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**CREATIVITY AND EDUCATIONAL MOTIVATION AS FACTORS
OF ACADEMIC PERFORMANCE DURING THE PANDEMIC**

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Abstract

Educational motivation has always been a subject of interest for scientists. It is traditionally divided into intrinsic and extrinsic motivation. At the same time, internal motivation has a beneficial effect on academic performance, and external motivation has a negative effect. Modern research has established a link between learning motivation and student creativity. Because of this fact we suggested a link between learning success and creativity. In 2020, students' education in Russia was most often conducted in distance, so we decided to conduct a study of the relationship between educational motivation and creativity with academic performance in the context of the pandemic. It was found that in the context of distance learning during the pandemic, only the achievement motive ($r=0,31$; $p<0,001$), cognition motive ($r= -0,36$; $p<0,001$) and the external motive ($r=0,39$; $p<0,001$) are associated with academic performance. Creativity has no correlation with academic performance. However, when we made the regression model, the predictors of creativity were still included in it, which allowed us to present the possibility of establishing such a relationship after expanding the sample.

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1. Introduction

Student motivation and creativity as academic performance factors are very important during any training, not only distance learning. The problem of motivation and creativity has become particularly relevant when switching from a full-time or part-time education format at all levels to a distance format because of the pandemic. With the spread of the COVID-19, most universities have had to send their students home for distance learning. Teachers and students had to make significant efforts to restructure the learning process. In this regard, many problems acquired that need to be addressed both by our society, our state, and of course the teaching community and the students themselves – including the declining academic performance of university students in the context of the coronavirus pandemic.

The novelty of the study is the component analysis of student creativity and educational motivation in linguistic and non-linguistic areas of student training, which allows us to clarify the conditions for the success of higher education student training during the COVID-19 pandemic.

2. Problem Statement

Motivation has always been the subject of interest of scientists. There are several points of view that define what motivation is. On the one hand motivation is defined as some driving force that leads to some behavioral activity (Reeve, 2002). On the other hand motivation is understood as a structure of some motives that determines the behavior of any person (Dodonov, 1984; Markova et al., 1990; Vilyunas, 2006). If we are speaking about a motive, then it is usually described as an image of an object which influences a person to behave in such a way to reach it (Leont'ev, 2005). In educational context motivation refers to willingness and a need to learn (Filgona et al., 2020). Motives determine the reasons why a person starts and continues to learn (Bozhovich & Blagonadezhina, 1972).

Educational motivation is usually divided into intrinsic and extrinsic (Bozhovich & Blagonadezhina, 1972; Deci et al., 1981; Lepper et al., 2005; Markova et al., 1983). Intrinsic motivation is a construct that is based on the application of human interests and the search for tasks of the optimal level of complexity (Deci & Ryan, 2000). If a student has a high level of extrinsic motivation, then he learns due to some external reasons: it may be the expectation of a reward or punishment from the teacher or other social environment (Chow & Yong, 2013).

In current studies of Gordeeva, intrinsic motivation includes the motives of cognition, achievement and self-development. Extrinsic motivation includes self-respect motive, introjected and external motives (introjected regulation of behavior and externally regulated behavior). The author also defines amotivation as the lack of motivation to educational activities in general (Gordeeva, 2015).

Many authors have noticed that intrinsic motives have a positive effect on learning efficiency (Henderlong & Lepper, 1997; Jacobsen et al., 2002; Matt & Dale, 2002; Niemiec & Ryan, 2009). However, in the latest works of Gordeeva and Gizhytsky it was shown that certain types of extrinsic motivation can also positively affect the academic performance of students. Such affect was noticed with the motive of self-respect and introjected motive (Gordeeva et al., 2016).

Mostafavi et al. (2020) and his colleagues found in a recent study that there is a significant positive relationship between educational motivation and students' creativity. This discovery was the reason for our research in the field of creativity.

Creativity is usually defined as the ability to create ideas and to produce novel and appropriate work (Barron, 1995; Sternberg et al., 2004). Torrance (1980) was the pioneer in creativity studies in the world. He divided the verbal and nonverbal side of creativity, as well as dividing it into four components: fluency, flexibility, originality, elaboration.

What connection there is between the phenomena of creativity and education is still being discussed in the scientific community (Runco, 2008). A number of countries set the goal of education to develop the creativity of students (Shaheen, 2010). However, the question of the relationship between the developed creative abilities and the academic performance remains open.

3. Research Questions

Taking into consideration the conditions of distance learning during the pandemic, our interests are focused on obtaining reliable information about the nature of the links between the factors of academic performance (verbal creativity, extrinsic motivation, intrinsic motivation and non-verbal creativity) in students and their impact on student's academic performance.

4. Purpose of the Study

The aim of this study is obtaining quantitative characteristics of the relationship and influence of factors of academic performance of students within the conditions of distance learning during the pandemic.

