

Standardization and the Impact of Big 5 Factor Personality Test Subscales on Achievement

Prof. Ass. Dr. Fleura Shkemi

Lecturer, Mediterranean University of Albania, Tirana, Albania.

Dr. Valbona Treska

Department of Psychological Studies, Mediterranean University of Albania

Prof. Ass. Dr. Nazmi Xhomara

Lecturer, Department of Mathematics and Statistics, Faculty of Information Technology and Innovation, Luarasi University, Tirana, Albania.

Contact address: fleurashkemi@gmail.com (corresponding author)

doi: <https://doi.org/10.37745/bjpr.2013/vol12n23553>

Published May 26, 2024

Citation: Shkemi F., Treska V. and Xhomara N. (2024) Standardization and the Impact of Big 5 Factor Personality Test Subscales on Achievement, *British Journal of Psychology Research*, 12 (2),35-53

ABSTRACT: *The latest research supports a five-factor structure to describe the personality of children, as well as of adults, confirming the structure proposed by many authors. The study aims to assess the underlying structure and psychometric properties of the Big Five Factor Personality Test among mixed professions employees as well as among students of different study programs. The study also aimed to measure the impact of neuroticism, extraversion, conscientiousness, openness, and agreeableness subscales on achievement. Data was gathered from 912 respondents from the mixed professions population and 501 respondents from the student population. A substantial proportion of respondents from the two populations of the study were classified as probable cases on the Big Factor Personality scale and subscales, with the samples recording higher mean Big Factor Personality subscales scores than many other respondent groups reported in the previous work. Confirmatory factor analysis supported the structure of five subscales of the Big Factor Personality Scale representing the personality of different professions and students from varying study programs. There was a linear relationship between neuroticism, extraversion, conscientiousness, openness, agreeableness, and achievement. Extraversion, conscientiousness, and openness were positive predictors of achievement while, neuroticism and agreeableness were negative predictors.*

KEYWORDS: *Big-5-factor, personality, test, validation, standardization, achievement.*

INTRODUCTION

In recent years, an impressive body of research has accumulated supporting a five-factor structure to describe personality, confirming the early structure proposed by different authors. The studies examined in the previous research evidenced the possibility of using the Big Five to obtain personality ratings of children, and especially of adults, as well as the conclusion that the Five Factors represent useful constructs, especially for practical utility (Barbaranelli et al., 2003). The Big Five personality theory gives a simple blueprint for understanding others and improving relationships by knowing why people behave the way they do. *The Big 5 Factor Personality Test* is a test that can be used to measure a person's most important personality characteristics and which roles are the best suited to them. Recruiters can also use it to find people who have the personality, as well as the skills, to fit the roles that they are hiring for. John, Donahue & Kentle (1991) developed the 44-item Big Five Inventory that allows efficient and flexible assessment of the five personality dimensions when there is no need for more differentiated measurement of individual facets.

The framework for personality traits was first created by Goldberg (1993). The idea suggests that it is possible to describe people using terms belonging to five different groups: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness. The test is designed to measure these five personality factors or "dimensions." Conscientious individuals tend to be very thoughtful and intentional. Agreeable individuals tend to hold attributes of trust and kindness, are cooperative and very helpful, as well as caring and honest individuals. Individuals who score high on neuroticism tend to be highly stressed and moody. Individuals who have openness as a trait-like to try new things, exploring a broad range of interests, and engage with others on a personal level. Individuals who score high on extroversion are highly sociable and talkative, very expressive with their emotions, and may even seem assertive.

According to Jang et al. (2006), there is empirical evidence that underlying the Big Five personality factors are two higher-order factors that have come to be known as "alpha" (α) and "beta" (β). The α factor is defined by the agreeableness, conscientiousness, and emotional stability domains, whereas β is delineated by extraversion and intellect. It has been argued that α and β are important constructs because they bridge the gap between psychometric studies of personality and theories of personality development.

Feher & Vernon (2021) suggested that for decades, the Big 5 model of personality has dominated as one of the most popular and widely used models of personality. Lounsbury et al. (2003) developed and validated a measure of the Big Five personality traits tailored to adolescents, the *Adolescent Personal Style Inventory*, demonstrating psychometric adequacy.

The current study aims to validate and standardize the *Big 5 Factor Personality Test* into Albanian in a selected sample and to adapt it as an administered test for use in people's career orientation

and development. Authors also aimed to measure the impact of neuroticism, extraversion, conscientiousness, openness, and agreeableness subscales on achievement. *Research Questions* used in the study include: (1) What is the internal consistency in *the Big 5 Factor Personality Test*? (2) What is the underlying factor structure of the Big Five-factor personality Test? Previous research suggests a five-factor structure (neuroticism, extraversion, conscientiousness, openness, and agreeableness). Is the structure of the scale in this study, using a mixed profession and a student sample, consistent with this previous research? (3) Is there any relationship between neuroticism, extraversion, conscientiousness, openness, agreeableness, and achievement?

LITERATURE REVIEW

Standardization and validation of the Big Five Factor Personality Test

De Raad (1998) emphasized that the Big Five approach is a general communication medium of personality traits, especially in studies of adjective-anchored bipolar rating scales (Goldberg (1992); meanwhile, Marsh et al. (2010) show that women score higher on all NEO Big Five factors, decreases in neuroticism and increases in agreeableness, openness, and conscientiousness. Barbaranelli et al. (2003) revealed that openness and conscientiousness, as well as amount of students' study time (Xhomara & Hasani, 2018) resulted as important predictors of academic achievement.

