

The journal has had 5 points in Ministry of Science and Higher Education parametric evaluation. § 8. 2) and § 12. 1. 2) 22.02.2019.

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The authors declare that there is no conflict of interests regarding the publication of this paper.

Received: 25.06.2020. Revised: 26.06.2020. Accepted: 08.07.2020.

## Students personality and field of study

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**Conflict of interest statement:** the authors declare that there is no conflict of interest.

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### Abstract

**Background and aim.** Personality is shaped through external interactions and interests. The aim of the study was to check whether university students have a similar personality (as applicants for higher education) or a different personality (due to their field of study).

**Material and method.** 60 full-time students aged between 20 and 29 years old were examined in three groups of 20 people from universities: University School of Physical Education in Wrocław (field of study: Sport), University of Zielona Góra (field of study: Construction) and University of Economics in Wrocław (field of study: Economics). The

Personality Inventory NEO-FFI was used to measure personality. **Results.** Only one statistically significant difference was noted. Economics students had a lower level of neuroticism compared to sports students. **Conclusions.** The personality of students is not dependent on the field of study. Students as applicants for higher education have a similar personality.

**Key words:** pedagogy, psychology, personality, students, universities

## Introduction

The issue of personality has long been subject to discussion and research by many psychologists, sociologists and other scholars. Regardless of the view that is displayed by a given researcher, everyone simultaneously states that personality consists of several features or dimensions. Personality is usually defined as a system of permanent psychic traits and internal mechanisms regulating human behavior (Tokar et al. 1998).

The most commonly used concept of human personality presented by means of features is the so-called a five-factor personality model called the Big Five, developed by Costa and McCrea (2007). For many years, until the 1970s, it was thought that personality was only shaped by the external environment. It was believed that the family environment, education and upbringing were responsible for the development of personality, individual traits. However, the validity of this theory was questioned by the results of genetic-behavioral studies, which showed that the overwhelming number of personality traits show moderate heritability (McCrae, Costa, 2003). Recently, there has been a return of interest in the correlation of genetics and personality. This is probably due to the deepening of knowledge about the genome and the association of individual genes with the occurrence of psychopathology. In genetic studies that focused on the issue of personality, multidimensional concepts of personality were most often studied, which covered various aspects of personality. Nowadays, the NEO-FFI Personality Inventory enjoys the greatest popularity among researchers. Personality understood in a multidimensional sense, presented by Costa and

McCrae includes five main factors, which can also be called dimensions: neuroticism, extraversion, openness to experience, agreeableness and conscientiousness (Mount et al. 1998).

The essence of this study was an attempt to determine the personality of students depending on the field of study (Barrick, Mount, 1991; Arcidiacono, 2004; Nyhus, Pons, 2005; Mueller, Plug, 2006; Cunha, Heckman, 2007; Borghans et al. 2008; Krueger, Schkade, 2008; Arcidiacono et al. 2012). Assuming that the personality is shaped in the course of external interactions and interests, the purpose of the study was to check whether university students have a similar personality (as applicants for higher education) or a different personality (due to the field of study being implemented).

## **Material and method**

### *Test persons*

The study was conducted from October to December 2019, on groups of full-time students ( $N = 60$ ) from the University School of Physical Education in Wrocław (field of study: Sport; 20 people - 10 women and 10 men, hereinafter referred to as USPE), University of Zielona Góra (field of study: Construction; 20 people - 11 women and 9 men, hereinafter referred to as UZ) and the University of Economics in Wrocław (field of study: Economics; 20 people - 12 women and 8 men, hereinafter referred to as UE).

Students for the study were selected at random. The selection criteria were full-time studies at one of the three above-mentioned universities in a given field, age between 20 and 29 years of age and consent to voluntary participation in the study. The project was approved by the Senate Committee on Ethics of Scientific Research at the University School of Physical Education in Wrocław, issue 20/2019.

