 2022

**Abstract.** The expression of personality traits and creativity of students in different study programmes may differ. The goal of the research is to investigate and compare differences in the expression of personality traits and perceived creativity and their links in two groups of research participants: 1) where the study programmes do not include study subjects for promotion of creativity expression, and 2) where the study programmes include the study subjects that promote the expression of creativity. The research methods: the NEO Five Factor Inventory (Costa, Mc.Crae, 1992) was used to investigate the students' personality traits. Perceived creativity was analysed applying the Questionnaire for Personality Creativity (Petruelis, 1988). The data collected during the research was processed using the method of statistical analysis. The analysis of comparing the values of the components of the personality traits and perceived creativity was conducted applying the *Student-t* test. Investigation of the correlations of perceived creativity with the indicators of the personality traits was carried out using the Pearson's correlation coefficient. The research results showed that significantly higher average values in the scales of originality, childishness and pursuit of creativity were observed among students from the study programmes, which included the study subjects that enhance the expression of creativity, compared with those of students, who chose the study programmes without the study subjects that promote the expression of creativity. However, criticality was stronger expressed among the latter students. Evaluation of the expression of personality traits disclosed significantly higher average values of openness to experience and neuroticism in the group of students from the study programmes with the study subjects that promote creativity compared to the students from the study programmes without such study subjects. However, the level of extraversion expression was characteristic of the students in the latter group. The conducted correlation analysis of the interaction of perceived creativity and the Big Five personality traits disclosed different results of strength and quantity of links between the indicators of personality traits and perceived creativity in the different participants' groups. The research results will have enduring value in the scientific debate about the peculiarities of the expression of the components of students' perceived creativity and the personality traits and their interrelations, their practical significance foreseeing conditions and possibilities for efficiency of creativity expression in higher education.

**Keywords:** perceived creativity; personality traits; students

**Reference** to this paper should be made as follows: Samašonok, K., Juškevičienė, A. 2022. Perceived creativity and the big five personality traits of specialists trained for profession: trends in their interaction. *Entrepreneurship and Sustainability Issues*, 9(3), 265-283. [http://doi.org/10.9770/jesi.2022.9.3\(16\)](http://doi.org/10.9770/jesi.2022.9.3(16))

**JEL Classifications:** M54

## 1. Introduction

Living under conditions of constant transformations, the individual's creativity is becoming an increasingly necessary condition for successful integration into the labour market, generation of new ideas and implementation of innovations (Vaičiūnienė, Mažeikienė, 2014). There is also a growing need for business and the market to have employees, who are able to produce new and original ideas and find solutions to complex problems. The demand for an ability to generate new and original ideas, to offer non-standard solutions to problems is likely to increase in the future, because this is the way to build up competitiveness of organisation and to increase the value created for the market. Creativity is a relatively broad concept and various authors give different definitions. Some researchers define *creativity* as an ability of a person to generate original thoughts, which play a role in problem-solving and finding unique solutions and have expression of tangible and intangible gain (Puccio, 2001, cited in Rakauskaitė, 2014). Creativity may also refer to the ability to create new (i.e. original, unexpected), high quality and suitable (i.e. useful, within or exceeding the boundaries of an assignment/target) works (Sternber, 2005, cited in Vaičiūnienė, Mažeikienė, 2014). Other researchers link creativity to personality traits such as vivid imagination, ingenuity, curiosity, a wish to experiment, ability to approach things from different perspectives that require more than one answer (Grakauskaitė-Karkockienė, 2010; Beresnevičius, 2010), receptivity to information, initiative, emotionality, sensitivity to problems, flexible mind (Torrance, 1986), openness to innovations, ability to produce new ideas and to show easy orientation in problem situations (Sternberg, 1990). Thus, personality traits can influence the expression of the individual's creativity. Understanding the importance of a creative personality under the conditions of market economy, the qualities of creative personality that reflect the level of creativity strongest have been discussed and attempts have been made to explain the influence of the most significant personality traits on the expression of creativity. It should be acknowledged that over the last several decades the number of studies on the analysis of the phenomenon of creativity has increased and the main focus has been laid on the personality-related and non-cognitive components of creativity. However, in Lithuania the research studies, which seek to clarify the peculiarities of perceived creativity and personality traits and their correlation in the groups of students from the study programmes, which include the study subjects that encourage expression of creativity and the ones that do not include such study subjects, have been scarce in Lithuania. Moreover, the results of research on differences in the expression of creativity components among students from various study programmes obtained by foreign researchers are rather controversial. Therefore, it is important to identify differences in the expression of personality traits and perceived creativity according to the different dimensions as well as differences in their correlations in the sample of students from various study programmes. This would allow for a better understanding of the problem of the unity or specifics of the links between creativity and personality traits and would contribute to the improvement of study organisation quality in higher education institutions seeking to enhance the expression of student creativity.

Taking into consideration the relevance of the theme, the article discloses differences in the peculiarities of perceived creativity and personality traits and their correlations among students from different study programmes in Lithuanian higher education institutions, i.e. with or without the study subjects that promote creativity.

*The research problem* is defined by the following question: How do peculiarities of personality traits and perceived creativity and their correlations differ in two groups of research participants: 1) where the study

programmes do not include study subjects that enhance for promotion of creativity expression, and 2) where the study programmes include the study subjects that promote the expression of creativity?

*The goal of the research* is to investigate and compare the differences in the peculiarities of personality traits and perceived creativity, their correlations in the two groups of research participants, who study from in the study programmes, which do not include study subjects that strengthen the expression of creativity and which include the study subjects that promote the expression of creativity.

*The research results:*

1. To conduct the analysis of scientific research on the analysed theme theoretically substantiating the expression of creativity on the basis of the personality traits.
2. To identify differences in the peculiarities of perceived creativity and personality traits in two groups of Lithuanian higher education students.
3. To disclose differences in correlations of indicators of personality traits and perceived creativity in two groups of research participants.

## 2. Theoretical background

With the increasing prevalence of artificial intelligence and technological changes in the labour market, when most of the areas are managed by smart technologies or robots, employees' creativity has received more and more attention (Kryshtanovych et al., 2021). This characteristic is frequently seen as the main component of entrepreneurship that predetermines the success of organisations (Karimi et al., 2021). Other authors (Zhao et al., 2018) perceive creativity as an essential quality of an entrepreneur. It should be noted that demand for a creative employee is also expressed in the learning guidelines prepared by EBPO "*The Future of Education and Skills. Education 2030*", when next to individual and collective wellbeing, self-regulation and tension management, the emphasis is also laid on creative thinking. The Strategy *Future Work Skills* (2020) expresses the significance of creativity on the basis of new and adaptive thinking and creation of meaning. The fact that employees' creativity is a part of not only present but also of future labour sector is also mentioned by Leopold et al. (2016), who emphasise that a creative personality will be an integral part of the future labour market. Although personalities distinguished by creativity are very welcome, it has to be pointed out that such individuals are rarely found among business specialists (Levy, Cannon, 2016). It is obvious that the lack of creative employees is a serious issue in the labour market, when instead of creative, resourceful, open to innovations employees with original thinking, who are able to make innovative decisions and achieve publicly significant and qualitatively new results, stereotypically and traditionally thinking individuals are faced, who, according to Rogers (2005) are distinguished by regulated thinking and even standard-based group activity. At the same time, Sitar et al. (2016) point out that in the rapidly changing working environment a lot of people want to be creative in their workplace but only some of them are able to disclose their creativity. The need for and significance of promoting the expression of creativity in such a situation is obvious perceiving that the person's creativity development to a large extent depends on the direction of the individual's activities, the created atmosphere and the way the obtained knowledge and skills are implemented. On the basis of the aforesaid thoughts, it can be assumed that development of creativity, which ensures formation of a creative specialist, should be included both into the process of studies and the professional growth of employees. The fact that creativity is a result of education and development is confirmed by the insights of other authors (Burch et al., 2006 (cit. in Sapranavičiūtė, Permina and Šinkariov, 2010), which reveal that originality of thinking, ability to generate more and innovative, exceptional and useful ideas throughout a certain period of time is stronger expressed by persons, whose creative expression is promoted compared to the ones, whose activities are less related to creation. The fact