Lamb, Chuang, Wessels, Broberg, and Hwang (2002) revealed that internal reliability of the extraversion, agreeableness, neuroticism, and openness to experience factors increased over time; the new Big Five marker sets are shown to have markedly lower interscale correlations, with no loss of validity, relative to previous marker sets with comparable numbers of items (Saucier, 2002); the meantime, Gosling et al., (2003) acknowledge that the *Big-Five* personality inventories reached adequate levels in terms of convergence with widely used *Big-Five* measures in self, and achievement is affected by the prior knowledge, problem-based teaching, the comprehensive learning approach, assessment and didactic-artistic tools (Hala & Xhomara, 2023; Xhomara, 2020). Mount & Barrick (1998) indicated that conscientiousness showed consistent relations with all job performance criteria, extraversion was a valid predictor for social interaction, openness was a valid predictor of training proficiency, and the multiple data analytic approach is significant for testing the cross-cultural generalizability of a personality measure (Caprara et al. 2000). Sleep et al., (2021) noticed that longer measures of *Big Five Factor* were found to contain considerably more variance that was not accounted for by brief measures.

Langford (2003), as well as Paunonen, Ashton & Jackson (2001), showed good predictive validity for Shafer's (Shafer, 1994) 30-bipolar-item measure of the *Big Five*; there is also a strong association between facial symmetry and extraversion and openness (Fink, Neave, Manning & Grammar, 2005); meanwhile, Mehrabian (1996) noticed that the trait pleasure-arousability-dominance temperament explained approximately 75% of the reliable variance in extraversion emotional stability, and agreeableness.

Blackburn, Renwick, Donnelly & Logan (2004) suggested that neuroticism, extraversion, openness, agreeableness, and conscientiousness are not independent dimensions and that two higher-order factors impulsivity and withdrawal underlie them; the factor structure of both Estonian and Finnish personality inventories was very close to the five-factor structure, accounting for 71.7 percent and 67.0 percent of the variance, respectively (Pulver, Allik, Pulkkinen & Hämäläinen, 1995). At the meantime, Vecchione, Alessandri, Barbaranelli & Caprara (2011) acknowledged that the *Big Five* model of personality was positively related to values that emphasize protecting stability and respecting norms and traditions; and the variance in achievements is explained by course organization, faculty-student interaction and by student involvement (Xhomara, Gusho & Muçaj, 2023).

Higher conscientiousness scores correlated significantly with reductions in different brain areas (Liu, Weber, Reuter, Markett, Chu & Montag (2013); extraversion, agreeableness, conscientiousness, neuroticism, and openness were related in predictable ways to self-esteem (Schmitt, Allik, McCrae & Benet-Martínez, 2007); the face-to-face surveys and self-administrated questionnaire completion are better suited than another form in personality traits measurement (Lang, John, Lüdtke, Schupp & Wagner, 2011); at the same time, Kwang & Rodrigues (2002) affirmed that no significant differences were found between adaptors and innovators in neuroticism and agreeableness. Hence, based on the literature review, the reliability and standardization of the *Big Five Factor Personality Test* are important.

Big Five Factor Personality vs different traits

Saucier & Goldberg (1998) found minimum multiple correlations with factors from *Big Five* markers and maximum reliability with attitudes or values, evaluation, and attractiveness; Kalshoven, Den Hartog & De Hoogh (2011) found that emotional stability related positively with ethical leadership; whilst, O'Connor & Paunonen (2007) showed conscientiousness, to be most strongly and consistently associated with academic success; openness to experience was sometimes positively associated with scholastic achievement; and student-centred teaching and previous education achievements are strong predictors of critical thinking skills (Xhomara, 2022). Broad and stable psychological characteristics affect individual-level outcomes (Gerber, Huber, Doherty & Dowling, (2011); procrastination was largely associated with a lack of conscientiousness (Schouwenburg & Lay, 1995); at the same time, Zhang (2003) examined that the conscientiousness, agreeableness, neuroticism, and openness contributed to students' learning approaches.

Roccas, Sagiv, Schwartz & Knafo (2002) found out that agreeableness correlates positively with benevolence and tradition values, openness with self-direction and universalism values, extroversion and conscientiousness with achievement and stimulation values; conscientiousness showed consistent relations with all job performance criteria for all occupational groups (Barrick & Mount, 1991); whilst, Schmitt & Buss (2000) found that sexual attractiveness, relationship exclusivity, gender orientation, sexual restraint, erotophilic disposition, emotional investment, and

sexual orientation displayed moderate to high levels construct validity and were modestly correlated with the *Big Five*.

Meanwhile, Donnellan, Conger & Bryant (2004) showed that neuroticism was positively correlated with negative interactions, agreeableness was positively correlated with global evaluations of the marriage, openness by wives were positively correlated with sexual satisfaction; further, neuroticism, extraversion, and openness to experience, agreeableness, and conscientiousness were significantly related to marital conflict and child misbehavior (Lee-Baggley, Preece & DeLongis, 2005); and Dahlen & White (2006) confirmed that trait driving anger, sensation seeking, and the *Big Five* personality factors are important variables in predicting unsafe driving behavior and crash-related outcomes.

Big Five together explained 14% of the variance in grade point average (Komarraju, Schmeck & Avdic, 2011), and significantly predict various forms of entrepreneurial success (Leutner, Ahmetoglu, Akhtar & Chamorro-Premuzic, 2014); the agreeableness and low emotional stability explained significantly more variance in males than in females (Budaev, 1999); and O'Brien & DeLongis (1996), as well as Xhomara (2018) found out that situational factors and leadership style were linked most strongly with the use of problem-focused and relationship-focused modes of coping, effective teaching and teacher-student interaction.

Hurtz & Donovan (2000), as well as Fink, Manning & Neave (2004), affirmed that the *Big Five* measures predict job performance and contextual performance; meanwhile, *Big Five* factors correlate positively and significantly with temperament, character, and attachment security (Picardi, Toni & Caroppo, 2005); and Kim, Shin & Swanger (2009) found that the most critical personality trait affecting burnout is neuroticism and the most eminent traits predicting engagement are conscientiousness and neuroticism.

Extraversion and neuroticism are positively related to the attitude towards knowledge sharing (Pei-Lee, Chen, Chin, & Siew, 2011); conscientiousness, extraversion, agreeableness, openness to experience, and neuroticism play a significant role in predicting job crafting propensities (Bell & Njoli, 2016); at the same time, Kichuk & Wiesner (1997) affirm that successful teams were characterized by higher levels of general cognitive ability, higher extraversion, higher agreeableness, and lower neuroticism than their unsuccessful counterparts; and Pérez-González & Sanchez-Ruiz (2014) examined a positive correlation between emotional intelligence and the general factor of personality.

