PREDICTORS OF ACADEMIC PERFORMANCE

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ABSTRACT. Developing capacities and skills necessary for the integration into the labour market and for the achievement of a professional career is a foreground target of the educational system. Within this frame, personality traits and career interests of students who shall pursue a career in education are directly connected to the choices they make, to their plans and achievements equally. This study presents an analysis of the dominant personality traits of the students studying physical education, based on the Big-Five model, based on the results of a quantity-quality descriptive study conducted on 118 students attending the physical and athletic education faculty, as well as the identification of the occupational cluster corresponding to the teaching activity. For the studying of the personality factors we used the NEOPI-R personality inventory, career interests were measured with the JVIS, Jackson Vocational Interest Survey, and the results were correlated with academic performance. As a result of the analysis, we may conclude that the physical education student is both an agreeable and a hard-working person, with a high sense of responsibility, constantly preoccupied for his personal performance.

Keywords: conscientiousness, agreeableness, academic performance

REZUMAT. *Predictori ai performanţei academice.* Un obiectiv prioritar ale sistemului educaţional îl constituie formarea competenţelor şi aptitudinilor necesare pentru integrarea pe piaţa forţei de muncă şi realizarea carierei profesionale. În acest context, trăsăturile de personalitate şi interesele vocaţionale ale studenţilor care vor urma o carieră didactică sunt implicate direct în alegerile pe care aceştia le fac, în ceea ce-şi propun şi realizează deopotrivă. Studiul de faţă prezintă o analiză a trăsăturilor dominante ale personalităţii studentilor de la domeniul educaţie fizică şi sport, având la bază modelul Big-Five, pe baza rezultatelor dintr-un studiu descriptiv mixt cantitativ-calitativ realizat pe un număr de 118 studenţi de la specializarea educaţie fizică şi sportivă, domeniul de licenţă, precum şi identificarea clusterului ocupaţional corespunzător activităţii de predare. Pentru investigarea factorilor de personalitate am utilizat Inventarul de personalitate NEOPI-R, interesele vocaţionale au fost măsurate cu Inventarul de Interese Vocaţionale Jackson, JVIS, iar rezultatele obţinute au fost corelate cu performanţa academică, calculată ca medie a anilor de studii corespunzători. Ca rezultat al analizei putem conchide că studentul de

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la acest profil este deopotrivă agreabil şi conştiincios, cu un simţ al responsabilităţii ridicat în activitatea profesională, preocupat în permanenţă pentru performanţa personală în relaţiile cu sine şi performanţa profesională în relaţiile cu ceilalţi.

Cuvinte-cheie: conştiinciozitate, agreabilitate, performanţe academice

Introduction

In the current context the quality of the educational process does not depend only on the selection of courses, on the good presence of the professors and the assessment method, but also on the way they, the beneficiaries, the students, are guided, advised, directed towards entering the labour market. The university becomes a bridge between students and the labour market, and at the same time a permanent dialogue area with the graduates. What are the skills and personality traits which make graduates as capable and flexible in "scanning" the labour market opportunities as possible, in order to be apt to success?

Personality traits and career interests represent a main bridge over knowledge and evolution, involved directly into the choices that we make, into our plans and achievements at the same time.

The analysis of the relation between personality and career choices represented a research basis 50 years ago as well (Barrick, & Mount, 1991; Costa, McRae, 1992; DeNeve, & Cooper, 1998; Gomez, Gomez, Cooper, 2002; Heller, Watson, Ilies, 2004; Judge, Heller, Mount, 2002).

Personality factors differentiate career groups from one another playing the role of predictors in choosing one's career. A study conducted on Canadian students showed a significant influence relation between personality factors (agreeableness, conscientiousness, neuroticism) and emotions (anxiety, anger, boredom, pride) over the academic environment adjustment using *MetaTutor learning environment* (Harley, Carter, Papaionnou, Bouchet, Landis, Azevedo, Karabachian, 2016). According to the results, in order to achieve a high academic performance students must develop a high level of conscientiousness and agreeableness at the same time with an emotional display from their teachers based on adaptive emotions (joy, trust, pride) and avoid non-adaptive emotions (boredom, anger). In a study conducted by Bozanoglu & Sapanci (2015) results indicated a relationship between personality factors and academic motivation. While conscientiousness indicated a strong significant correlation to academic motivation, neuroticism indicated a strong negative correlation.