that creativity can be developed is also confirmed by the authors (Puccio, 2001, cit. in Rakauskaite, 2014), who define *creativity* as the ability of an individual to generate original thoughts that serve a certain purpose while solving problems and making unique decisions and have tangible and intangible gains (Puccio, 2001, cit. in Rakauskaite, 2014) and to create new (i. e. original, unexpected), high quality and appropriate (i.e. useful and in line with or exceeding the limits of assignment or goal) works/products (Sternber, 2005, cit. in Vaičiūniene, Mažeikiene, 2014). Creativity as a value-based personal category is an essential reserve for individual's self-realisation (Kryshtanovych et al., 2021). Grakauskaitė-Karkockienė (2010) also states that creativity is an inseparable trait of an individual. Beresnevičius (2010) links creativity with such personality traits as vivid imagination, ingenuity, need for experimenting, ability to approach things from different perspectives, which call for more than one answer. Sosa, Kayrouz (2020) refer to the need of constant curiosity promoting search for new opportunities; paradoxical nature, which predetermines flexible and open mindset that supports possibilities of radical changes; embodied experience formulating a thought that a person is creative in ways and methods that are appropriate and known only to him/her; emphatic collaboration evaluating diversity and promoting collaboration based on collective intelligence, as to the main aspects of creativity.

Thus, factors and environmental impact undoubtedly influence manifestation of the individual's creativity. However, the individual traits of a person play the most significant role for creativity and creative achievements. Considering the fact that creativity is not only an outcome of education and that individual traits serve as a relevant indicator forecasting achievements in the person's creative activity, different research studies have also been carried out up to now aiming to identify the personality traits that reflect creativity strongest as well as clarify the extent of the influence of various personality traits on various aspects of creativity.

Different personality traits predetermine the extent of personality's creativity, therefore the research studies, where the five-factor model of personality traits is employed to forecast creativity, that is, to evaluate, which personal qualities are favourable for creativity expression and formation, are most relevant. The research prevails in the scientific space, where the links among the dimensions of creativity and the Big Five personality traits, including such features as *openness to experience*, *extraversion*, *conscientiousness*, *neuroticism*, *agreeableness* are disclosed. Analysing how personality traits of the five-factor model forecast employees' creativity, Yao and Li (2021) discloses that openness to experience, extraversion and conscientiousness correlates with creativity. The research conducted by Kaspi – Baruch (2017) also models a picture of a creative individual, and simultaneously an employee, namely on the basis of the dimensions of the Big Five personality dimensions, when it is stated that the most creative individuals are distinguished by low conscientiousness, high level of extraversion, openness and emotional stability. Other researchers (Hong et al., 2020), who investigate the links between personality traits and creativity, point out that high level of creativity can be foreseen when neuroticism is low and indicators of openness to experience are high. Meanwhile, Hsu (2019) presents conclusions that agreeableness has a weaker predicted effect on creativity compared to openness, whereas emotionally stable individuals, according to the researcher, are more benevolent and adapt easier; all this has a negative impact on imagination and, thus, negatively influences creativity.

Analysing the importance of the personality traits to manifestation of creativity, the majority of research studies show that *openness*, as one of the Big Five personality dimensions, has the strongest impact on the individual's creativity expression. Open people are known as having lots of interests, eager to learn new things and enjoying new experience. Openness reveals the person's insight, imagination, susceptibility to

innovations, interest in the surrounding environment as well as inclination to solve situations in non-traditional ways. Namely openness, as a dimension of constructive creativity is emphasised by Rogers (2005) and it is seen as openness to experience, ability to spontaneously play with ideas, colours, forms and relations by raising brave hypotheses and performing unexpected transformations of situations. Thus, openness to experience, according to Batey et al. (2010), has a strong predicted effect on creativity in various fields. The research conducted by Kaspi – Baruch (2017) confirms the aforesaid and states that openness may be the only reliable indicator for predicting creativity. The research data obtained by other researchers (Yao, Li, 2021) also show that openness to experience is a personality trait, which is directly related to creativity. Openness receives a special place in the research of Werner et al. (2014), who point out that openness is the only variable out of all the five personality indicators, which positively correlates with almost all indicators of creativity. Analysing the significance of openness to the expression of creativity, the research conducted by Y. Hsu (2019) should be mentioned because the results reveal that individuals, who are characterised by openness, are able to express originality while making decisions or transforming problems. This assumption is supplemented with the data presented by Pociūtė, Isiūnaitė (2011), which disclose that open individuals tend to choose various ways and means for acquiring new material, strive for freedom in activities and are willing to openly express themselves and to arrive at original solutions. Namely openness to experience results in disassociation from preconceived perception and makes it possible to have an innovative glimpse at various phenomena and ideas without leaving place for rigidity. According to Rogers (2005), this spontaneous game and explorations evoke intuition, enable to see the life in a creative way, in a new light and meaning. Thus, summarising the insights and research results of researchers all over the world, it can be stated that openness should be a characterising feature among representatives of various professions.

Analysing the importance of *conscientiousness* to creativity, this feature reflects the person's diligence, intention to act persistently, peculiarities of self-regulation and stronger expression of achievement motivation. Frequently the Big Five personality dimension links with reliability, good organisation, methodical approach, minuteness, when, according to Soto (2018), conscious individuals prioritise order and structure, work persistently to reach heights and are committed to their duties. Therefore, it can be assumed that persistence, as a trait that expresses conscientiousness, can be important in the process of creative thinking pursuing the set goals, making new plans and expanding limits of their possibilities. The insights of Batey et al. (2010) are important discussing conscientiousness, which express an idea that conscientiousness allows forecasting creative results, but the direction of this forecast depends on activities. For example, in scientific activities person's conscientiousness has a positive predicted power, whereas in arts it is negative (Dean et al., 2006; Batey and Furnham, 2006; Feist, 2010; Furnham, 2016). Meanwhile, the results of the research carried out by Werner et al., 2014) show that conscientiousness does not significantly correlate with all the indicators of creativity. However, the most unexpected is a negative correlation between conscientiousness and creativity (Jirásek and Sudzina, 2020). Thus, the research results disclose the unavailability of a unified opinion about the links between conscientiousness and manifestation of creativity.