DeYoung, Hirsh, Shane, Papademetris, Rajeevan & Gray (2010) concluded that extraversion covaried with reward; neuroticism with negative affect, agreeableness with information processing, conscientiousness with planning; in the meantime, Ehrler, Evans & McGhee (1999) concluded that low scores on agreeableness and conscientiousness are related to social problems, conduct problems, attention deficits, and hyperactivity, low scores on openness to experience, exhibit problems in social behavior, conduct, and attention, the neuroticism trait was associated

with anxiety and depression; and Giluk (2009) explains that the *Big Five* display appreciable relationships with mindfulness, and the strongest relationships are found with neuroticism, negative affect, and conscientiousness;

Busato, Prins, Elshout & Hamaker (1998) affirmed that conscientiousness and neuroticism were associated positively with the undirected learning style; agreeableness and openness to experience correlated positively with the directed learning style, neuroticism correlated positively with the undirected learning style; but, Power & Pluess (2015) found significant and substantial heritability estimates for neuroticism (15%, *s.e.*=0.08, *P*=0.04) and openness (21%, *s.e.*=0.08, *P*<0.01), but not for extraversion, agreeableness, and conscientiousness. Therefore, the study of the *Big Five Factor Personality Test* as well as the investigation of the relationship between the *Big Five Factor Personality Test* and different traits is of great importance. Based on the research work examined, it is hypothesized that:

H # 1: Neuroticism, extraversion, conscientiousness, openness, and agreeableness are predictors of achievement

METHODOLOGY

Research Context

Personality refers to personal differences in the approaches to thinking, feeling, and behaving. The study of personality is very important in several fields and includes different age groups, as well as different positions. The Big 5-factor test is one of the most powerful tools used by researchers to understand and measure personality dimensions. The researchers first translated the original Big 5 Factor personality test (Satow, 2021) into Albanian and validated and standardized it referring to two study samples. The researchers measured internal consistency using Cronbach's alpha of *Neuroticism, Extraversion, Conscientiousness, and Openness*, as well as *the Agreeableness* scales of the Big 5 Factor personality test. Then, the researchers applied factor analysis to understand the structure of the scale. At the last, the researchers applied regression tests to measure the relationship between *neuroticism, extraversion, conscientiousness, openness, agreeableness, and achievement*.

Participants

The target population of the study was compounded of mixed profession employees and university students. Validation and standardization analyses were conducted using samples of mixed profession employees. (N= 912), as well as university students (N=501).

The mixed professions employees sample was 59.1% females and 40.9% males. 32.3% of the mixed professions employees were 21-30 years old, 39.1% 41-50, 19.0% 51-60, and 9.6% 61-70. 11% of the mixed professions employees were economists, 20.7% teachers, 22.9% psychologists or social workers, 6.8% engineers, 8.8% administrators, 6.6% health workers, and 22.3% others. 14.3% of them obtained high school, 15.8% bachelor's degree, 64.9 Master, and 4.1% Ph.D.

The university students' sample was 57.4% females and 42.6 %males. 19.6% of the students' sample study for business administration, 20.9% finance banking, 9.5% natural sciences, 12.0% engineering sciences, 22.8% social sciences, 6.3% medical sciences, and 8.9% humanities.

The sample was obtained with the support of the managers of public and non-public institutions in the capital city, as well as the rectors and deans of universities. The Google forms of the *Big 5 Factor Personality Test* with mixed professions employees and university students were conducted in the period from November 2022 to February 2023.

Data Analyses

To validate and standardize the *Big 5 Factor Personality Test*, psychometric scale parameters, such as *Cronbach's alpha* were determined as a first step. The interscale correlations inside every category of the *Big 5 factory Personality Test*, such as *neuroticism*, *extraversion*, *conscientiousness*, *openness*, as well as *agreeableness* were made as the second step. The factorial structure of the *Big Five Factor Personality Test* scales to support the procedural, internal, external, and consequential validity elements was then validated using confirmatory factor analysis. Finally, the relationships between the *Big Five Factor Personality Test* scales and achievement were conducted using correlational and regression analysis. All statistical analyzes were carried out using SPSS 26.0.

RESULTS AND DISCUSSION

Alfa Cronbach output

Cronbach's alpha is a measure of internal consistency, that is, how closely related a set of items is as a group. It is considered to be a measure of scale reliability. This study is used to measure the reliability of items of the Big Five Factor Personality Test.

Table 1

Reliability Statistics

Reliability Statistics_ Mixed professions employees		
Cronbach's Alpha		
Based on		
Standardized		
Cronbach's Alpha	Items	N of Items
.940	.942	50
Reliability Statistics_ Students		
Cronbach's Alpha		
Based on		
Standardized		
Cronbach's Alpha	Items	N of Items
.904	.910	50

According to the output, it has resulted in a summary of processing cases 912 for the mixed professions employees and 501 for the university students. As shown in Table 1, there is a value

of Cronbach's alpha of 0.940 for mixed professions employees, and 0.910 for university students, which indicates a high level of internal consistency for the *Big Five Factors* scale with these specific samples. Based on the *Item-Total Statistics* output, it has resulted that Cronbach's alpha reliability coefficient varies from .937 to .941 for the mixed professions' employees' sample, and from .901 to .905 for the students' sample. This result shows the very high internal consistency of the items of the test (variables) in the scale. This result confirms that the Albanian version of the *Big Five Factor Personality Test* has high reliability, and it is suitable to use in multi-direction practice.

Factor Analysis

Factor analysis is used extensively by researchers involved in the development and evaluation of tests and scales. The scale developer starts with a large number of individual scale items and questions and, by using factor analytic techniques, they can refine and reduce these items to form a smaller number of coherent subscales. In this study, confirmatory factor analysis was used to confirm specific hypotheses concerning the *Big Five Factor Personality Test* structure underlying a set of variables.

