INFLUENCE OF PERSONALITY TRAITS ON ACADEMIC MOTIVATION IN A SMALL SAMPLE

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Abstract: *The present study sought to investigate the impact of personality traits on academic motivation measured by the MUSIC inventory. Personality traits are known as important factors that are related to the motivation and specifically, to academic motivation. This is a topic of interest because due to the interest of many people in studying and the pressure for obtaining better academic results, also it is considered that understanding the relationship these two, personality and motivation, could play an important role in improving teaching. The hypothesis was that students' personality traits, measured using The Leonhard-Shmishek questionnaire, have an impact on academic motivation, measured by the MUSIC inventory. The sample of this study consisted of a voluntary group of 28 students who studied the Psychology of education in the first year of the psycho-pedagogical module, from several specializations. The study had a cross-sectional design. The search of results for this study was accomplished through correlation and regression analysis. Interpretation of results from this study suggested that the hypothesis of this study was only partially confirmed, out of 10 personality traits measured by the Leonhard-Shmishek questionnaire in this small sample only three of them (dysthymic, hyperthymic and anxious) have been found to have a linear or nonlinear impact on some of academic motivation the scales (empowerment, interest, success and caring) measured by MUSIC questionnaire. Results obtained suggests that when are considered the effects of personality traits on academic motivation could prove worthful to consider different types of impacts not only the "linear" one.*

Keywords: *Personality traits; academic motivation; nonlinear.*

Background

Personality traits are known as important factors that are related to the motivation and specifically, to academic motivation (Hazrati-Viari et al., 2012). This is a topic of interest because due to the interest of many people in studying and the pressure for obtaining better academic results,

also it is considered that understanding the relationship these two, personality and motivation, could play an important role in improving teaching. Numerous studies in latest years focus on this relationship using the BigFive tool for measuring personality traits (Bozanoğlu & Sapancı, 2015; Komarraju et al., 2009; Komarraju & Karau, 2005). Although the BigFive personality inventory is a good and reliable assessment tool, there still are authors (especially in Eastern Europe) that are using the Leonhard-Shmishek questionnaire that intends to evaluate accentuated personality traits (Gulfiya & Karimova, 2016). Choosing the second option could be related to the intention to draw more attention to pathological aspects of personality or could be a matter of tools available or theoretical/methodological trends in specific institutions or areas. But, even using the BigFive personality inventory can offer clues related to negative aspects of personality. In several studies (Ahmadi et al., 2023; Clark & Schroth, 2010; De Feyter et al., 2012; Komarraju & Karau, 2005) neuroticism trait was examined in relation with academic motivation and academic results. And, neuroticism trait, assessed with the BigFive personality inventory, is related to anxious and depressive symptoms. There are also authors that manifest an explicit interest in studying associations between psychopathology and academic performance (Pagerols et al., 2022; Sijtsema et al., 2014; Voltas et al., 2014); in these studies, again depressive and anxious symptoms are discussed and further, attention problems, hyperactivity, ADHD, delinquent behavior are evaluated in relation with academic performance.

Another point of interest is the discussion about the distinction between academic motivation and academic performance (De Feyter et al., 2012). Personality traits assessed using the BigFive personality inventory, the Leonhard-Shmishek questionnaire, or any other personality questionnaire can have a different impact on these two aspects of academic life, motivation and performance. In this study the main focus is on evaluating the relationship between personality traits and academic motivation.