5. Research Methods

The research into educational motivation and creativity was conducted during the first semester of 2020/2021 academic year when the students participated in the research were studying by distance learning means. An average score for winter exams of this semester was the criteria of academic performance. The research methods that were used include the Torrance Tests of Creative Thinking, Wartega test and Profile of Studying Motivation by Dvoretzkaya. The research was conducted with 74 undergraduate students from Moscow State Linguistic University majoring in psychology, linguistics and educational psychology; the study subjects were mostly females (66 out of 74). The participants ranged in age from 17 to 25 ($M=19,34$; $SD=1,62$).

6. Findings

In accordance with the purpose of the research, a correlation study of the components of creativity, educational motives and student performance was conducted. Pearson's linear correlation coefficient and Spearman's rank correlation coefficient revealed statistically significant relationships between student performance and the cognition motive ($p<0.001$), achievement motive ($p<0.001$), and external motive

($p < 0.001$). Also in this group, a statistically significant correlation was found between academic performance and an external educational motive (Table 1).

Table 1. Correlation matrix between educational motivation, creativity and educational performance

Factor	Correlation coefficient
Nonverbal creativity	
Elaboration	-0.016683
Fluency	0.008230
Originality	-0.038093
Verbal creativity	
Elaboration	0.032079
Fluency	0.031069
Originality	0.209872
Educational motives	
Cognition	0.312923 ($p < 0.001$)
Achievement	0.386879 ($p < 0.001$)
Self-development	0.066762
Self-respect	-0.033660
Introjected	-0.198337
External	-0.360820 ($p < 0.001$)
Amotivation	-0.078525

Based on the obtained data on the nature of the relationship between the orientation of educational motivation and academic performance, a multiple linear regression model with these factors as independent variables was constructed. The coefficient of determination of the obtained model shows that only 17.4% of the variation of the dependent variable is explained by the contribution of independent variables ($R^2 = 0.174125$; $F = 0.004121$). The coefficients of the regression components are distributed in such a way that only the achievement motive has statistical significance ($p = 0.0097319$) (Table 2).

Table 2. Regression model of educational performance predictors

Factors	B	Std. Error B	T test	Value
(Constant)	4.147	0.204	20.320	0.000
Cognition	0.0084395	0.0058409	1.4449118	0.1529444
Achievement	0.0192959	0.0072595	2.6580216	0.0097319
External	-0.0046745	0.0070012	-0.6676728	0.5065378

To improve the accuracy of the forecast, this regression model can be modified by dividing the sample under study by a grouping feature (biological sex). Additional linear regression models were constructed for the "Female" and "Male" student groups. The coefficient of determination of the linear model in the "Male" group was 60.1, which explains more than half (60.1%) of the variation of the dependent variable, but the statistical significance of this model was not confirmed ($R^2 = 0.601$; $F = 0.255268$). In the "Female" group, the coefficient of determination explains 22.9% of the variation of the dependent variable ($R^2 = 0.229424$; $F = 0.000991$). The achievement motive coefficient was also

statistically significant ($p=0.001276$). The distribution of the coefficients of the independent variables is shown in Table 03.

Table 3. Regression model of educational performance predictors^{a,b}

	Factors	B	Std. Error B	T test	Value
Male	(Constant)	4.021844	2.899419	1.387121	0.237692
	Cognition	0.027203	0.086039	0.316173	0.767682
	Achievement	0.014077	0.040138	0.350716	0.743493
	External	-0.103410	0.100251	-1.031507	0.360586
Female	(Constant)	4.189	0.174	24.059	0.000
	Cognition	0.0063129	0.0049608	1.2725567	0.2079271
	Achievement	0.0218014	0.0064588	3.3754567	0.0012761
	External	-0.0025353	0.0059477	-0.4262713	0.6713865

a. Male group; b. Female group.

It was suggested that the academic performance of female students correlates with the educational motive of achievement, since this type of motive is characterized by the desire to achieve high results and be satisfied with the process of solving complex issues. Meanwhile, the external educational motive is characterized as a need for learning due to the requirements of society and is not considered by students as their own and may cause some negative feelings towards learning, so it may have a negative correlation with academic performance.

Academic performance has a statistically significant weak positive relationship with the motives of cognition and achievement; weak negative relationship with the external motive of learning. The success of students' learning at university is determined by one-fifth of the students' desire to learn new things in the learning process and enjoy it, as well as to achieve high results in their studies, which contribute to professional development. If studying at a university is perceived by a student as forced upon them, for example, as a necessary requirement for higher education in a society, the success of the training will be reduced.

As it was discussed above, external motive often regarded as imposed and students feel that their own educational needs are not satisfied thus their academic performance becomes worse. As for verbal originality, motive of achievement and nonverbal elaboration, the relationship was not statistically significant. The increase of participants might help to solve the problem.

7. Conclusion

The analysis indicates the following conclusions:

- verbal creativity of students is not a factor of successful study at the university;
- a high degree of the achievement motive is a factor of student academic performance at the university;

The prospects for further research are related to the development of comprehensive programs for the development of creativity and educational motivation among students to ensure a high level of academic performance, as well as training programs or psychological and pedagogical recommendations

for teachers. Such recommendations shall, for example, concern reducing the sense of learning imposition, because it is necessary to take the interests and needs of students into account during the learning process.

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