Trapmann, Hell, Hirn, Schulern (2015) investigated the impact of the big five personality factors on academic success at university. Results show that the influence of personality traits on academic achievement depends on the success criterion. Neuroticism is related to academic satisfaction (r = -.369, k = 8), conscientiousness correlates with grades (r = .269, k = 41), extraversion, openness to experience, and agreeableness have no significant impact on academic success. Moderator analysis suggests effects of culture for the validity of extraversion.

Personality factors together with daily mood may significantly influence professional performance, and implicitly academic performance (Nai Wen Chi, Huo Tsan Chang, Hsien-Lier Huang, 2015). In this study results indicated that a daily positive mood plays an important role in achieving professional performance together with conscientiousness and agreeableness.

The idea that personality factors can differentiate one occupational group from another has been empirically evaluated through the use of personality assessment. As a result, personality factors have been shown to significantly relate to and predict career choice. For example, Hojat and Zuckerman (2008) also examined the effects of personality on specialty interest for the big five personality factors. They hypothesized that those who choose a hospital-based specialty would score lower on sociability when compared to the primary care/ people oriented specialties. Results supported the aforementioned hypothesis. Conclusions of the studies mentioned above suggest that personality does have an effect on a medical student's choice of specialty, and the exploration and use of these findings can enhance the ability of educators to counsel their students in decision making for their future careers.

Tross, Harper, Osher, et al. (2000) analyzed the ability of the personality characteristics, achievement, conscientiousness, and resiliency to predict college student performance and retention. Results show that conscientiousness was more predictive of college GPA than was high school GPA. Conscientiousness was associated with retention both directly and indirectly, whereas high school GPA, total SAT score, achievement, and resiliency showed no predictive value for college retention. It is concluded that personality variables are useful predictors of college performance and retention.

Lounsbury, Saudargas, Gipson, et al. (2005), based on a sample of 532 undergraduates at a South-Eastern U.S. university, Big Five and narrow personality traits, were examined in relation to a measure of satisfaction with specific domains of college experience and a measure of General Life Satisfaction. Four of the Big Five traits, agreeableness, conscientiousness, emotional stability and extraversion - as well as the narrow traits of aggression, career decidedness, optimism, self-directed learning, sense of identity, and work drive were positively, significantly related to both satisfaction measures.

In a study conducted on 254 medical students (Grama, Botone, Raulea, 2016) researchers found that basic personality traits as "agreeability" and "conscientiousness" represent significant predictors for academic performance materialized in attendance, grades and, subsequently, for professional performance after graduation.

A study conducted by Scepansky & Bjornsen (2003) proves that people who want to get a job after graduating have a far higher level of course attendance during school period, are more motivated for studying, fact which correlates with conscientiousness.

Schaeffer and co. (2003) identified the following qualities as being typical of the efficient teachers, according to students' perception: accessible, creative and interesting, caring, enthusiastic, flexible and receptive, well-informed, having realistic, fair expectations, but respectful as well. Delli (2010) developed "Teacher Perceiver Interview", an instrument used in the process of selecting teachers, process which includes among other characteristics the assessment of the teacher's empathy, his/her capacity to create positive relationships with the students, objectiveness, and innovation.

From the analysis of studies based on this subject, we can assert that each personality factor bears an important and well-defined role in achieving academic success and in their future integration into the labor market, so we are more interested in fact in the way these factors combine and less in the influence they have separately on physical and athletic education students.

Objectives

This study is meant to analyze the relation between personality dimensions (the big five model) and the academic performance of physical and athletic education students, as well as to identify possible predictors of academic performance.