Assumptions regarding confirmatory factor analysis were as follows.

1. Sample size. Ideally, the overall sample size should be 150+ and there should be a ratio of at least five cases for each of the variables. In this particular study, the sample size is much more than 150+; the sample of mixed professions employees is 912, and the sample of students is 501.
2. Factorability of the correlation matrix. To be considered suitable for factor analysis, the correlation matrix should show at least some correlations of $r = .3$ or greater. Bartlett's test of sphericity should be statistically significant at $p < .05$ and the Kaiser-Meyer-Olkin value should be .6 or above. In this study r correlations in the correlation matrix were .3 or above, Bartlett's test of sphericity is statistically significant at $p = .000$, and the Kaiser-Meyer-Olkin value is .950.
3. Linearity. Because factor analysis is based on correlation, it is assumed that the relationship between the variables is linear (Tabachnick & Fidell, 2007), cited by Pallant (2010). Checking the scatterplots of some combinations of variables there is no evidence of a curvilinear relationship, so it was safe to proceed with factor analysis and there is an adequate sample size and ratio of cases to variables.
4. Outliers among cases. Checking for outliers in the initial data screening none of them resulted.

Table 2*KMO and Bartlett's Test*

KMO and Bartlett's Test_ Mixed Professions' employees			
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			.950
Bartlett's Test of Sphericity	Approx. Chi-Square		27587.600
	df		1225
	Sig.		.000
KMO and Bartlett's Test_ Students			
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			.898
Bartlett's Test of Sphericity	Approx. Chi-Square		8013.292
	df		1225
	Sig.		.000

The Kaiser-Meyer Olkin Measure of Sampling Adequacy (KMO) value for the Big Five Factor Personality Test is .950 for the mixed professions employees' sample and .898 for the university students' sample. Meanwhile, Bartlett's Test of Sphericity value is significant ($p = .000$) for mixed professions employees and university students sample, therefore factor analysis is appropriate. In the Correlation Matrix table, the correlation coefficients were .3 and above. At the same time, in the Communalities output, there is information about how much of the variance in each item is explained. All communality values were above .3 indicating that the items of *the Big Five Factor Personality Test* fit well with one another on the scale.

Table 3*Total variance explained of five first components of mixed professions employees and students' samples*

Total Variance Explained_ Mixed professions employees							
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	15.321	30.642	30.642	15.321	30.642	30.642	13.797
2	6.224	12.448	43.090	6.224	12.448	43.090	6.438
3	2.112	4.223	47.313	2.112	4.223	47.313	5.230
4	2.052	4.103	51.416	2.052	4.103	51.416	4.007
5	1.662	3.323	54.739	1.662	3.323	54.739	5.022

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Total Variance Explained_ Students							
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	
1	11.076	22.152	22.152	11.076	22.152	22.152	
2	6.804	13.609	35.761	6.804	13.609	35.761	
3	2.758	5.516	41.277	2.758	5.516	41.277	
4	2.462	4.924	46.202	2.462	4.924	46.202	
5	1.898	3.796	49.997	1.898	3.796	49.997	

Extraction Method: Principal Component Analysis.

Using Kaiser's criterion, as shown in the above table, only the first five components recorded eigenvalues above 3 for the mixed professions employees' sample (30.642, 12.448, 4.223, 4.103, 3.323), as well as for the university students' sample (22.152, 13.609, 5.516, 4.924, 3.796). Hence, the first five components explain a total of 54.739 percent of the variance for the mixed professions employees' sample and 49.997 percent of the variance for the university students' sample.

From the inspection of the items that loaded on two factors, and the items that gave high loading on more than two factors and where the difference between factor loadings was less than .10 were found items O10, A5, E6, C8 from mixed professions employees, and C9 from students' sample. Meantime, from the examination of their values, it has resulted were non-significant values, therefore these items were not deleted.

Table 4*Rotated Component Matrix^a_ Mixed professions employees*

Rotated Component Matrix^a_ Mixed professions employees									
		Component							
1	2	3	4	5					
A2	.870	A10	.719	N3	.804	O8	.712	C6	.657
C1	.827	C3	.641	N4	.793	O9	.666	C7	.641
A6	.820	A9	.635	N10	.779	O7	.624	C10	.621
O6	.812	O5	.634	N2	.775	E6	.338	C9	.522
A1	.796	A7	.627	N7	.765			C8	.508
A3	.795	C4	.603	N9	.742			O4	.464
C2	.755	E10	.602	N6	.716				
C5	.727	E1	.524	N8	.700				
		O2	.516	N1	.641				
		E2	.508	E5	.430				
		O10	.489	A4	.337				
		N5	.481						
		A8	.451						
		O1	.431						
		A5	-.363						

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 12 iterations.

All of the load of the items were quite strongly (above .4) on the five components for mixed professions employees, as well as for university students. According to the Pattern Matrix table for mixed professions employees, there are 24 items loading above .3 on Component 1, 11 items loading on Component 2, 5 items on Component 3, 4 items on Component 4, and 5 items on Component 5.

Table 5*Rotated Component Matrix^a_ Students' sample*

Rotated Component Matrix ^a _ Students									
Component									
1	2	3	4	5					
O6	.765	N3	.763	A5	.686	C10	.607	O8	.543
A2	.760	N7	.731	E4	.596	O4	.352	O9	.503
A1	.714	N2	.722	A4	.532			O7	.489
A6	.711	N9	.718	E8	.438				
C1	.693	N4	.704						
C5	.691	N6	.704						
O1	.674	N10	.697						
O2	.667	N8	.616						
A3	.646	N1	.615						
O5	.632	E6	.542						
C2	.629	C6	.530						
O10	.622	C7	.522						
E10	.615	E5	.494						
C3	.613								
C4	.592								
C8	.567								
E1	.562								
E9	.552								
A10	.546								
N5	.545								
A7	.536								
E2	.494								
E7	.489								
C9	.475								
E3	.469								
A9	.462								
O3	.390								
A8	.317								