Considerable attention is allocated to *extraversion*, one more dimension of the Big Five personality. It is stated that individuals characterised by extraversion gain energy from communication with others. They are determined, ambitious and search for inspiration in group situations, which inspires such people to create, generate new ideas and search for non-traditional solutions. Extraversion embraces such qualities as eloquence, friendliness, activity and search for inspiration. Extraverts feel better while communicating and are more eager to engage in experiences that exceed the framework of traditional thinking compared to people with low level of extraversion. According to Soto (2018), this feature of extraversion shows individuals'

social activity, assertiveness and level of energy. Thus, knowing that extraversion is connected to inclination to take risk, to search for new information as well as to active lifestyle, engagement in activities, pursuance of better results, which formulates assumption that in some activities the feature of extraversion is important allowing an individual to express himself or herself through creation. However, evaluating the importance of the feature of extraversion to manifestation of person's creativity, it is impossible to make a unified conclusion because some research results show that creative individuals are more introverts, who prefer individual activities. Referring to extraversion, the results of some research show that it has a minor predicted impact on originality, so it should be acknowledged that creative people are frequently introverts (Hsu, 2019). The results of research conducted by Werner et al. (2014) prove that extraversion slightly strengthens creativity. According to Jirásek and Sudzina (2020), the reason for this may lay in the fact that two aspects of extraversion, i.e. assertiveness and activity, do not explain creativity. In their research Zare and Flinchbaugh (2019) demonstrate an opposite position regarding extraversion, stating that extraversion, just like openness to experience and conscientiousness, allows forecasting creativity. Although scientific studies, which analyse the links between agreeableness and expression of individual's creativity are few, it can be assumed that this trait can be one of the indicators forecasting the individual's creative achievements. Individuals distinguished by *agreeableness* are friendly, kind, even affectionate, tend to collaborate and emphasize with others. According to Hana and Pistle (2017), such people appreciate and recognise others, including employees. Even a deeper thought about people distinguished by agreeableness is expressed by Soto (2018), who points out that such people are emotionally concerned about other people and care of their wellbeing and they in general positive evaluate others. It can be assumed that individuals, who possess higher level of agreeableness, also have a stronger expressed favourable attitude towards others and activities performed with others as well as creative activities. So agreeableness can be one of the significant determinants of creativity. Moreover, *neuroticism* is another equally important dimension of the Big Five personality, which is linked to emotional stability and extent of expressing emotions. People, who demonstrate high levels of neuroticism, usually experience emotional instability and negative emotions, anxiety. Their mood swings and tension are stronger expressed (Mammadov et al., 2019) as well as sensitivity and strong feelings when difficulties are encountered. Such people also tend to lack self-confidence, they tend to doubt their powers and abilities, are afraid of violating rules, are passive searching for different solutions. All this is believed to limit expression of creativity and has negative influence on results of creative activities. Analysing the importance of *neuroticism* to the individual's creativity, some authors emphasise that stronger expressed level of neuroticism may lead to inclination to live through negative emotions in activities and to having fear of deviating from norms and rules (Pacevičius, 2005). According to the research of other authors, individuals with higher level of neuroticism more passively engage in activities and face difficulties making decisions and do not show initiative searching for solutions (Wang et al., 2006), what undoubtedly refers to aspects of creativity. However, there are authors, who state that individuals, who link themselves with creative activities, are also characterised by stronger anxiety and emotional sensitivity, face difficulties controlling stress and emotion differently from individuals, who are less related to creative activities (Feist, 1998, cit. in Charyton, Snelbecker, 2007). Following the latter results, it can be stated that creativity embraces the element of indefiniteness, which can evoke stress and anxiety; then difficulties are coped with employing creative abilities.

The analysis of scientific research according to the analysed theme showed that individual personality traits are some of the most relevant factors of person's creative achievements. Summarising the essential insights, it is obvious that the person's openness to experience is mostly related to creativity and is one of the main characteristics of a creative personality (Leung and Maddux, 2008; Garkauskaitė-Karkockienė, 2013;

Pociūtė, Isiūnaitė, 2011; McCrae and Costa (1997) (cit. in Sánchez-Ruiz et al., 2011)). However, it should be acknowledged that the works of researchers do not present a unified opinion about what features are characteristic of a creative personality, how components of personality traits and creativity correlate and the available research results are rather contradicting: some research studies disclose relationships between creativity and personality trait, whereas others do not identify any.

### 3. The research methodology

*The research participants.* The total sample of the quantitative research included 287 students from higher education institutions in Lithuania (from 18 to 40 years old): 162 (56.4 %) of them were students from the study programmes without the study subjects for strengthening the expression of creativity and 125 (43.6 %) students enrolled in the study programmes, where the study subjects that promote the expression of creativity were included. The convenient research sample was chosen. The ethical principle of free consent to participate in the research was observed in the survey. For confidentiality reasons the names of higher education schools are not indicated in the article.

*The research methods.* *The analytical descriptive method* was applied for the analysis scientific publications related to the analysed theme while studying the peculiarities of creativity and personality traits and their interrelations. *The quantitative research method* was used to analyse the components of student creativity and peculiarities of personality traits, their correlations and the expression of creativity on the basis of personality traits. *The NEO Five Factor Inventory* (Costa and Crae, 1992) was used to investigate the personality traits of students. The questionnaire is designed to evaluate the personality according to five dimensions or the big factors: *neuroticism* (Cronbach's  $\alpha = 0.90$ ), *extraversion* (Cronbach's  $\alpha = 0.88$ ), *openness to experience* (Cronbach's  $\alpha = 0.77$ ), *agreeableness* (Cronbach's  $\alpha = 0.82$ ), *conscientiousness* (Cronbach's  $\alpha = 0.88$ ). Worrell and Cross (2004) characterise every trait stating that extraversion embraces such features as sociality, activity and positive emotionality. Neuroticism is related to undesirable behaviour of an individual, negative emotions, worry, experiencing disturbing emotions (anxiety, hostility, insecurity, guilt, etc.). Conscientiousness refers to behaviour, which targets at the pursuit of goals, the person's ability to control impulsivity, discipline and good organisation. Agreeableness is characterised as concern for people, which manifests in altruism, affection, compassion, non-conflict, nurturance of relation. Openness to experience is described as an ability of a person to accept new ideas and experiences without giving priority to ordinary and practical things. Žukauskienė and Barkauskienė (2006) conducted the analysis and standardisation of psychometric indicators of the Big Five Model (NEO-PI-R test) and proved that the Lithuanian version of NEO PI-R is reliable, valid and may be used for scientific research in Lithuania. The creativity of students is investigated applying *the Questionnaire for Personality Creativity* (Petruelis, 1988). The questionnaire consists of 64 statements, where the respondent is requested to provide the answer "Yes" or "No" to every statement. The results are analysed according to 9 sub-scales: intuition, phantasy, inclination to creativity, inclination to innovation, flexibility, originality, criticality, inversion and childishness. The results of statistical data analysis shows that the internal consistency of all the scales of *the Questionnaire for Personality Creativity* is good and rather high; according to separate scales the Cronbach alpha varies from 0.75 to 0.85: *intuition* (Cronbach's  $\alpha = 0.85$ ), *phantasy* (Cronbach's  $\alpha = 0.82$ ), *pursuit of creativity* (Cronbach's  $\alpha = 0.75$ ), *pursuit of novelty* (Cronbach's  $\alpha = 0.83$ ), *flexibility* (Cronbach's  $\alpha = 0.82$ ), *originality* (Cronbach's  $\alpha = 0.77$ ), *criticality* (Cronbach's  $\alpha = 0.81$ ), *inversion* (Cronbach's  $\alpha = 0.79$ ) and *childishness* (Cronbach's  $\alpha = 0.81$ ). *The statistical method.* The methods of statistical analysis are applied to process the data collected during the research: Student-*t* test (for comparison of mean values of two

independent samples) aiming to identify differences in several independent populations. The received results are perceived as statistically significant when they meet the level of significance  $p$ . The Pearson's correlation coefficient is used to evaluate the links of the respondents' perceived creativity with the indicators of personality traits. The statistical analysis of data was carried out applying Version 17 of the Statistical Package for Social Sciences.

