

PROCEEDINGS ARTICLE

Analyzing the Impact of Student Population Structure on Development of Learning Skills in Students with Disabilities in Higher Education Institutions of the Cultural Sector

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ABSTRACT

The article presents the results of a study on the influence that student population structure has on the development of learning skills in students with disabilities in higher education institutions of the cultural sector. The participants of the study were 226 students with disabilities in their 2nd to 6th years of university, from 43 higher education institutions in the field of culture and different training programs. As an indicator of the level of learning skills development in students with disabilities, we took the parameter of student academic performance, presented as an average grade (on a five-point assessment scale) following the results of midterm assessments. The population structure of students with disabilities in higher education institutions of the cultural sector included 15 parameters, the information on which was collected through an online survey. It is shown that the level of learning skills development in students with disabilities correlates with the indicators of the student population structure. The obtained results allow us to conclude that the structure of student population in higher educational institutions of the cultural sector influences the development of learning skills in students with disabilities.

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1. INTRODUCTION

Inclusive education, a leading approach to providing training for people with disabilities and health limitations, is the result of the changes in the social sector and the education system, which are aimed at increased openness and account of each student's individuality. Currently, inclusive education in Russia is understood as the process and result of ensuring equal access to education for all students, considering the diversity of special educational needs and individual capacities [1].

The designed roadmap for the development of education for children with disabilities and health limitations defines "the ways to achieve qualitatively higher results in the development, education,

socialization and professionalization of children with health limitations, to develop their social status, to preserve and improve the social status and life prospects of the families raising them" for the period from 2020 to 2030 [2]. The provisions of the roadmap set new goals and objectives for improving higher education for people with disabilities and health limitations [3], and define approaches to developing the quality and accessibility of higher education for people with disabilities in the Russian Federation [4].

To develop the system of inclusive education, its legal control and the regulation of activities of educational institutions on ensuring a barrier-free environment and the availability of services for people with disabilities and health limitations, the legislative and executive authorities of the Russian Federation have

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established the legislative and regulatory framework, which also includes requirements for the level of higher education in the cultural sector.

Currently, specialists in Russian and foreign science and pedagogical practice are searching for ways to organize inclusive education for students with disabilities and health limitations, are testing and evaluating high-potential models of such education at different education levels. In most developed countries that implement the inclusion policy, including Russia, **at the levels of general education** (preschool; primary; basic; and secondary general education), **the boundaries of integration** of children with disabilities and health limitations into the educational environment of educational institutions are commonly **defined**. However, despite successful attempts to provide a comprehensive description of the development of inclusive education in higher education institutions in Russia [5,6,7,8,9] and abroad [10,11,12], to define socio-psychological well-being of students [13], to organize socio-psychological support for students with disabilities and health limitations [14] and special environmental conditions for teaching disabled students at university [6], to improve educational programs [15] and approaches to teaching, supervision and support for students with disabilities [16], **there is still no single approach to designing the structure of student population and regulating inclusion** (introduction) of students with disabilities and health limitations in the educational environment **at the level of higher education**.

For people with disabilities and health limitations, obtaining higher education is an essential condition for successful socialization, full participation in social life, effective personal fulfilment in various professional and social activities, and improvement of life quality. Organization of professional training for people with disabilities and health limitations at the level of higher education implies adaptation of higher education programs. This process includes creating conditions for the accessibility of education, as well as additional individualized correction of learning and communication skills, professional and social adaptation of an individual [17].

Traditionally, one of the important factors in pursuing a higher education is the development of the learning skills in students with disabilities. It is usually assessed based on academic performance, which is an average grade (on a five-point assessment scale) following the results of midterm assessments.

Therefore, **the purpose of research** was to determine the impact of student population structure (through the lens of inclusion) and other contextual variables on the development of learning skills in students with disabilities in higher education institutions of the cultural sector of Russia.

2. RESEARCH METHOD

2.1. Research Design

To test the proposed hypothesis about the existence of the influence of the student population structure on the development of learning skills in students with disabilities, a survey sample was formed, which included students with disabilities from various areas of training at higher education institutions in the cultural sector. The collection of primary data was carried out individually, using an online questionnaire. Each student of the survey sample was assigned a tutor in higher education institutions of the cultural sector to fill in the questionnaire. All survey participants provided informed consent.

2.2. Survey Sample

The participants of the study were 226 students with disabilities in their 2nd to 6th years of university, from 43 higher education institutions in the field of culture and different training programs. According to the results of the VPO-1 federal statistical monitoring for the 2020/2021 academic year, the number of people with disabilities and health limitations enrolled in basic professional degree programs of higher education in educational institutions of the cultural sector amounted to 505 people.

The composition of the survey sample respondents by the nosological group of disability is shown in Table 1.

No.	Nosological Group of Disability	Number of Students	% of Students
1	Visual impairments	58	25.7
2	Hearing impairments	38	16.8
3	Musculoskeletal disorders	54	23.9
4	Somatic disorders	76	33.6

Table 1. Composition of the survey sample respondents by the nosological group of disability.

The average age of the survey sample respondents was 23.2 years. Out of 226 students with disabilities that draw the survey sample, 205 (90.7%) are intramural students and 21 (9.3%) are extramural.

2.3. Research Methods

A Google forms questionnaire was created to collect information about the student population structure and context data:

- Academic performance (academic average in the disciplines of the curricula);
- Mode of study;
- Year of study;
- Age;
- Gender;
- Nosological group of disability;
- Previous education;
- Place of residence before university;
- Availability of adaptation and rehabilitation facilities, necessary for studying, at the university;
- Adaptation of students in their first year of study;
- Co-education of people with disabilities and health limitations in the same study group;
- % of individual lessons;
- % of lessons in small groups;
- % of lessons in large groups;
- Growing up in a two-parent family;

- Growing up in a single-parent family.