At the same time the need to improve the profession of teaching caused the development of this study which analyzes the personality structure of future teachers but also the identification of the factors which influence the performance of these future teachers with the purpose of achieving educational objectives.

Hypothesis

1. We assume that there are significant differences between male subjects and female subjects from the point of view of the level of conscientiousness and agreeableness expressed by the assessed students;

2. We assume that conscientiousness is a predictor significant for the academic performance.

Methods

For the assessment of personality traits we used: the Revised NEO Personality Inventory, NEO PI-R (2009) - one of the most used personality questionnaires of the modern applied psychology, containing five areas: Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A), Conscientiousness (C). The five areas (mentioned before) and 30 faces of the NEO PI-R allow a comprehensive evaluation of the normal adult personality. By using NEO PI-R in the educational assessment and the career orientation researchers tend to focus mainly on the conscientiousness factor. Studies on conscientiousness indicate a substantial number of correlations (Costa, 2009, 169). De Raad & Perugini (2002), Shiner (2000) underline the predictive role of conscientiousness in the academic achievements.

JVIS (Jackson Vocational Interest Survey, 2007) is a measuring instrument for career interests with the purpose of evaluating career interests along a common set of dimensions, its structure containing 34 scales. Academic performance was rendered operational by calculating the average score of each student throughout the entire period of study in the university.

The group study (who expressed their written consent to participate in this research) contains 118 students attending the physical and athletic education faculty courses (43 females and 75 males) assessed with NEO PI-R; 99 of these students (38 females and 61 males) signed up for the psycho-pedagogy program and were evaluated with JVIS.

For the testing of the research hypothesis we have used several statistical methods applied through SPSS 23; we have used the variance analysis method, the correlation method and the Pearson bi-variant correlation coefficient.

Results

After analyzing and processing the data through NEO PI-R, we obtained the following results. Table 1 and 2 present the descriptive statistics for the investigated variables.

Table 1. Descriptive Statistics

	N	Mean	Std. deviation
Study year	118	1.91	.716
Gender	118	1.64	.483
Age	118	23.80	6.223
Conscientiousness	118	123.64	18.315
Extraversion	118	112.98	15.658
Agreeableness	118	112.87	16.782
Openness	118	106.20	13.408
Neuroticism	118	85.92	17.288

Table 2. Descriptive statistics of the variables studied according to gender

Gender		N	Mean	Std. deviation	Std. error mean
Female	Agreeableness	43	119.51	15.686	2.392
	Conscientiousness	43	130.88	16.403	2.501
	Extraversion	43	116.74	15.601	2.379
Male	Agreeableness	75	109.07	16.290	1.881
	Conscientiousness	75	119.49	18.159	2.097
	Extraversion	75	110.83	15.381	1.776

The Levene test of equality of error variance came up insignificant, which allows us to analyze the data under quasi-experimental conditions. From the data analysis of the investigated group we can assert that there are significant differences between female and male subjects from the point of view of the expressed level of conscientiousness (F = 11.521; sig 0.001; eta 0.090), as well as from the point of view of the expressed agreeableness level (F= 11.540; sig 0.001; eta 0.090) although the relation is significant, the effect size expressed through the eta coefficient is small. Hypothesis 1 is confirmed. Female subjects scored a higher at the conscientiousness level; consequently within the group of subjects the level of conscientiousness of the group tends to grow together with the number of female subjects participant in the survey. High scores of the extraversion dimension indicate the fact that physical education students have frequent interactions with other people, aspect corresponding to the nature of their future job.