For motivation, the assessment tools used by researchers are more diverse: Intrinsic Motivation Scale toward Learning (Tanaka et al., 2009), Academic Motivations Inventory (Komarraju & Karau, 2005). Despite the numerous already existing motivation scales, new scales on this psychological process continue to be tested and in the present article is used the MUSIC inventory. Its author, Jones D. Brett, proposes a definition of the motivation as the „extent to which one intends to engage in an activity" and then explains each concept: extent as a magnitude, intent as goal-directed behavior, engagement as a measure of behavioral and cognitive effort done by a person, activities as specific activity the person is interested in (Jones, 2018). This tool is a compact one, with

easy questions, students having no problems to understand and answer them.
Related to statistical analyses that could evidence the associations or causality effects between personality traits and academic motivation most of existing studies were using correlation (Ahmadi et al., 2023; Komarraju et al., 2009; Komarraju & Karau, 2005) and regression (Ahmadi et al., 2023; Komarraju et al., 2009; Tanaka et al., 2009). These two analyses indeed are useful for the above mentioned purposes and are also used in the present study trying to find and explain the relationship between accentuated personality types and MUSIC scores.

Hypothesis
Students' personality traits, measured using The Leonhard-Shmishek questionnaire, have an impact on academic motivation, measured by the MUSIC inventory.

Research design
This study follows a cross-sectional design aimed at conducting a correlational type of research.

Sample
This study was conducted in the first semester of the academic year 2020-2021 on a voluntary group of students who studied the Psychology of education in the first year of the psycho-pedagogical module. The questionnaire was distributed in the last week of the first semester, and 107 students were invited to participate. Of these, 28 completed the questionnaire received. The mean age of the sample was M = 27.50 (S.D. = 10.871). Given the high value of the standard deviation, the value of the median (19.50) and the mode (19) were also calculated. These values indicate a group with significant age differences between its members, the minimum value being 18 years and the maximum 50 years. The distribution of frequencies by sex indicated 19 females and 9 males. The mean age for students was M = 26.63 (S.D. = 11,558) and for students M = 29.33 (S.D. = 9,631). The calculation of the significance of the difference between the two means (T-test Independent Sample) indicated that although there is a difference of almost 3 years between the means, there was no statistically significant age difference between the two subgroups (students): t (26) = - 0.607, p = .549.
A Crosstab-type analysis using age and sex variables indicated the following frequencies (Table 1):

Table 1. Crosstab analysis for variables Sex * Age

		Age												Total
		18	19	20	28	31	32	35	37	42	43	48	50	
Sex	Feminine	2	9	1	1	1	0	1	0	1	1	0	2	19
	Masculine	0	3	0	1	2	1	0	1	0	0	1	0	9
Total		2	12	1	2	3	1	1	1	1	1	1	2	28

And, a Crosstab-type analysis that used the variables specialization and sex indicated the following frequencies (Table 2):

Table 2. Crosstab analysis for variabilles Specialisation * Sex

		Sex		Total
		Feminine	Masculine	
Specialization	Public Administration	2	0	2
	Social assistance	3	0	3
	Law	1	1	2
	Physical education and sports	2	6	8
	Kinetotheraphy and special motricity	3	1	4
	Sociology	1	1	2
	Occupational Therapy	7	0	7
Total		19	9	28

Instruments

a) The Leonhard-Shmishek questionnaire. This questionnaire was designed to identify one or more accentuated personality traits that a person may present at a given time. Shmishek developed the instrument taking into account the contributions already made by K. Leonhard, who indicated two categories of accentuations, some of character and others of temperament. Being a test for adults for a variety of purposes, including in the education process, it was considered a useful tool to apply to this sample of students. The number of questions is not equal for each assessed trait but are 4, 8 or 12 questions. Some questions are rated for the affirmative, others the opposite, for the negative. A trait is considered accentuated if the

person provides answers to which more than half of them are considered relevant to that trait.