### *Method*

The NEO-FFI Personality Inventory was selected to examine the personality of athletes in terms of the five-factor Big Five model. NEO-FFI Personality Inventory items are made up of five measuring scales, factors of the Big Five model:

- Neuroticism (anxiety, angry hostility, depression, impulsiveness, vulnerability, self-consciousness);
- Extroversion (gregariousness, warmth, assertiveness, activity, excitement-seeking, positive emotions);
- Openness to experience (fantasy, aesthetics, feelings, actions, ideas, values);
- Agreeableness (trust, straightforwardness, altruism, compliance, modesty, tendermindedness);
- Conscientiousness (competence, order, dutifulness, achievement striving, self-discipline, deliberation; Costa, McCrae, 2007).

The items in the questionnaire are 60 self-descriptive statements, the truthfulness of which in relation to themselves was rated by the respondents on a five-point scale: 1 – "I strongly disagree"; 2 – "I do not agree"; 3 – "I have no opinion"; 4 – "I agree"; 5 – "I definitely agree". The NEO-FFI Personality Inventory has sten standards for 5 age groups (15-19, 20-29, 30-39, 40-49, 50-80), developed separately for women and men based on large population samples (Costa, McCrae, 2007).

The NEO-FFI Personality Inventory is internally compliant. Accuracy was demonstrated on the basis of research on the relationship between the results of the questionnaire and the evaluations of the subjects made by observers, the heritability of the measured features and their correlation with other personality and temperament dimensions. Factor relevance was also verified. The results allow a full description of the respondents' personalities in a five-factor Big Five perspective and forecast their adaptation possibilities to the professional environment (Costa, McCrae, 2007).

To answer the research hypotheses, statistical analyzes were performed using the IBM SPSS Statistics 23 package. With its help, basic descriptive statistics were analyzed together with the Kolmogorov-Smirnov test and one-way analyzes of variance in the intergroup diagram. The classic threshold  $\alpha = 0.05$  was considered the level of significance, in addition, the test statistic probability results at  $0.05 < p < 0.1$  were considered significant at the level of statistical tendency.

## **Results**

In the first step, basic descriptive statistics of the quantitative variables tested were counted along with the Kolmogorov-Smirnov test, checking the normality of the distribution

of these variables. As can be seen in Table 1, a distribution similar to the Gaussian distribution was noted in the range of four out of five variables studied - neuroticism, extraversion, openness to experience and conscientiousness. Only in the case of the level of agreeableness was the statistically significant result of the Kolmogorov-Smirnov test indicating that this distribution is different from the Gaussian distribution. In this case, it is recommended to verify the skew level. If this value is in the range of -1 to +1, it can be assumed that these distributions are not significantly asymmetrical in relation to the average. Such results were obtained in this study. Therefore, this chapter will perform statistical analyzes using parametric tests.

*Table 1. Basic descriptive statistics of quantitative variables tested*

	<i>M</i>	<i>Me</i>	<i>SD</i>	<i>Sk.</i>	<i>Kurt.</i>	<i>Min.</i>	<i>Maks.</i>	<i>K-S</i>	<i>p</i>
Neuroticism	24,50	24	5,12	-0,63	0,42	10	33	0,10	0,200
Extroversion	23,88	24	4,45	0,01	0,05	12	33	0,10	0,200
Openness to experience	24,28	24	4,10	0,10	-0,53	14	32	0,11	0,089
Agreeableness	24,82	25	4,77	0,31	0,31	14	37	0,14	0,008
Conscientiousness	25,93	26	4,48	-0,21	-0,47	17	35	0,10	0,200