#### 4. The research results and their analysis

Since a big number of authors claim that the choice of the profession or the study field is predetermined by certain personality traits, professional interests and combination of ways of thinking (Ackerman and Beier, 2003) and that students with strongly expressed creativity tend to choose studies related to creative activities (Myers and McCaulley, 1985, in Pringle et al., 2010), this research aims to identify differences in the peculiarities of personality traits, the expression of perceived creativity and their correlations in the group of students learning in the study programmes, which include study subjects that promote the expression of creativity and in the group of students from the study programmes without such study subjects.

***Peculiarities of personality traits.*** The students' personality traits were identified using the NEO-FFI Five Factor Questionnaires (Costa and McCrae, 1991). The sub-scales of *neuroticism*, *extroversion*, *agreeableness*, *conscientiousness* and *openness to experience* were used in the research.

The applied *Student-t* test allowed establishing statistically significant differences in mean values of the sub-scales of *openness to experience* ( $t=3.684$ ,  $p=0.001$ ), *neuroticism* ( $t=3.89$ ,  $p=0.001$ ) and *extroversion* ( $t=-2.863$ ,  $p=0.005$ ). The established significantly higher mean values showed that curiosity about new ideas, inclination to test new conceptions, to show interest in the inner and outer world and in nurturance of new ideas were stronger expressed ( $M=51.8$ ,  $SD=9.6$ ) among students from the study programmes that include study subjects promoting the expression of creativity compared to students from the study programmes without such study subjects ( $M=49.7$ ,  $SD=9.3$ ). However, stronger orientation to people, sociality and ability to easily establish a contact were characteristic of the latter ( $M=47.8$ ,  $SD=10.3$ ) compared to the students from the study programmes that embrace the study subjects promoting the expression of creativity. The students from such programmes demonstrated a significantly lower value in the scale of *extroversion* ( $M=46.1$ ,  $SD=9.2$ ), what refers to their seclusion, weaker inclination to social community and difficulties in establishing contacts with people.

On the other hand, the significantly higher mean values in the sub-scale of *neuroticism* ( $M=56.2$ ,  $SD=9.8$ ) disclosed by the research among the students from the study programmes with the study subjects that promote the expression of creativity demonstrate greater vulnerability and psychological fatigue sensitivity, difficulties experienced in controlling stress situations and emotions compared to the research participants studying in the study programmes without the study subjects that encourage the expression of creativity ( $M=52.3$ ,  $SD=9.6$ ).

Statistically significant differences were not established among the research participants, who study in the study programmes without the study subject that promote the expression of creativity and, the ones enrolled in the study programmes with the study subjects that promote expression of creativity while analysing the expression of *agreeableness* ( $t=-1.265$ ,  $p=0.208$ ) and *conscientiousness* ( $t=0.139$ ,  $p=0.872$ ).



**Table 1.** The mean values of the expression of personality traits (M), standard deviations (SD) and the level of differences in significance (p) among the students from the study programmes that include the study subjects promoting the expression of creativity (n=125) and without such study subjects (n=162)

Scale	With study subjects promoting creativity		Without study subjects promoting creativity		t	p
	M	SD	M	SD		
Neuroticism	56.2	9.8	52.3	9.6	<b>3.89</b>	<b>0.001</b>
Extroversion	46.1	9.2	47.8	10.3	<b>-2.863</b>	<b>0.005</b>
Openness to experience	51.8	9.6	49.7	9.3	<b>3.684</b>	<b>0.001</b>
Agreeableness	47.6	10.8	48.6	10.2	-1.265	0.208
Conscientiousness	53.4	9.7	52.2	9.3	0.139	0.872

The generalised results disclosed that the students in the research, who were enrolled in the study programmes with the study subjects promoting the expression of creativity, tend to be more interested in the surrounding environment, allocate more significance to innovations and diversity, are less constrained and ready to nurture new ideas compared to the students in the study programmes without the study subjects that promote the expression of creativity. However, the latter are characterised by stronger sociality, energy as well as ability to control stress situations and manage emotions in them. Meanwhile, the levels of features of agreeableness and conscientiousness did not differ significantly.

***Peculiarities of expression of perceived creativity.*** Although creativity manifests itself in various areas of life, more and more often attention is allocated to differences in creativity manifestation considering the performed activity. Taking this into consideration, attempts were made identify differences in the indicators of perceived creativity in the two groups of students learning in the study programmes with and without the study subjects that promote the expression of creativity. The Questionnaire for Personality Creativity was used (Petrulis, 1988). The data was calculated according to the sub-scales of *intuition, phantasy, pursuit of creativity, pursuit of novelty, flexibility, originality, criticality, inversion and childishness*.

The calculations of the *Student t-test* allowed identifying statistically significant difference in the sub-scales of *childishness* (t=2.819, p=0.001), *originality* (t=2.08, p=0.047), *pursuit of creativity* (t=2.402, p=0.022) and *criticality* (t=-2.32, p=0.031). The established statistically significant mean values show (see: Table 2) that perceived originality and uniqueness of thinking, ability to find as many non-traditional solutions as possible, to generate unusual, authentic and rare ideas, unpredictable products and to make non-standard solutions (*component of originality* (M=5.85, SD=1.72)), naivety, emotionality, impulsivity, lively imagination and openness (*component of childishness* M=6.27, SD=1.64) and self-perception related to a stronger expressed need for more creative solving of problem situations and finding non-traditional solutions (*component of pursuit of creativity* (M=5.11. SD=1.69)) are stronger expressed among students from the study programmes including the study subjects that encourage the expression of creativity compared to the ones from the study programmes without such study subjects ( ( M=4.52, SD=1.57), (M=4.89, SD=1.24) and ( M=4.16, SD=1.39) respectively). The statistically lower value in the sub-scale of *criticality* (M=3.12, SD=1.27) in the group of students from the study programmes with the study subjects promoting creativity evidence that the latter tend to make spontaneous conclusions, to follow their intuition without linking facts

with long considerations and their argumentation compared to students, who do not learn study subjects promoting creativity. Significantly statistically stronger expressed *criticality* (M=3.47, SD=1.41) shows that the latter tend to think, to make well-considered decisions and to foresee their consequences. Thus, students in the study programmes with included study subjects for promotion of the expression of creativity show higher indicators of divergent thinking, when the latter consider the expressiveness of their perceived creativity to be better. They also think that they are more original and strive for creativity. The students learning in the study programmes without the study subjects that promote creativity perceive themselves as more critical personalities.

The research on the expression of the sub-scales of students' perceived creativity revealed no statistically significant differences ( $p > 0.05$ ) in the sub-scales of *intuition* ( $t=0.613$ ,  $p=0.541$ ), *flexibility* ( $t=1.16$ ,  $p=0.185$ ), *phantasy* ( $t=1.007$ ,  $p=0.421$ ), *inversion* ( $t=-1.1$ ,  $p=0.308$ ) and *pursuit of novelty* ( $t=1.2$ ,  $p=0.198$ ) (see: Table 2). The statistically insignificant differences in the mean values show that the perceive creativity of students is evaluated at the similar level regardless of whether the study programme they are enrolled in includes the study subjects that promote creativity or not.