Both tools were introduced in Google Forms as a multi-section questionnaire. In Google Forms, the questionnaire was anonymous in order to stimulate answers as close as possible to what students feel and believe, even if this anonymity may have partially contributed to the decrease in the sample of participants.

b) The MUSIC inventory. In the User Guide for Assessing the Components of the MUSIC® Model of Motivation, the author, Jones D. Brett, enumerates the inventory principles: Empowerment, Usefulness, Success, Interest and Caring. Although the inventory evolved and were developed shorter versions (of 20 or 19 items) in this study was used the original 26 items inventory. The inventory uses a 1 to 6 rating scale, each number being associated a verbal description. Each principle is measured by a number of items:

- Empowerment score = (item 2 + item 8 + item 12 + item 17 + item 26) / 5
- Usefulness score = (item 3 + item 5 + item 19 + item 21 + item 23) / 5
- Success score = (item 7 + item 10 + item 14 + item 18) / 4
- Interest score = (item 1 + item 6 + item 9 + item 11 + item 13 + item 15) / 6
- Caring score = (item 4 + item 16 + item 20 + item 22 + item 24 + item 25) / 6

The inventory was used in several large studies (Jones et al., 2021, 2022; Jones & Wilkins, 2023)

In this study the MUSIC inventory was translated by two translators in Romanian; these translations were merged through a synthesis by a committee (two translators, previously mentioned, and an expert in the field) and finally, the Romanian version was translated again in English by another translator and a second expert in the field.

Results

In order to be able to perform the analyses leading to results needed to test the hypothesis, it was necessary that answers from the survey be converted into numerical variables and scores for all five principles calculated. These calculated scores were used in the descriptive statistics, correlation and regression analysis.

First analysis was that of correlation between scores of accentuated personality traits and MUSIC scores. In this sample the significant correlationships were between Dysthymic personality trait and Empowerment score r(26)= -,528, p= ,004 and Caring score r(26)= -,406, p= ,032, for the relationship with Interest score the correlation

coefficient was marginally not significant (p = .051). These three correlation coefficients were indirect. Dysthymic personality trait had also an indirect correlation with the Usefulness and Success scores from MUSIC inventory but, these scores were statistically not significant. All the possible relationships between the remaining accentuated personality traits and MUSIC scores were statistically not significant.

The second type of statistical analysis used in this research was the regression analysis. Using the linear regression was confirmed the impact of the dysthymic personality trait on the Empowerment score: (F([1],[26]=[10,046]), p= [.004]. The R^2 was [.279] indicating that Dysthymic personality trait explained approximately [28]%, of the variance in the Empowerment score.

For the impact of the dysthymic personality trait on the Caring score the regression values were: (F([1],[26]=[5,120]), p= [.032]. The R^2 was [.165] indicating that dysthymic personality trait explained approximately [17]%, of the variance in the Caring score.

Because previous studies have found that also other personality traits can have influence on motivation further analyses were performed looking for nonlinear relationships among personality traits and academic motivation scores. Statistically significant results are presented:

Anxious trait impact on Empowerment score

Table 3. Model Summary and Parameter Estimates. Impact of anxiety on Empowerment score

Dependent Variable: Empowerment score

Equation	Model Summary					Parameter Estimates		
	R Square	F	df1	df2	Sig.	Constant	b1	b2
Linear	,009	,228	1	26	,637	4,719	-,003	
Quadratic	,220	3,533	2	25	,045	5,395	-,067	,001