Meantime, for the mixed university students' sample, there are 27 items loading above .3 on Component 1, 13 items loading on Component 2, 4 items on Component 3, 2 items on Component 4, and 3 items on Component 5. The most significant variables that affect components are named after *Accurateness* (Component 1), *Nervousness* (Component 2), *Egocentrism* (Component 3), *Carefulness* (Component 4), and *Learning* (Component 5)

Table 4*Component Correlation Matrix*

Component	1	2	3	4	5
1	1.000	.002	.315	.187	.269
2	.002	1.000	.054	.122	.190
3	.315	.054	1.000	.160	.130
4	.187	.122	.160	1.000	.235
5	.269	.190	.130	.235	1.000

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

Component	1	2	3	4	5
1	1.000	.209	.471	.446	.108
2	-.034	1.000	-.326	-.050	.029
3	-.508	.169	1.000	-.030	.594
4	-.278	-.103	-.381	1.000	.219
5	.373	-.167	-.410	-.280	1.000

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

According to the Component Correlation Matrix table above, there were weak positive correlation outputs between the five factors for mixed professions employees, as well as for university students' sample.

Hypothesis Testing

H # 1: *Neuroticism, extraversion, conscientiousness, openness, and agreeableness are predictors of achievement*

Table 5*Hypothesis testing output*

Model		Unstandardized Coefficients		Standardized Coefficients		Correlations			
		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1	(Constant)	.453	.086		5.252	.000			
	Neuroticism	-.027	.004	-.195	-6.090	.000	.229	-.199	-.143
	Extraversion	.051	.006	.370	9.015	.000	.580	.288	.212
	Conscientiousness	.042	.005	.380	8.318	.000	.631	.267	.195
	Openness	.041	.007	.339	6.236	.000	.625	.203	.146
	Agreeableness	-.032	.005	-.274	-6.179	.000	.431	-.202	-.145

a. Dependent Variable: Achievement

Coefficients^a_Students

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	1.016	.115		8.825	.000			
	Neuroticism	-.020	.004	-.193	-5.001	.000	.044	-.218	-.161
	Extraversion	.008	.006	.072	1.290	.198	.556	.058	.042
	Conscientiousness	.052	.006	.544	8.103	.000	.664	.341	.261
	Openness	.011	.006	.115	1.713	.087	.612	.076	.055
	Agreeableness	.005	.005	.053	1.187	.236	.342	.053	.038

a. Dependent Variable: Academic Achievement

As shown in the above output, the variance explained by neuroticism in achievement is negative and its value is -.195 for the mixed professions and -.193 for the students. The variance explained by extraversion is .370 for mixed professions and .072 for students. The variance explained by conscientiousness is .380 for mixed professions and .544 for students. The variance explained by openness is .339 for mixed professions and .115 for students. The variance explained by agreeableness is negative and its value is -.274 for mixed professions and .053 for students. Thus, extraversion, conscientiousness, and openness are positive predictors of achievement; meantime, neuroticism, and agreeableness are negative predictors of achievement. The strongest predictor of achievement is conscientiousness which explains 54.4% of the variance; at the same time, the least predictor of achievement is agreeableness which explains 5.3% of the variance. Hence, there is a linear relationship between neuroticism, extraversion, conscientiousness, openness, agreeableness, and achievement. Therefore, based on the above outputs, *H # 1: Neuroticism, extraversion, conscientiousness, openness, and agreeableness are predictors of achievement*, is supported. The authors cited in the literature review reach the same conclusion that the Big five factor personality dimensions impact achievements.

CONCLUSIONS AND IMPLICATIONS

The 50 items of the Big Five factor Personality Test were subjected to confirmatory factor analysis using SPSS version 26.0. Before performing confirmatory factor analysis, the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The KaiserMeyer-Olkin value was .951 for mixed professions employees and .898 for university students, exceeding the recommended value of .6 (Kaiser 1970, 1974) and Bartlett's Test of Sphericity (Bartlett 1954) reached statistical significance, supporting the factorability of the correlation matrix.

Confirmatory factor analysis using Kaiser's criterion revealed that the first five components recorded eigenvalues above 3 for mixed professions employees: 30.642, 12.448, 4.223, 4.103, 3.323, as well as: 22.152, 13.609, 5.516, 4.924, 3.796 for university students. The first five components explain a total of 54.739 percent of the variance for mixed profession employees, and 49.997 percent

of the variance for the university students' sample. An inspection of the scree plot revealed a clear break after the second component. The five-component solution explained a total of 54.739 % of the variance for mixed professions employees, with Component 1 contributing 30.642% and Component 2 contributing 12.448%. Meanwhile, for the university students' sample, the five-component solution explained a total of 49.997 % of the variance, with Component 1 contributing 22.152% and Component 2 contributing 13.609%.

To aid in the interpretation of these two components, oblimin rotation was performed for mixed professions employees, as well as for the university students' sample. The rotated solution revealed the presence of a simple structure (Thurstone 1947), with both components showing several strong loadings and all variables loading substantially. The interpretation of the five components was consistent with previous research.

There were weak positive correlations between the five factors for mixed professions employees, as well as for the university students' sample. The results of this analysis support the use of the Big Five factor Personality Test items as adequate scales to measure the personality dimensions of different professions, as well as on different study programs at the university level.

It is found that, the variance explained by neuroticism in achievement is negative and its value is -.195 for the mixed professions and -.193 for the students. The variance explained by extraversion is .370 for mixed professions and .072 for students. The variance explained by conscientiousness is .380 for mixed professions and .544 for students. The variance explained by openness is .339 for mixed professions and .115 for students. The variance explained by agreeableness is negative and its value is -.274 for mixed professions and .053 for students.

The study found a linear relationship between neuroticism, extraversion, conscientiousness, openness, agreeableness, and achievement. Extraversion, conscientiousness, and openness are positive predictors of achievement, while, neuroticism and agreeableness are negative predictors. The strongest predictor of achievement is conscientiousness which explains 54.4% of the variance (students' sample); at the same time, the least predictor of achievement is agreeableness which explains 5.3% of the variance (students' sample).