**Table 2.** The mean values of the expression of perceived creativity (M), standard deviations (SD) and the level of differences in significance (p) among the students from the study programmes that include the study subjects promoting the expression of creativity (n=125) and without such study subjects (n=162)

Scale	With study subjects promoting creativity		Without study subjects promoting creativity		t	p
	M	SD	M	SD		
Intuition	1.46	0.8	1.39	0.86	0.613	0.541
Phantasy	1.54	0.91	1.37	0.82	1.007	0.421
Pursuit of creativity	5.11	1.69	4.16	1.39	2.402	<b>0.022</b>
Pursuit of novelty	6.23	1.87	6.14	1.7	1.2	0.198
Flexibility	3.54	1.49	3.42	1.31	1.16	0.185
Originality	5.85	1.72	4.52	1.57	2.08	<b>0.047</b>
Criticality	3.12	1.27	3.47	1.41	-2.32	<b>0.031</b>
Inversion	2.66	1.04	2.74	1.07	-1.1	0.308
Childishness	6.27	1.64	4.89	1.24	2.819	<b>0.001</b>

Generalising the results, higher mean values are observed in the sub-scales of childishness, pursuit of creativity and originality in the group of students from the study programmes that include study subjects promoting the expression of creativity, which means that the latter see themselves as original individuals, who strive for creativity, are not afraid of experimenting, can be characterized by features of childishness and consider the expression of their creativity. However, higher values of expression of criticality are typical of the students, who do not learn study subjects that promote the expression of creativity. The obtained results confirmed the statement once again that the phenomenon of creativity is observed in various activities but the level of its expression differs. On the other hand, the received results contribute to the discussion about the extent to which creativity is inborn and/or acquired and developed by creating the most favourable environment for the revelation of the person's creativity, about what chosen and applied teaching methods in the process of education foster the development of the person's imagination, stimulate divergent and critical thinking, the desire of students to search for new solutions to assignments.

***Correlations of students' personality traits and perceived creativity.*** The works of researchers all over the world do not contain a unified opinion about what traits are characteristic of a creative personality and what correlations between personality traits and creativity components can be identified.

Seeking to more comprehensively analyse the obtained research results, the relationships between the separate dimensions of personality traits and the values of perceived creativity in the student groups from the study programmes with the study subjects that promote the expression of creativity (see: Table 3) and the study programmes without such study subjects (see: Table 4).

Analysing the relationships between the personality traits and perceived creativity, the research results showed: the stronger the *openness to experience* ( $r=0.328$ ,  $p=0.001$ ) and *extraversion* ( $r=0.19$ ,  $p=0.012$ ) among students in the study programmes that include the study subjects that promote the expression creativity, the higher *the overall creativity*. Slightly weaker but also statistically significant correlations were established among *the indicator of overall creativity* and *extroversion* ( $r=0.185$ ,  $p=0.006$ ) and *openness to experience* ( $r=0.206$ ,  $p=0.001$ ) in the group of students from the study subjects that do not include the study subjects encouraging the expression of creativity. This allows stating that regardless of their study programme, which includes more or fewer study subjects, the students who prefer diversity, are not constrained and nurture new ideas and are also pro-active, full of energy and are characterised by a higher level of sociality, also show slightly higher general indicator of creative personality. Also, only negative correlations were identified between *the general indicator of perceived creativity* and the feature of *conscientiousness* among students in both study programmes with the study subjects promoting the expression of creativity ( $r=-0.336$ ,  $p=0.001$ ) and without such study subjects ( $r=-0.264$ ,  $p=0.001$ ), what shows that the higher general perceived creativity, the weaker the expression of the person's inclination to plan, organise, set assignments and goals. The results of correlation analysis revealed no statistically significant correlations between *the general indicator of perceived creativity* and such traits as neuroticism and agreeableness (see: Tables 3 and 4).

The correlation analysis of personality traits and the sub-scales of creativity in the group of students enrolled in the study programmes that include the study subjects that encourage the expression of creativity revealed positive relationships between *extroversion* and such sub-scales of creativity as *intuition* ( $r=0.21$ ,  $p=0.002$ ), *phantasy* ( $r=0.25$ ,  $p=0.002$ ), *pursuit of innovation* ( $r=0.294$ ,  $p=0.001$ ) and *pursuit of creativity* ( $r=0.18$ ,  $p=0.003$ ) and *childishness* ( $r=0.382$ ,  $p=0.001$ ) (see: Table 3). After the calculation of the Pearson's correlation coefficients in the group of students from the study programmes that do not include the study subjects promoting the expression of creativity, positive only weaker correlations are observed between *extroversion* and *phantasy* ( $r=0.193$ ,  $p=0.004$ ), *pursuit of creativity* ( $r=0.176$ ,  $p=0.009$ ) and *innovation* ( $r=0.201$ ,  $p=0.002$ ) as well as *childishness* ( $r=0.274$ ,  $p=0.001$ ). *Intuition* does not significantly correlate with *extroversion* (see: Table 4). The latter results show that the person's inclination to be pro-active and communicate with others as well as sociality, energy, talkativeness and optimism (*dimension of extroversion*) is linked with perceived intuition among the students from the study programmes with the study subjects promoting creativity. Regardless of the study programme, extraversion positively correlates with a need for creative thinking and seek innovations and with stronger expressed traits of phantasy and childishness. The established fairly strong significant positive relationships show that in the group of students from the study programmes with the study subjects encouraging creativity, desire for intellectual knowledge, stronger expressed interest in the inner and outer world and vivid imagination (*dimension of openness to experience*) show correlation with the stronger expressed *phantasy* ( $r=0.292$ ,  $p=0.001$ ),

*originality* ( $r=0.342$ ,  $p=0.001$ ) and *pursuit of creativity* ( $r=0.28$ ,  $p=0.001$ ) and *innovation* ( $r=0.369$ ,  $p=0.001$ ). Moreover, the results of correlation analysis showed slightly weaker but significantly positive correlation between *openness to experience* and *flexibility* ( $r=0.214$ ,  $p=0.001$ ), *childishness* ( $r=0.221$ ,  $p=0.001$ ), *inversion* ( $r=0.18$ ,  $p=0.014$ ) and *intuition* ( $r=0.173$ ,  $p=0.005$ ). The analysis of correlations between the perceived creativity and personality traits in the group of students, who do not have study subjects related to the expression of creativity, disclosed statistically significant and fairly strong relationships between *openness to experience* and such indicators of perceived creativity as: *originality* ( $r=0.224$ ,  $p=0.001$ ), *pursuit of innovation* ( $r=0.248$ ,  $p=0.001$ ) and *creativity* ( $r=0.211$ ,  $p=0.001$ ), and *phantasy* ( $r=0.213$ ,  $p=0.001$ ). Slightly weaker but still significant correlations were identified with *flexibility* ( $r=0.179$ ,  $p=0.007$ ) and *childishness* ( $r=0.164$ ,  $p=0.015$ ). Thus, students' *pursuit of innovation* and *pursuit of creativity*, *originality*, *phantasy* and *childishness* positively correlate with *openness to experience* in both groups of participants. This allows stating the personality's openness to experience is related to the peculiarities of creative (divergent) thinking and such individuals are distinguished by stronger expressed flexibility of thinking, they have more vivid imagination, they are fond of new ideas, are tolerant to uncertainty and possess a broad range of emotions and thoughts. The conducted analysis of separate indicators of perceived creativity and personality traits revealed that *openness to experience* is not linked to *intuition* and *inversion* (see Table 4) in the group of students learning in the study programmes without the study subjects that promote the expression of creativity, what is opposite to the results in the group of students, who learn the study subjects that encourage the expression of creativity. Meanwhile, the trait of *openness to experience* is not significantly connected to *criticality* in both groups of research participants regardless of the study programme (with or without the study subjects that promote the expression of creativity).