The independent variable is P_Anxios

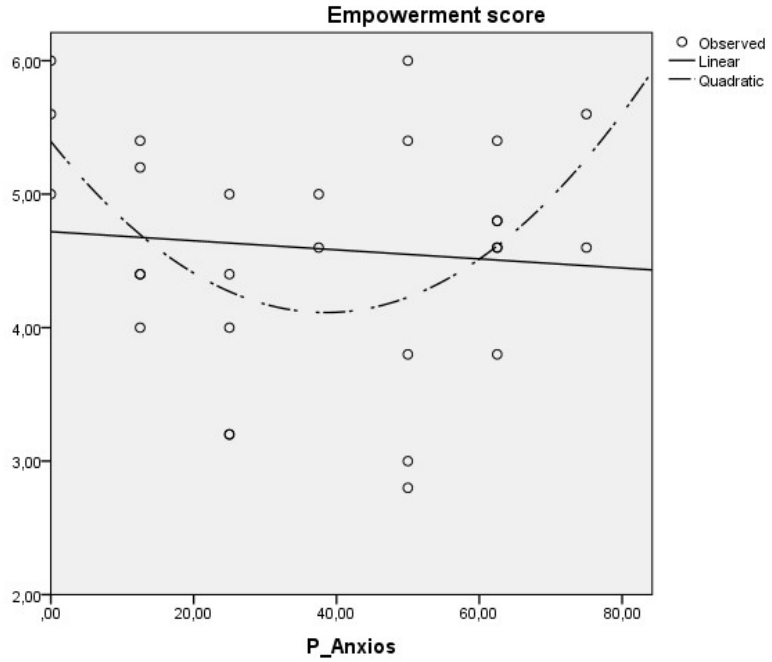

Fig. 1. Linear and quadratic regression curves of anxiety on Empowerment score.

Hyperthymic trait impact on Success score

Table 4. Model Summary and Parameter Estimates. Impact of hipertimic trait on Success score

Dependent Variable: Success score

Equation	Model Summary					Parameter Estimates		
	R Square	F	df1	df2	Sig.	Constant	b1	b2
Linear	,086	2,454	1	26	,129	3,707	,012	
Quadratic	,227	3,678	2	25	,040	6,169	-,079	,001

The independent variable is P_Hipertim.

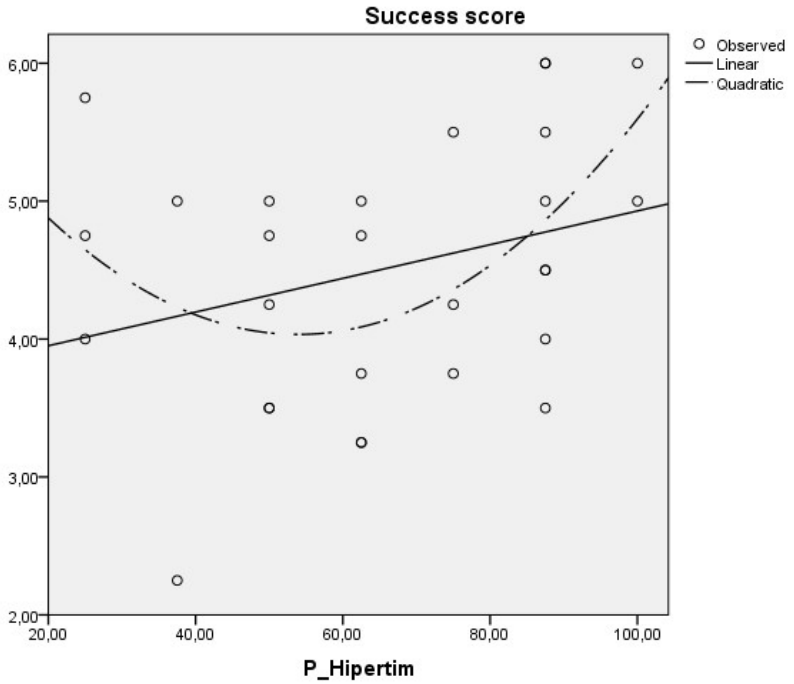

Fig. 2. Linear and quadratic regression curves of hyperthymic trait on Success score.

Dysthymic trait impact on Interest score

Table 5. Model Summary and Parameter Estimates. Impact of dysthymic trait on Interest score

Dependent Variable: Interest score

Equation	Model Summary					Parameter Estimates	
	R Square	F	df1	df2	Sig.	Constant	b1
Linear	,139	4,197	1	26	,051	5,499	-,018
Power	,157	4,855	1	26	,037	8,165	-,156

The independent variable is P_Distimic.