The validated and standardized *Big 5 Factor Personality Test* in Albanian may be used as an administered test in people's career orientation and development, as well as in enrolling and admission at different study programs and positions in multi fields occupations in the Albanian context. The results suggest possible applications for researchers, psychologists, as well as managers of study programs at universities and multi fields occupations as a routine test or as a selection tool in enrolling and admission into different positions. The results of regression analysis also suggest the influence of *Big 5 Factor Personality Dimensions* on achievement for different professions as well as for the students that came from different study programs. Therefore, supporting of *Big 5 Factor Personality Dimensions* is considered achievement support as well.

REFERENCES

- Barbaranelli, C., Caprara, G. V., Rabasca, A., & Pastorelli, C. (2003). A questionnaire for measuring the Big Five in late childhood. *Personality and individual differences*, 34(4), 645-664. [https://doi.org/10.1016/S0191-8869\(02\)00051-X](https://doi.org/10.1016/S0191-8869(02)00051-X)
- Barrick, M. R., & Mount, M. K. (1991). The big five personality dimensions and job performance: a meta-analysis. *Personnel Psychology*, 44(1), 1-26. <https://doi.org/10.1111/j.1744-6570.1991.tb00688.x>
- Bell, C., & Njoli, N. (2016). The role of big five factors in predicting job crafting propensities amongst administrative employees in a South African tertiary institution. *SA Journal of Human Resource Management*, 14(1), 1-11. <https://doi.org/10.4102/sajhrm.v14i1.702>
- Blackburn, R., Renwick, S. J., Donnelly, J. P., & Logan, C. (2004). Big five or big two? Superordinate factors in the NEO five-factor inventory and the antisocial personality questionnaire. *Personality and Individual Differences*, 37(5), 957-970. <https://doi.org/10.1016/j.paid.2003.10.017>
- Budaev, S. V. (1999). Sex differences in the Big Five personality factors: Testing an evolutionary hypothesis. *Personality and individual differences*, 26(5), 801-813. [https://doi.org/10.1016/S0191-8869\(98\)00179-2](https://doi.org/10.1016/S0191-8869(98)00179-2)
- Busato, V. V., Prins, F. J., Elshout, J. J., & Hamaker, C. (1998). The relation between learning styles, the Big Five personality traits, and achievement motivation in higher education. *Personality and individual differences*, 26(1), 129-140. [https://doi.org/10.1016/S0191-8869\(98\)00112-3](https://doi.org/10.1016/S0191-8869(98)00112-3)
- Caprara, G. V., Barbaranelli, C., Bermudez, J., Maslach, C., & Ruch, W. (2000). Multivariate methods for the comparison of factor structures in cross-cultural research: An illustration with the Big Five Questionnaire. *Journal of Cross-Cultural Psychology*, 31(4), 437-464. <https://doi.org/10.1177/0022022100031004002>
- Dahlen, E. R., & White, R. P. (2006). The Big Five factors, sensation seeking, and driving anger in the prediction of unsafe driving. *Personality and individual differences*, 41(5), 903-915. <https://doi.org/10.1016/j.paid.2006.03.016>
- De Raad, B. (1998). Five big, big five issues: Rationale, content, structure, status, and cross-cultural assessment. *European Psychologist*, 3(2), 113-124. <https://doi.org/10.1027/1016-9040.3.2.113>
- DeYoung, C. G., Hirsh, J. B., Shane, M. S., Papademetris, X., Rajeevan, N., & Gray, J. R. (2010). Testing predictions from personality neuroscience: Brain structure and the big five. *Psychological science*, 21(6), 820-828. <https://doi.org/10.1177/0956797610370159>
- Donnellan, M. B., Conger, R. D., & Bryant, C. M. (2004). The Big Five and enduring marriages. *Journal of Research in Personality*, 38(5), 481-504. <https://doi.org/10.1016/j.jrp.2004.01.001>
- Ehrler, D. J., Evans, J. G., & McGhee, R. L. (1999). Extending Big-Five theory into childhood: A preliminary investigation into the relationship between Big-Five personality traits and behavior problems in children. *Psychology in the Schools*, 36(6), 451-458. [https://doi.org/10.1002/\(SICI\)1520-6807\(199911\)36:6<451::AID-PITS1>3.0.CO;2-E](https://doi.org/10.1002/(SICI)1520-6807(199911)36:6<451::AID-PITS1>3.0.CO;2-E)