According to the conducted research, weaker expressed orderliness, excessive scrupulousness, dutifulness, self-discipline and prudence as well as management of impulses and determination while pursuing goals (*dimension of conscientiousness*) negatively correlates with *flexibility* ( $r=-0.31$ ,  $p=0.001$ ), *originality* ( $r=-0.173$ ,  $p=0.007$ ), *inversion* ( $r=-0.296$ ,  $p=0.001$ ) and *childishness* ( $r=-0.271$ ,  $p=0.001$ ), which are more characteristic of the students from the study programmes with the study subjects promoting the expression of creativity, whereas the research participants' emotional instability and low ability to cope with stress situations (*dimension of neuroticism*) negatively correlates with *intuition* ( $r=-0.325$ ,  $p=0.001$ ) and *flexibility* ( $r=-0.197$ ,  $p=0.015$ ). Moreover, the weaker ability of an individual to emphasise with others and inclination to help them (*dimension of agreeableness*) relates to stronger *pursuit of innovation* ( $r=-0.241$ ,  $p=0.001$ ) and *criticality* ( $r=-0.141$ ,  $p=0.024$ ). Slightly fewer and weaker correlation links were established between the separate indicators of perceived creativity and personality traits such as: *agreeableness*, *conscientiousness* and *neuroticism* among students from the study programmes without the study subjects encouraging creativity (see Table 4).

The correlation analysis in this group of participants showed statistically significant negative relationships between *conscientiousness* and such sub-scales of perceived creativity as *originality* ( $r=-0.142$ ,  $p=0.017$ ), *inversion* ( $r=-0.192$ ,  $p=0.009$ ) *childishness* ( $r=-0.167$ ,  $p=0.012$ ). *Agreeableness* negatively correlates with *criticality* ( $r=-0.156$ ,  $p=0.019$ ). Undoubtedly, individuals characterised by conscientiousness are responsible, goal-oriented and this results in better performance results. However, following the research results it can be observed that stronger expression of conscientiousness may lead to decreased expression of *creativity* aiming at activity outcomes, and creative individuals may have a slightly different understanding of moral norms compared to the majority people. Meanwhile, the significant and only positive correlations identified between *agreeableness* and *flexibility* in both groups of participants (with creativity-related study subjects

( $r=0.181$ ,  $p=0.003$ ) and without them ( $r=0.167$ ,  $p=0.014$ ), allow assuming that students with stronger expressed agreeability and more helpful to others are also distinguished by higher level of flexibility. Additionally, the established negative correlation showed that weaker *intuition* ( $r=-0.204$ ,  $p=0.002$ ) is characteristic of participants, who tend to be emotionally instable and easily annoyed, experiencing negative feelings (*dimension of neuroticism*) and belong to the group of students, who do not study creativity-related study subjects.

**Table 3.** The results of correlation analysis of personality traits and perceived creativity among students from the study programmes, which include the study subjects that promote the expression of creativity (\* $p<0.01$ ; \*\* $p<0.001$ )

	Neuroticism	Extraversion	Openness to experience	Agreeableness	Conscientiousness
<b>Intuition</b>	<b>-0.325**</b> <b>0.001</b>	<b>0.21**</b> <b>0.002</b>	<b>0.173**</b> <b>0.005</b>	-0.093 0.158	0.098 0.146
<b>Phantasy</b>	-0.049 0.451	<b>0.25**</b> <b>0.002</b>	<b>0.292**</b> <b>0.001</b>	0.019 0.7	0.078 0.141
<b>Pursuit of creativity</b>	-0.075 0.39	<b>0.18**</b> <b>0.003</b>	<b>0.28**</b> <b>0.001</b>	-0.078 0.295	0.15 0.087
<b>Pursuit of innovation</b>	-0.082 0.152	<b>0.294**</b> <b>0.001</b>	<b>0.369**</b> <b>0.001</b>	<b>-0.241**</b> <b>0.001</b>	-0.016 0.75
<b>Flexibility</b>	<b>-0.197*</b> <b>0.015</b>	-0.068 0.268	<b>0.214**</b> <b>0.001</b>	<b>0.181**</b> <b>0.003</b>	<b>-0.31**</b> <b>0.001</b>
<b>Originality</b>	0.103 0.121	0.031 0.629	<b>0.342**</b> <b>0.001</b>	-0.027 0.69	<b>-0.173**</b> <b>0.007</b>
<b>Criticality</b>	0.039 0.473	-0.011 0.887	0.067 0.302	<b>-0.141*</b> <b>0.024</b>	-0.086 0.164
<b>Inversion</b>	0.084 0.156	-0.041 0.55	<b>0.18*</b> <b>0.014</b>	-0.062 0.171	<b>-0.296**</b> <b>0.001</b>
<b>Childishness</b>	0.068 0.251	<b>0.382**</b> <b>0.001</b>	<b>0.221**</b> <b>0.001</b>	-0.14 0.082	<b>-0.271**</b> <b>0.001</b>
<b>Overall average</b>	0.081 0.17	<b>0.19**</b> <b>0.012</b>	<b>0.328**</b> <b>0.001</b>	-0.082 0.153	<b>-0.336**</b> <b>0.001</b>

**Table 4.** The results of correlation analysis of personality traits and perceived creativity among students from the study programmes, which do not include the study subjects that promote the expression of creativity (\*p<0.01; \*\*p<0.001)

	Neuroticism	Extraversion	Openness to experience	Agreeableness	Conscientiousness
<b>Intuition</b>	<b>-0.204**</b> <b>0.002</b>	0.054 0.466	0.091 0.296	-0.038 0.52	0.083 0.319
<b>Phantasy</b>	-0.041 0.398	<b>0.193**</b> <b>0.004</b>	<b>0.213**</b> <b>0.001</b>	0.028 0.67	0.062 0.471
<b>Pursuit of creativity</b>	-0.057 0.39	<b>0.176**</b> <b>0.009</b>	<b>0.211**</b> <b>0.001</b>	-0.128 0.214	0.127 0.068
<b>Pursuit of novelty</b>	-0.079 0.354	<b>0.201**</b> <b>0.002</b>	<b>0.248**</b> <b>0.001</b>	-0.122 0.208	-0.014 0.68
<b>Flexibility</b>	0.096 0.247	-0.108 0.215	<b>0.179**</b> <b>0.007</b>	<b>0.167**</b> <b>0.014</b>	-0.122 0.071
<b>Originality</b>	0.116 0.201	0.121 0.093	<b>0.224**</b> <b>0.001</b>	-0.037 0.575	<b>-0.142**</b> <b>0.017</b>
<b>Criticality</b>	0.125 0.192	-0.092 0.337	0.094 0.291	<b>-0.156*</b> <b>0.019</b>	-0.071 0.408
<b>Inversion</b>	0.088 0.275	-0.073 0.425	0.069 0.294	-0.059 0.526	<b>-0.192**</b> <b>0.009</b>
<b>Childishness</b>	0.124 0.086	<b>0.274**</b> <b>0.001</b>	<b>0.164*</b> <b>0.015</b>	-0.113 0.218	<b>-0.167**</b> <b>0.012</b>
<b>Overall average</b>	0.136 0.207	<b>0.185**</b> <b>0.006</b>	<b>0.206**</b> <b>0.002</b>	-0.049 0.503	<b>-0.264**</b> <b>0.001</b>

The generalised results of correlation show that certain indicators of perceived creativity are related to personality traits. However, analysing the trends in correlation of perceived creativity and the Big Five personality traits, the correlation analysis disclosed noticeable differences in the strength and number of links between the personality traits and perceived creativity in different groups of the research participants. Following the research data, it can be stated that the personality traits correlate with the dimensions of perceived creativity in a statistically significantly stronger manner among students, who learn study subjects promoting creativity, compared to the students from the study programmes without creativity expression - related study subjects. The results of correlation analysis showed more (25 statistically significant) and stronger (from 0.382 to 0.141) correlations in the group of students learning in the study programme with the study subjects promoting the expression of creativity, whereas in the group of students in the study programmes without the study subjects promoting the expression of creativity only 19 statistically significant and rather weak (from 0.274 to 0.142) correlations were identified.