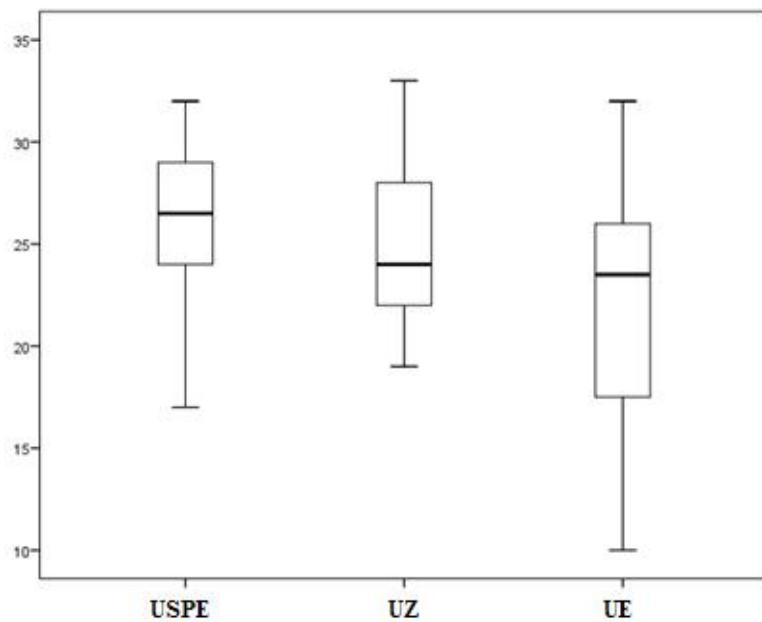
*M* - average; *Me* - median; *SD* - standard deviation; *Sk.* - skewness; *Kurt.* - kurtosis; *Min* and *Max* - the lowest and highest distribution value; *K-S* - Kolmogorov-Smirnov test result; *p* - significance

### *Neuroticism*

Due to the failure to meet the homogeneity assumption, a strong Brown-Forsyth average equality test was performed. As can be seen in Table 2, a statistically significant result was recorded. Therefore, post-hoc analyzes were performed using Dunnett's test. One statistically significant difference was noted. EU students had a lower level of neuroticism compared to USPE students ( $p = 0.043$ ). UZ students did not differ from the other two groups even at the level of statistical tendency. The results are presented in Figure 1.

*Table 2. Level of neuroticism in the studied groups*

	USPE		UZ		UE		<i>F</i>	<i>p</i>	$\eta^2$			
	(n = 20)		(n = 20)		(n = 20)							
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>						
Neuroticism	26,35	3,86	25,10	3,96	22,05	6,38	4,12	0,023	0,13			



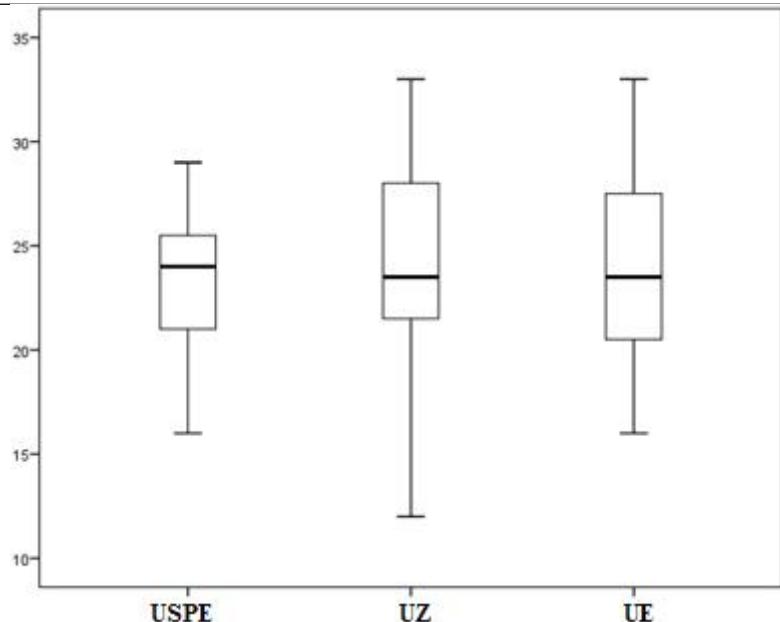
*Figure 1. Level of neuroticism in the studied groups*

### *Extroversion*

A one-way analysis of variance was performed in the intergroup diagram. However, as can be seen in Table 3, no statistically significant result or even close statistical significance was reported. The results are presented in Figure 2.