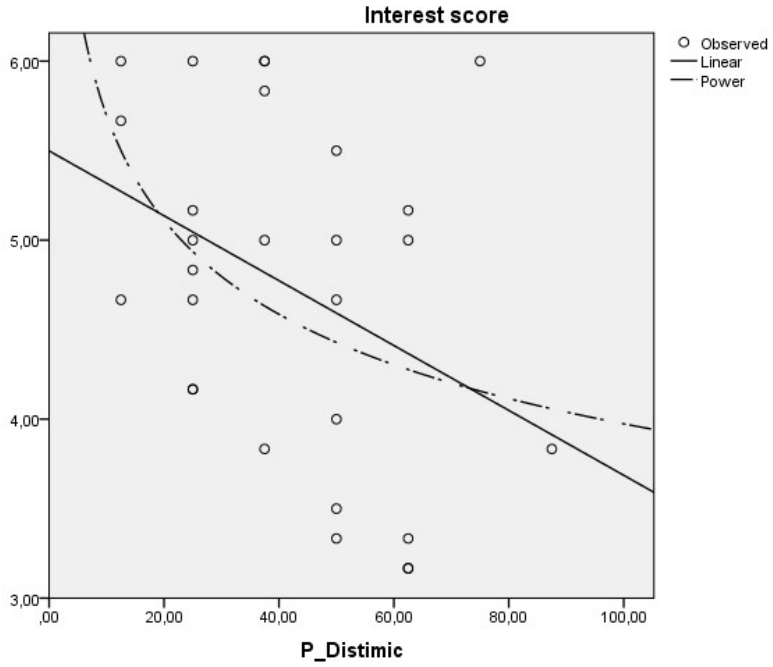

Fig. 3. Linear and power regression curves of dysthymic trait on Interest score.

Discussion

Hypothesis of this study is only partially confirmed; out of 10 personality traits measured by the Leonhard-Shmishek questionnaire in this small sample only three of them (dysthymic, hyperthymic and anxious) have been found to have a linear or nonlinear impact on some of academic motivation the scales (empowerment, interest, success and caring) measured by MUSIC questionnaire.

The Leonhard-Shmishek questionnaire short description of these three accentuated personality types includes:

- Dysthymic: serious, conscientious, meditative, affected by the sad events of life, impulse to action diminished, slow thinking.
- Hyperthymic: continuous joy; need for action (that's why they are not good organizers); digressions in thinking (flight of ideas); establish relationships easily; inclination towards alcohol (in combination with the demonstrative trait).
- Anxious: they cannot defend themselves (affirm) in a dispute, docile, sometimes an overcompensation occurs, tendencies to panic, tendencies toward hypochondria.

In this study, dysthymia proved to be the most significant personality trait that have an impact on the academic motivation.

Concerning the MUSIC questionnaire, the description of these

four constructs, relevant in this study, is (Brett, 2017):

- Empowerment: he or she has control of his or her learning environment in the course
- Success: he or she can succeed at the coursework
- Interest: the student considers that instructional methods and coursework are interesting
- Caring: the instructor cares about whether the student succeeds in the coursework and cares about the student's well-being

Dysthymia as personality trait has only indirect correlations and a ”linear” (on Empowerment and Caring) or ”power” (on Interest) negative effect. The ”power” relationship with Interest shows that Interest is diminished even if dysthymia has below average score on Leonhard-Shmishek questionnaire (Fig. 3).

On the other hand, anxiety and hyperthymia, produced in this study results that indicate a ”quadratic” relationship, in which, small and high scores on Hyperthymic or Anxious personality traits were related to a higher academic motivation (Fig.1: Anxiety on Empowerment / Fig.2: Hyperthymia on Success).

These types of relationships between depressive symptoms (dysthymia being considered a persistent mild type of depression) and anxiety with academic motivation are confirmed by a previous study in which regression analyses ”showed that depressive symptoms were negatively associated with academic motivation, while anxiety was positively related to academic motivation in both genders” (Elmelid et al., 2015).

In conclusion, although this study has its limitations, results obtained suggests that when are considered the effects of personality traits on academic motivation could prove worthful to consider different types of impacts not only the ”linear” one.

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