- Feher, A., & Vernon, P. A. (2021). Looking beyond the Big Five: A selective review of alternatives to the Big Five model of personality. *Personality and Individual Differences*, *169*, 110002.
- Fink, B., Manning, J. T., & Neave, N. (2004). Second to fourth digit ratio and the 'big five' personality factors. *Personality and Individual Differences*, *37*(3), 495-503. <https://doi.org/10.1016/j.paid.2003.09.018>
- Fink, B., Neave, N., Manning, J. T., & Grammer, K. (2005). Facial symmetry and the 'big-five' personality factors. *Personality and individual differences*, *39*(3), 523-529. <https://doi.org/10.1016/j.paid.2005.02.002>
- Gerber, A. S., Huber, G. A., Doherty, D., & Dowling, C. M. (2011). The big five personality traits in the political arena. *Annual Review of Political Science*, *14*, 265-287. <http://dx.doi.org/10.1146/annurev-polisci-051010-111659>
- Giluk, T. L. (2009). Mindfulness, Big Five personality, and affect: A meta-analysis. *Personality and Individual Differences*, *47*(8), 805-811. <https://www.sciencedirect.com/science/article/abs/pii/S0191886909003018?via%3Dihub>
- Goldberg, L. R. (1992). The development of markers for the Big-Five factor structure. *Psychological assessment*, *4*(1), 26. <https://doi.org/10.1037/1040-3590.4.1.26>
- Goldberg, L. R. (1993). "The structure of phenotypic personality traits": Author's reactions to the six comments. *American Psychologist*, *48*(12), 1303-1304. <https://doi.org/10.1037/0003-066X.48.12.1303>
- Gosling, S. D., Rentfrow, P. J., & Swann Jr, W. B. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality*, *37*(6), 504-528. [https://doi.org/10.1016/S0092-6566\(03\)00046-1](https://doi.org/10.1016/S0092-6566(03)00046-1)
- Hala, M., & Xhomara, N. (2023). Didactic-Artistic Tools and Artistic Works Demonstration Contribution to Students' Artistic Skills Development. *Pedagogika*, *148*(4), 229-247. <https://doi.org/10.15823/p.2022.148.12>
- Hurtz, G. M., & Donovan, J. J. (2000). Personality and job performance: the Big Five revisited. *Journal of applied psychology*, *85*(6), 869. <https://doi.org/10.1037/0021-9010.85.6.869>
- Jang, K. L., Livesley, W. J., Ando, J., Yamagata, S., Suzuki, A., Angleitner, A., ... & Spinath, F. (2006). Behavioral genetics of the higher-order factors of the Big Five. *Personality and Individual Differences*, *41*(2), 261-272. <https://doi.org/10.1016/j.paid.2005.11.033>
- John, O. P., Donahue, E. M., & Kentle, R. L. (1991). Big five inventory. *Journal of Personality and Social Psychology*. <https://doi.org/10.1037/t07550-000>
- Kalshoven, K., Den Hartog, D. N., & De Hoogh, A. H. (2011). Ethical leader behavior and big five factors of personality. *Journal of business ethics*, *100*, 349-366. <https://doi.org/10.1007/s10551-010-0685-9>
- Kichuk, S. L., & Wiesner, W. H. (1997). The big five personality factors and team performance: implications for selecting successful product design teams. *Journal of Engineering and Technology Management*, *14*(3-4), 195-221. [https://doi.org/10.1016/S0923-4748\(97\)00010-6](https://doi.org/10.1016/S0923-4748(97)00010-6)

- Kim, H. J., Shin, K. H., & Swanger, N. (2009). Burnout and engagement: A comparative analysis using the Big Five personality dimensions. *International Journal of Hospitality Management*, 28(1), 96-104. <https://doi.org/10.1016/j.ijhm.2008.06.001>
- Komarraju, M., Karau, S. J., Schmeck, R. R., & Avdic, A. (2011). The Big Five personality traits, learning styles, and academic achievement. *Personality and individual differences*, 51(4), 472-477. <https://doi.org/10.1016/j.paid.2011.04.019>
- Kwang, N. A., & Rodrigues, D. (2002). A Big-Five Personality profile of the adaptor and innovator. *The Journal of Creative Behavior*, 36(4), 254-268. <https://doi.org/10.1002/j.2162-6057.2002.tb01068.x>
- Lamb, M. E., Chuang, S. S., Wessels, H., Broberg, A. G., & Hwang, C. P. (2002). Emergence and construct validation of the Big Five factors in early childhood: A longitudinal analysis of their ontogeny in Sweden. *Child Development*, 73(5), 1517-1524. <https://doi.org/10.1111/1467-8624.00487>
- Lang, F. R., John, D., Lüdtke, O., Schupp, J., & Wagner, G. G. (2011). Short assessment of the Big Five: Robust across survey methods except telephone interviewing. *Behavior research methods*, 43, 548-567. doi:10.3758/s13428-011-0066-z
- Langford, P. H. (2003). A one-minute measure of the Big Five? Evaluating and abridging Shafer's (1999a) Big Five markers. *Personality and Individual Differences*, 35(5), 1127-1140. [https://doi.org/10.1016/S0191-8869\(02\)00323-9](https://doi.org/10.1016/S0191-8869(02)00323-9)
- Lee-Baggley, D., Preece, M., & DeLongis, A. (2005). Coping with interpersonal stress: Role of Big Five traits. *Journal of Personality*, 73(5), 1141-1180. <https://doi.org/10.1111/j.1467-6494.2005.00345.x>
- Leutner, F., Ahmetoglu, G., Akhtar, R., & Chamorro-Premuzic, T. (2014). The relationship between the entrepreneurial personality and the Big Five personality traits. *Personality and individual differences*, 63, 58-63. <https://doi.org/10.1016/j.paid.2014.01.042>
- Liu, W. Y., Weber, B., Reuter, M., Markett, S., Chu, W. C., & Montag, C. (2013). The Big Five of Personality and structural imaging revisited: a VBM-DARTEL study. *Neuroreport*, 24(7), 375-380. DOI: 10.1097/WNR.0b013e328360dad7
- Lounsbury, J. W., Tatum, H., Gibson, L. W., Park, S. H., Sundstrom, E. D., Hamrick, F. L., & Wilburn, D. (2003). The development of a Big Five adolescent personality inventory. *Journal of Psychoeducational Assessment*, 21(2), 111-133. <https://doi.org/10.1177/073428290302100201>
- Marsh, H. W., Lüdtke, O., Muthén, B., Asparouhov, T., Morin, A. J., Trautwein, U., & Nagengast, B. (2010). A new look at the big five-factor structure through exploratory structural equation modeling. *Psychological assessment*, 22(3), 471. <https://doi.org/10.1037/a0019227>
- Mehrabian, A. (1996). Analysis of the big-five personality factors in terms of the PAD temperament model. *Australian Journal of Psychology*, 48(2), 86-92. <https://doi.org/10.1080/00049539608259510>
- Mount, M. K., & Barrick, M. R. (1998). Five reasons why the "Big Five" article has been frequently cited. *Personnel Psychology*, 51(4), 849-857. <https://doi.org/10.1111/j.1744-6570.1998.tb00743.x>