*Table 3. Level of extraversion in the studied groups*

	USPE		UZ		UE		<i>F</i>	<i>p</i>	$\eta^2$			
	(n = 20)		(n = 20)		(n = 20)							
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>						
Extroversion	23,30	3,45	24,30	4,82	24,05	5,06	0,27	0,766	0,01			



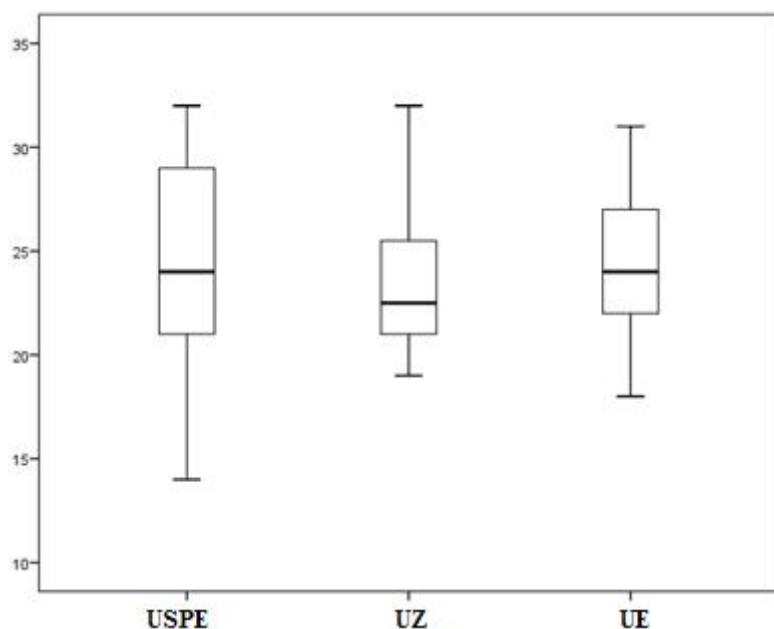
*Figure 2. Level of extraversion in the examined groups*

#### *Openness to experience*

A one-way analysis of variance was performed in the intergroup diagram. However, as can be seen in Table 4, no statistically significant result or even close statistical significance was reported again. The results are presented in Figure 3.

*Table 4. Level of openness to experience in the studied groups*

	USPE		UZ		UE		<i>F</i>	<i>p</i>	$\eta^2$			
	(n = 20)		(n = 20)		(n = 20)							
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>						
Openness to experience	24,50	4,98	23,80	3,64	24,55	3,71	0,20	0,816	0,01			



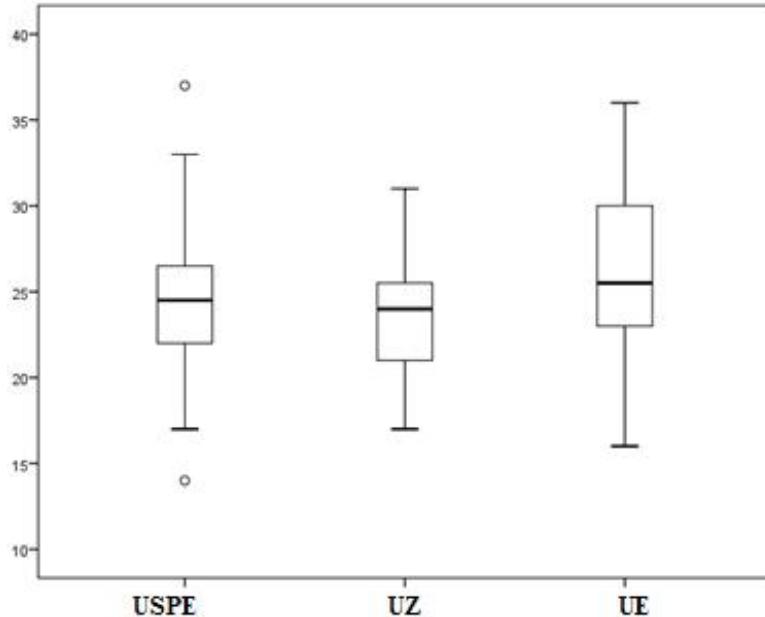
*Figure 3. Level of openness to experience in the studied groups*

#### *Agreeableness*

Another one-way analysis of variance was performed in the intergroup diagram. However, as can be seen in Table 5, no statistically significant result or even close statistical significance was recorded this time either. The results are presented in Figure 4.