Summing up, it can be stated that evaluation of peculiarities of expressiveness of personality traits and perceived creativity and identification of differences among students, who chose different study programmes allowed for better understanding of the problem of integrity and specifics of creativity, correlations between the personality traits and creativity. The present research supplemented some results of other authors and disclosed a number of interesting differences in expression of personality traits and perceived creativity, as well as their peculiarities and correlations.

## **Conclusions**

1. Individual personality traits are some of the most important factors of individual's creative achievements. Creating favourable environment, choosing and applying teaching methods in the process of education, person's creativity, divergent and critical thinking are promoted, imagination is developed, curiosity and desire to search for new ways of solution are evoked.
2. The research established and evaluated differences in the expression of the Big Five personality traits and perceived creativity in the two groups of respondents:
  - 2.1. evaluating the expression of personality traits, statistically significant higher values were identified in the sub-scales of openness to experience and neuroticism in the group of students from the study programmes, which include study subjects promoting creativity, compared to the indicators of the students from the study programmes without study subjects that promote creativity, where stronger expressed extraversion was recorded. Statistically significant differences were not identified in the sub-scales of agreeableness and conscientiousness in both groups of research participants;
  - 2.2. the comparative data analysis disclosed that statistically significantly higher values according to the scales of originality, childishness and pursuit of creativity were observed in the group of students from the study programmes, which include study subjects promoting creativity compared to the students from the other group. The latter demonstrated higher values of criticism. Other values in the sub-scales of creativity (intuition, flexibility, phantasy, inversion and pursuit of novelty) did not significantly differ in both groups of research participants.
3. Using the Pearson' correlation analysis, the relationships between the personality traits and perceived creativity and their differences among students from different study programmes were established:
  - 3.1. irrespective of the chosen study programme with or without study subjects that promote the expression of creativity, the students with stronger expressed openness to experience and extraversion are characterized by higher level of general creativity, whereas conscientiousness negatively correlates with the general index of perceived creativity;
  - 3.2. the positive correlations identified in both groups of participants show that students with stronger expressed extraversion are also characterised by phantasy, pursuit for creativity and novelty and childishness, whereas the dimension of oneness to experience correlates with phantasy, childishness, flexibility, originality and pursuit of creativity and novelty. Openness to experience among the students in the study group with the study subjects promoting creativity correlates with intuition and inversion, which is contrary to the results in the group of students from the study programmes without study subjects related to creativity;
  - 3.3. in the group of students, who learn in the study programmes that include the study subject promoting expression of creativity, it was established that conscientiousness negatively correlated with flexibility, originality, inversion and childishness and neuroticism negatively correlates with intuition and flexibility. Negative correlation was observed between agreeableness and criticism, whereas positive relationship was observed between agreeableness and flexibility;
  - 3.4. statistically significantly negative correlations were established between conscientiousness and originality, inversion and childishness, whereas agreeableness negatively correlated with criticism in the group of students, who do not learn study subjects promoting creativity. Neuroticism also negatively correlated with intuition, whereas agreeableness was positively related to flexibility.

**References**

- Ackerman, P. L., Beier, M. E. (2003). Intelligence, Personality, and Interests in the Career Choice Process. *Journal of Career Assessment*. <https://doi.org/10.1177/1069072703011002006>
- Beresnevičius, G. (2010). Kūrybiškumo ir kūrybinio mąstymo edukacinės dimensijos. *Edukologijos daktaro disertacija*. Šiaulių universitetas. Šiauliai, p.180
- Charyton, C., Snelbecker, G.E. (2007). General, Artistic and Scientific Creativity Attributes of Engineering and Music Students. *Creativity Research Journal*, 19 (2-3), p. 213-225. <https://doi.org/10.1080/10400410701397271>
- Costa P.T., McCrae R.R. (1992). Revised NEO personality inventory (NEO PI-R) and NEO five-factor inventory (NEO-FFI). Vocational manual. Odessa: Psychological Assessment Resources
- Feist, G. J. (1998). A meta-analysis of personality in scientific and artistic creativity. *Personality and Social Psychology Review*, 2 (4), 290-309. [https://doi.org/10.1207/s15327957pspr0204\\_5](https://doi.org/10.1207/s15327957pspr0204_5)
- Future Work Skills 2020 (2011). Institute for the Future for the University of Phoenix Research Institute.
- Grakauskaitė-Karkockienė, D. (2013). Studentų kūrybiškumo, asmenybės bruožų ir gimimo eiliškumo sąsajos. *Acta Pedagogica Vilnensia*, 31, 84-94. <https://doi.org/10.15388/ActPaed.2013.31.2513>
- Hana, S., Pistole, M. C. (2017). Big Five Personality Factors and Facets as Predictors of Openness to Diversity. *The Journal of Psychology*, 151(8), 752-766. <https://doi.org/10.1080/00223980.2017.1393377>
- Hong, M., Dyakov, D. G., Zheng, J. (2020). Self-esteem and psychological capital: Their mediation of the relationship between Big Five personality traits and creativity in college students. *Journal of Psychology in Africa*, 30(2), 119-124. <https://doi.org/10.1080/14330237.2020.1744286>
- Hsu, Y. (2019). Advanced Understanding of Imagination as the Mediator between Five-Factor Model and Creativity. *The Journal of Psychology*, 153(3), 307-326. <https://doi.org/10.1080/00223980.2018.1521365>
- Jirásek, M., Sudzina, F. (2020). Big Five Personality Traits and Creativity. *Quality Innovation Prosperity*, 24(3). <https://doi.org/10.12776/qip.v24i3.1509>
- Karimi, S., Malek, F. A., Farani, A. Y. (2021). The relationship between proactive personality and employees' creativity: the mediating role of intrinsic motivation and creative self-efficacy. *Economic Research-Ekonomska Istraživanja*. <https://doi.org/10.1080/1331677X.2021.2013913>
- Kaspi - Baruch, O. (2017). Big Five Personality and Creativity: The Moderating Effect of Motivational Goal Orientation. *The Journal of Creative Behavior*, 0(0), 1-14.
- Kryshtanovych, M., Bilyk, V., Hanushchyn, S., Sheremet, I., Vasylenko, K. (2021). Modelling the Ways to Increase the Creativity of Psychology Students as a Basic Factor in Professional Development. *Creativity studies*, 14(1), 34-50. <https://doi.org/10.3846/cs.2021.12571>
- Leopold, T., Ratcheva, V., Zahidi, S. (2016). *The Future of Jobs: Employment, skills and workforce strategy for the fourth industrial revolution*. Geneva, Switzerland: World Economic Forum. Retrieved from [http://www3.weforum.org/docs/WEF\\_Future\\_of\\_Jobs.pdf](http://www3.weforum.org/docs/WEF_Future_of_Jobs.pdf)
- Leung, A. K., Maddux, W. W., Galinsky, A. D., Chiu, Ch. (2008). Multicultural Experience Enhances Creativity: The When and How.