- Mount, M. K., & Barrick, M. R. (1998). Five reasons why the "big five" article has been frequently cited: The big five personality dimensions and job performance: A Meta-analysis. *Personnel Psychology*, 51(4), 849-857. <https://doi.org/10.1111/j.1744-6570.1998.tb00743.x>
- O'Connor, M. C., & Paunonen, S. V. (2007). Big Five personality predictors of post-secondary academic performance. *Personality and Individual Differences*, 43(5), 971-990. <https://doi.org/10.1016/j.paid.2007.03.017>
- O'Brien, T. B., & DeLongis, A. (1996). The interactional context of problem-, emotion-, and relationship-focused coping: the role of the big five personality factors. *Journal of Personality*, 64(4), 775-813. <https://doi.org/10.1111/j.1467-6494.1996.tb00944.x>
- Pallant, J. (2010). *SPSS Survival Manual. A step-by-step guide to data analysis using SPSS*. 4th edition. McGraw Hill. The UK.
- Paunonen, S. V., Ashton, M. C., & Jackson, D. N. (2001). Nonverbal assessment of the Big Five personality factors. *European Journal of Personality*, 15(1), 3-18. <https://doi.org/10.1002/per.385>
- Pei-Lee, T., Chen, C. Y., Chin, W. C., & Siew, Y. Y. (2011). Do the big five personality factors affect knowledge-sharing behavior? a study of Malaysian universities. *Malaysian Journal of Library & Information Science*, 16(1), 47-62. <http://shdl.mmu.edu.my/id/eprint/3794>
- Pérez-González, J. C., & Sanchez-Ruiz, M. J. (2014). Trait emotional intelligence is anchored within the Big Five, Big Two, and Big One frameworks. *Personality and Individual Differences*, 65, 53-58. <https://doi.org/10.1016/j.paid.2014.01.021>
- Picardi, A., Toni, A., & Caroppo, E. (2005). Stability of alexithymia and its relationships with the 'big five factors, temperament, character, and attachment style. *Psychotherapy and psychosomatics*, 74(6), 371-378. <https://doi.org/10.1159/000087785>
- Power, R. A., & Pluess, M. (2015). Heritability estimates of the Big Five personality traits based on common genetic variants. *Translational psychiatry*, 5(7), e604-e604. doi: 10.1038/tp.2015.96
- Pulver, A., Allik, J., Pulkkinen, L., & Hämäläinen, M. (1995). A Big Five personality inventory in two non-Indo-European languages. *European Journal of Personality*, 9(2), 109-124. <https://doi.org/10.1002/per.2410090205>
- Roccas, S., Sagiv, L., Schwartz, S. H., & Knafo, A. (2002). The big five personality factors and personal values. *Personality and social psychology bulletin*, 28(6), 789-801. <https://doi.org/10.1177/0146167202289008>
- Saucier, G. (2002). Orthogonal markers for orthogonal factors: The case of the Big Five. *Journal of Research in Personality*, 36(1), 1-31. <https://doi.org/10.1006/jrpe.2001.2335>
- Saucier, G., & Goldberg, L. R. (1998). What is beyond the Big Five? *Journal of personality*, 66, 495-524. 10.1111/1467-6494.00022
- Schmitt, D. P., & Buss, D. M. (2000). Sexual dimensions of person description: Beyond or subsumed by the Big Five? *Journal of Research in Personality*, 34(2), 141-177. <https://doi.org/10.1006/jrpe.1999.2267>
- Schmitt, D. P., Allik, J., McCrae, R. R., & Benet-Martínez, V. (2007). The geographic distribution of Big Five personality traits: Patterns and profiles of human self-description

- across 56 nations. *Journal of cross-cultural psychology*, 38(2), 173-212.
<https://doi.org/10.1177/0022022106297299>
- Schouwenburg, H. C., & Lay, C. H. (1995). Trait procrastination and the big-five factors of personality. *Personality and Individual Differences*, 18(4), 481-490.
[https://doi.org/10.1016/0191-8869\(94\)00176-S](https://doi.org/10.1016/0191-8869(94)00176-S)
- Sleep, C. E., Lynam, D. R., & Miller, J. D. (2021). A comparison of the validity of very brief measures of the Big Five/Five-Factor Model of personality. *Assessment*, 28(3), 739-758.
<https://doi.org/10.1177/1073191120939160>
- Vecchione, M., Alessandri, G., Barbaranelli, C., & Caprara, G. (2011). Higher-order factors of the big five and basic values: Empirical and theoretical relations. *British Journal of Psychology*, 102(3), 478-498. <https://doi.org/10.1111/j.2044-8295.2010.02006.x>
- Xhomara, N. (2018). Influence of School Leadership Style on Effective Teaching and Teacher-Student Interaction, *Pedagogika*. 132(4), 42-62. DOI:
<https://doi.org/10.15823/p.2018.132.3>.
- Xhomara, N. (2020). How Prior Knowledge, Learning, Teaching and Assessment affect Students' achievements in Mathematics, *Research in Education and Learning Innovation Archives*, 25, 68-91. DOI: 10.7203/realia.25.15780
- Xhomara, N. (2022). Critical Thinking: Student-centred Teaching Approach and Personalised Learning, as well as Previous Education Achievements, Contribute to Critical Thinking Skills of Students, *International Journal of Learning and Change*, 14(1), 101-120. DOI:
doi.org/10.32861/rje.71.29.35.
- Xhomara, N., & Hasani N. (2018). *Amount of students' study time as an important predictor of academic achievements of students*. MIRDEC-10th, International Academic Conference Global and Contemporary Trends in Social Science (Global Meeting of Social Science Community) 06-08 November 2018, Barcelona, Spain. ISBN: 978-605-81247-2-1.
<https://www.mirdec.com/barca2018proceedings>.
- Xhomara, N., Gusho, L. & Muçaj, A. (2023). Course Organization, Faculty-Student Interaction, and Student Involvement and Their Influence to Students' Course Outcomes. *Research in Education and Learning Innovation Archives*, 30,19-38. DOI: 10.7203/realia.30.21524
- Zhang, L. F. (2003). Does the big five predict learning approaches? *Personality and individual differences*, 34(8), 1431-1446. [https://doi.org/10.1016/S0191-8869\(02\)00125-3](https://doi.org/10.1016/S0191-8869(02)00125-3)