*Table 5. Level of agreeableness in the studied groups*

	USPE		UZ		UE		<i>F</i>	<i>p</i>	$\eta^2$			
	(n = 20)		(n = 20)		(n = 20)							
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>						
Agreeableness	24,55	5,22	23,70	3,92	26,20	4,96	1,44	0,245	0,05			



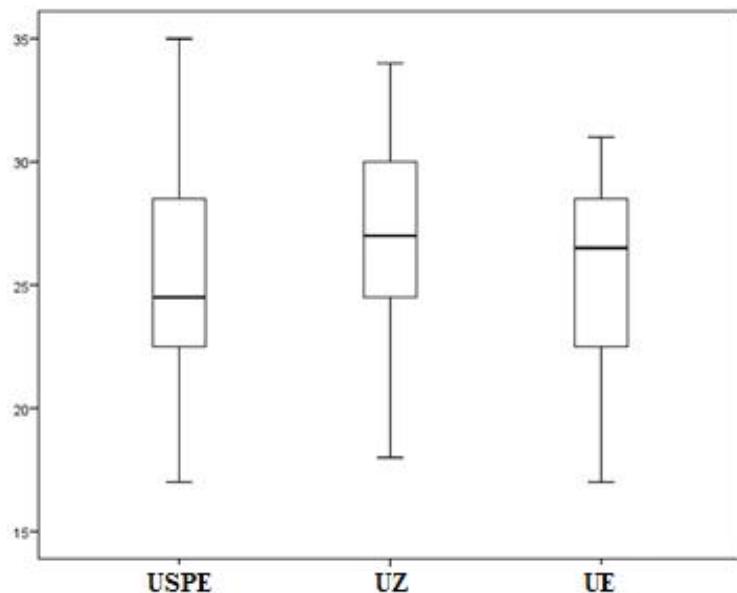
*Figure 4. Level of agreeableness in the studied groups*

### *Conscientiousness*

Another one-way analysis of variance was performed in the intergroup diagram. However, as can be seen in Table 6, no statistically significant result or even close statistical significance was recorded again. The results are presented in Figure 5.

*Table 6. Level of conscientiousness in the studied groups*

	USPE		UZ		UE		<i>F</i>	<i>p</i>	$\eta^2$			
	(n = 20)		(n = 20)		(n = 20)							
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>						
Conscientiousness	25,20	4,87	27,30	4,08	25,30	4,35	1,42	0,25	0,05			



*Figure 5. Level of conscientiousness in the studied groups*

## Discussion

The results of the conducted research showed that the students of the three respondents are characterized by a similar personality with an average intensity of all five dimensions: neuroticism, extraversion, openness to experience, agreeableness and conscientiousness. There was no correlation between personality and the chosen field of study. The first supposition was generally confirmed that students as applicants for higher education have a similar personality. USPE students are not distinguished by personality typical for athletes, UZ students are not distinguished by personality typical of exact sciences and EU students are not distinguished by personality typical for social sciences (O'Connor, Paunonen, 2007).

But one statistically significant difference was noted. UE students had a lower level of neuroticism compared to students of the USPE. Whereas UZ students did not differ from the other two groups even at the level of statistical tendency. This shows that UE students are more emotionally stable (Borghans et al. 2008) than USPE students.

Since there is no knowledge about the personality of the respondents from earlier periods of their careers, there is no reason to conclude on how much school interests and predispositions influenced possible modifications of this important human property (Roberts et al. 2001). In addition, it is not known to what extent education in secondary schools could have a decisive impact on the formation of student personality. Apart from the influence of primarily teachers and other entities of the students' immediate social environment. Therefore, social and cultural factors cannot be excluded (de Fruyt et al. 2006). Factors disturbing or supporting the development of a young person creates his immediate environment (Piepiora et al. 2017a, 2017b, 2018). This, in turn, is expressed in self-esteem, which has a significant impact on the personality and competence of high school students who decide to study (Heckman et al. 2006). Personality is more important than cognitive skills, i.e. mathematical and verbal skills. In order to achieve education, the impact of personality on the choice of field of study is comparable to the impact of cognitive skills (Hamburg, 2017).

## Conclusions

The personality of students is not dependent on the field of study. Students as applicants for higher education have a similar personality.

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