American Psychologist, 63(3), 169-81. <https://doi.org/10.1037/0003-066X.63.3.169>

Levy, F., Cannon, C. (2016). The Bloomberg job skills report 2016: What recruiters want. Retrieved from <https://www.bloomberg.com/graphics/2016-job-skills-report/>

Mammadov, S., Cross, T. L., Cross, J. R. (2019). In Search of Temperament and Personality Predictors of Creativity: A Test of a Mediation Model, Creativity. Research Journal, 31(2), 174-187. <https://doi.org/10.1080/10400419.2019.1577085>

Pacevičius, J. (2005). Emociniai asmenybės bruožų koreliatai. Psichologija, 31, 16-38. <https://doi.org/10.15388/Psichol.2005.4340>

Pringle, C. D., DuBose, P. B., Yankey, M.D. (2010). Personality Characteristics and Choice of Academic Major: Are Traditional Stereotypes Obsolete? College Student Journal, 44 1).

Rakauskaitė, E. D. (2014). Kūrybingumo ugdymas - investicija į kūrybinę visuomenę. Socialinės technologijos, 4(2), 333-347 <https://doi.org/10.13165/ST-14-4-2-07>

Rogers, C. R. (2005). Apie tapimą asmeniu. Psichoterapeuto požiūris į psichoterapiją. Vilnius: Via Recta.

Sánchez-Ruiz, M. J., Hernández-Torrano, D., Pérez-González, J. C., Batey, M., Petride, K. V (2011) The relationship between trait emotional intelligence and creativity across subject domains. Motivation and Emotions. <https://doi.org/10.1007/s11031-011-9227-8>

Sapranavičiūtė, L., Perminas, A., Šinkariova, L. (2010). Meninio ir socialinio profilio studentų kūrybiškumo ir asmenybės bruožų palyginimas. Socialinių mokslų studijos, 3 (7), 97-114.

Sitar, A. S., Černe, M., Aleksić, D., Mihelic, K. K. (2016). Individual Learning Styles and Creativity. Creativity Research Journal, 28(3), 334-341. <https://doi.org/10.1080/10400419.2016.1195651>

Sosa, R., Kayrouz, D. (2020). Creativity in graduate business education: Constitutive dimensions and connections. Innovations in Education and Teaching International, 57(4), 484-495. <https://doi.org/10.1080/14703297.2019.1628799>

Soto, C. J. (2018). Big Five personality traits. In M. H. Bornstein, M. E. Arterberry, K. L. Fingerma, & J. E. Lansford (Eds.), The SAGE encyclopedia of lifespan human development, 240-241. Thousand Oaks, CA: Sage

Sternberg, R. J. (2006). Creating a Vision of Creativity: The First 25 Years. Psychology of Aesthetics, Creativity, and the Arts, S(1), 2-12. <https://doi.org/10.1037/1931-3896.S.1.2>

Sung, S. Y., Jin Nam Choi, J. N. (2009). Do Big Five personality factors affect individual creativity? The moderating role of extrinsic motivation. Social Behaviour and Personality, an International Journal, 37(7), 941-956. <https://doi.org/10.2224/sbp.2009.37.7.941>

The Future of Education and Skills. Education 2030 (2018). OECD.

Torrance, E.P. (1986). Teaching creative and gifted learners. In M. C. Witrock (Ed.), Handbook of research on teaching (3rd ed. 630-647). New York: Macmillan

Vaičiūnienė, V., Mažeikienė, V. (2014). Kūrybiškumas, įtinklintas mokymas(is) ir visapusiškesnių pažintinių gebėjimų ugdymas universitetinėse studijose. Socialinių mokslų studijos, 6(1), 21-33. <https://doi.org/10.13165/SMS-14-6-1-02>

Wang, N., Jome, L. M., Haase, R. F., Bruch, M. A. (2006). The role of personality and career decision-making self-efficacy in the career choice commitment of college students. Journal of Career Assessment, 14, 312-332. <https://doi.org/10.1177/1069072706286474>

Werner, C. H., Tang, M., Kruse, J., Kaufman, J., Sporrle, M. (2014). The Chinese Version of the Revised Creativity Domain Questionnaire (CDQ-R): First Evidence for its Factorial Validity and Systematic Association with the Big Five. The Journal of Creative Behavior, 48(4), 254-275. <https://doi.org/10.1002/jocb.51>

Worrell, F.C., Cross, W.E. (2004). The Reliability and Validity of Big Five Inventory Scores with African American College Students. *Journal of Multicultural Counseling and Development*, 32(1), 7-31. <https://doi.org/10.1002/j.2161-1912.2004.tb00358.x>

Yao, X., Li, R. (2021). Big five personality traits as predictors of employee creativity in probation and formal employment periods. *Personality and Individual Differences*, 182 (109914). <https://doi.org/10.1016/j.paid.2020.109914>

Zare, M., Flinchbaugh, C. (2019) Voice, creativity, and Big Five Personality Traits: A meta-analysis. *Human Performance*, 32(1), 30-51. <https://doi.org/10.1080/08959285.2018.1550782>

Zhao, L., Davis, L. and Copeland, L. (2018). Entrepreneurial intention: an exploratory study of fashion students. *Journal of Enterprising Culture*, 26 (1), 27-50. <https://doi.org/10.1142/S0218495818500024>

Žukauskienė, R., Barkauskienė, R. (2006). Lietuviškos NEO PI-R versijos psichometriniai rodikliai. *Psichologija*, 33, 7-21 <https://doi.org/10.15388/Psichol.2006.4320>

Петрулис, В. (1988). Рефлексия креативности и творческая продуктивность у научных работников. Ленинград (Санкт-Петербург).

**Data Availability Statement:** All data is provided in full in the results section of this paper.

**Author Contributions:** Conceptualization: *K.S, A.J.*, methodology: *K.S, A.J.*; data analysis: *K.S, A.J.*; writing—original draft preparation: *K.S, A.J.*; writing; review and editing: *K.S, A.J.*; visualization: *K.S, A.J.* All authors have read and agreed to the published version of the manuscript.

**Kristina SAMAŠONOK**, Doctor of Social Sciences (Educology), Docent of the Faculty of Business Management of Vilniaus kolegija/Vilnius University of Applied Sciences, Didlaukio g., 49, Vilnius, tel. (8-5) 2191640, Faks. (8-5) 2191639, el. p. administracija[eta]vfv.viko.lt; research interest areas: social exclusion risk for adolescence adaptation, institutional development and adaptive behaviour modelling, the first year students' adaptation to the study process, motivation factors for choosing studies, developing students' creative thinking in a higher school.  
ORCID ID: <https://orcid.org/0000-0002-8985-6942>

**Agnė JUŠKEVIČIENĖ**, Doctor of Social Sciences (Educology), Docent of the Faculty of Business Management of Vilniaus kolegija/Vilnius University of Applied Sciences, Didlaukio g., 49, Vilnius, tel. (8-5) 2191640, Faks. (8-5) 2191639, el. p. administracija[eta]vfv.viko.lt; research interest areas: inclusive, multicultural education in higher and general education school, acquisition and development of general and subject competencies, formation of identity in adolescence.  
ORCID ID: <https://orcid.org/0000-0001-9732-8616>

## ENTREPRENEURSHIP AND SUSTAINABILITY ISSUES

ISSN 2345-0282 (online) <http://jssidoi.org/jesi/>

2022 Volume 9 Number 3 (March)

[http://doi.org/10.9770/jesi.2022.9.3\(16\)](http://doi.org/10.9770/jesi.2022.9.3(16))

Make your research more visible, join the Twitter account of ENTREPRENEURSHIP AND SUSTAINABILITY ISSUES:  
@Entrepr69728810

---

Copyright © 2022 by author(s) and VsI Entrepreneurship and Sustainability Center  
This work is licensed under the Creative Commons Attribution International License (CC BY).  
<http://creativecommons.org/licenses/by/4.0/>