Table 3. ANOVA[a]

Model	Sum of squares	Df	Mean Square	F	Sig.
Regression	6.759	1	6.759	8.192	.005[b]
Residual	94.882	115	.825		
Total	101.641	116			

a. Dependent Variable: Average score for the previous year
b. Predictors: (Constant), NEOPIR_ Conscientiousness

Table 4. Regression coefficients

Model	Unstandardized coefficients		Standardized Coefficients	t	Sig.
	B	Std. error	Beta		
(Constant)	6.605	.577		11.452	.000
NEOPIR_ Conscientiousness	.013	.005	.258	2.862	.005

a. Dependent Variable: Average score for the previous year

Tables 3 and 4 present the statistics for Hypothesis no. 2. Results indicate conscientiousness as a significant predictor for academic performance. Hypothesis 2 is confirmed. Analyzing the data for the studied group, agreeableness correlates positively with conscientiousness (r= 0.467**; sig. 0.00); the more agreeable the students feel like being to the others, the higher the level of their conscientiousness tends to be. At the same time the study indicates significant high correlations between conscientiousness (r = 0.520**; sig. 0.00) and extraversion.

The analysis of the data indicates significant positive correlations between straightforwardness and the dutifulness (r = 0.476**; sig. 0.00), self-discipline and the dutifulness (r = 0.680; sig. 0.00), the capacity to plan, organize and implement. The particularity of this field, the athletic activity that some of the students are practicing, create a dutifulness and self-discipline, educating motivated individuals who carry out the tasks they initiated, who stick to their ethical principles and rigorously fulfill their moral duties. Straightforwardness is a face of agreeableness, and the subjects who scored high in this dimension are open and sincere, with a positive attitude towards the others. At the same

time the statistical analysis indicated significant positive correlations between altruism (m = 22.37) and the dutifulness (m = 22.67) and a correlation coefficient value of r = 0.602**; sig. 0.00.

The significant positive correlations between these facets as well as the high scores obtained by the subjects allow us to appreciate the future graduates as individuals with a sense of duty, honest, unselfish, conscientiousness and agreeableness, considerate with people around them, showing generosity and desire to help.

Table 5. Descriptive statistics for JVIS factors

	N	Minimum	Maximum	Mean	Std. deviation
Elementary Education	99	4	97	59.42	27.289
Teaching	99	1	99	56.46	30.844
Social Service	99	1	98	55.14	30.562
Human Relations Management	99	0	99	49.37	29.032

In order to identify the occupational profile I used JVIS. Table 5 presents several descriptive statistics for JVIS scales, significant for graduates who will become teachers or sports coaches. The career interest corresponding to the teaching activity for adults (Jackson, 2007, 204) contains the scales measured in Table 5. The average score for the respondent students is high for the teaching and elementary education scale, fact wich indicates the pleasure of teaching other people and the willingness to participate in the educational activity, characteristics that are necessary for defining the future teachers. Also the average scores for the female subjects are higher (teaching 60.53, social services 64.87) compared to the average scores for male (teaching 53.93, social services 49.08), thus female proving to be more interested in teaching than male.

Conclusions

Conscientiousness represents a performance predictor in almost any field, and especially in the academic area, especially when demands are standardized and less encouraging for independent thinking and creativity; these are conditions typical for the Romanian educational system. Students are well-organized, determined and perseverant, features which in time lead to

better academic results. It is considered that conscientiousness individuals are perceived by the others as being intelligent and the scores for this area can complete the scores obtained in the assessment of abilities, as an academic success predictor (Costa, & McCrae, 1992).

The recorded significant positive correlations determine us to emphasize the dimension of conscientiousness as a predictor for academic performance for students attending the specialization studied here. The significant positive correlations between the facets of the big five personality model corresponding to Table 5 allow us to consider these individuals as having a strong sense of duty, honest, unselfish, conscientiousness, and agreeable people, considerate with the people around them, showing generosity and desire to help.

The students participating in this survey are attending the psycho-pedagogy program for teaching competency. While using JVIS our intention was to identify the occupational cluster for teaching corresponding to students from this specialization (Table 5.). Thus, the group containing teachers, trainers, coaches showed high interests (according to the scores shown in Table 5.) in teaching, elementary education, social services, and human relations management scales; which grants them potential for developing these qualifications in order to be able to manage the teaching activity.

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