Statistical analysis of the collected data was carried out in IBM SPSS Statistics v.26.

3. RESULTS

As indicator of the level of learning skills development in students with disabilities we took the parameter of student academic performance, presented as an average grade (on a five-point assessment scale) following the results of midterm assessments.

The grade-point average of the study sample is 4.37. Of the 226 students with disabilities in the sample:

- 25 students (11.1%) have avg. grade of 3 to 3.99;
- 165 students (73.0%) have avg. grade of 4 to 4.99;
- 36 students (15.9%) have avg. grade of 5.

To assess impact of student population structure on the development of learning skills in students with disabilities in higher education institutions of the cultural sector, the Pearson correlation coefficient was applied. Correlation coefficients were determined by the development level of students' learning skills (academic performance), calculated as an average grade (on a five-point assessment scale) following the results of midterm assessments, in relation to 15 parameters of the student population structure. The results of this analysis are presented in Table 2.

Parameters of student population structure	Academic performance
Mode of study	$r=0.054$ ($p=0.420>0.05$)
Year of study	$r=0.024$ ($p=0.715>0.05$)
Age	$r=-0.056$ ($p=0.400>0.05$)
Gender	$r=0.053$ ($p=0.428>0.05$)
Nosological group of disability	$r=-0.021$ ($p=0.749>0.05$)
Previous education	$r=0.102$ ($p=0.127>0.05$)
Place of residence before university	$r=-0.028$ ($p=0.674>0.05$)
Availability of adaptation and rehabilitation facilities, necessary for studying, at the university	$r=-0.024$ ($p=0.724>0.05$)
Adaptation of students in their first year of study	$r=0.093$ ($p=0.166>0.05$)
Co-education of people with disabilities and health limitations in the same study group	$r=0.031$ ($p=0.647>0.05$)
% of individual lessons	$r=0.158$ ($p=0.017<0.05$)
% of lessons in small groups	$r=0.122$ ($p=0.066>0.05$)
% of lessons in large groups	$r=0.026$ ($p=0.701>0.05$)
Growing up in a two-parent family	$r=0.157$ ($p=0.040<0.05$)
Growing up in a single-parent family	$r=-0.114$ ($p=0.410>0.05$)

Table 2. Impact of student population structure on the development of learning skills in students with disabilities in higher education institutions of the cultural sector.

As can be seen in Table 2, the patterns of relation between indicators of the student population structure and the level of learning skills development in students with disabilities in higher education institutions of the cultural sector are different.

Disabled students revealed two significant positive and weak correlations between the level of development of students' learning skills and the proportion of individual lessons (one student) ($p < 0.05$) and growing up in a two-parent family in which parents have higher education ($p < 0.05$).

Let us make a multiple regression model that will allow assessing the impact of all parameters of the student population structure on the development of learning skills in students with disabilities in higher education institutions of the cultural sector. Table 3 presents consolidated data for a multiple regression model for estimating the impact of all parameters of the student population structure on the development of learning skills in students with disabilities in higher education institutions of the cultural sector.

R square determination factor is 0.07, which means that 7% of the variations in academic performance of students in the study sample change with the corresponding variations in all parameters of the population structure of students with disabilities in higher education institutions of the cultural sector.

The results of variance analysis (ANOVA) show (Table 4) that the F-test value (1.047) does not correspond to the achieved significance value ($p = 0.408 > 0.05$), the null hypothesis on the absence of correlation between the variables is accepted. Consequently, all parameters of the population structure of students with disabilities in higher education institutions of the cultural sector and academic performance of the students in the study sample do not have a linear correlation and are not related.

4. DISCUSSION

The results obtained indicate the presence of two correlations between student population structure and the development of learning skills in students with disabilities in higher education institutions of the cultural sector. This observation allows the following conclusions and recommendations:

First, the most significant correlation is observed between the academic performance of students with disabilities from the study sample and the proportion of individual lessons (one student) in the learning process. This correlation proves the positive impact of individual lessons for students with disabilities on their academic performance, showing that the greater the proportion of individual lessons (one student), the higher the academic performance.

Model	R	R Square	Adjusted R Square	Standard Error of Estimation	Durbin-Watson
1	.264 ^a	.070	.003	.47776	2.011

Table 3. Consolidated data for a multiple regression model for estimating the impact of all parameters of the student population structure on the development of learning skills in students with disabilities in higher education institutions of the cultural sector (consolidated data for a model^b).

^a Independent variables: (constant), Single-parent family, Mode of study, Availability of facilities, Year of study, Previous education, Nosology, Gender, Student adaptation, Place of residence, % of lessons in large groups, % of individual lessons, % of lessons in small groups, Age, Co-education, Two-parent family.

^b Dependent variable: Academic performance.

Model		Sum of Squares	Degree of Freedom	Mean Square	F	Significance
1	Regression	3.585	15	.239	1.047	.408 ^b
	Residual	47.933	210	.228		
	Total	51.519	225			

Table 4. Variance analysis results (ANOVA^a).

^a Dependent variable: Academic performance.

^b Independent variables: (constant), Single-parent family, Mode of study, Availability of facilities, Year of study, Previous education, Nosology, Gender, Student adaptation, Place of residence, % of lessons in large groups, % of individual lessons, % of lessons in small groups, Age, Co-education, Two-parent family.

Analysis of the correlation between the proportion of individual lessons (one student) and academic performance of students with disabilities demonstrates that the highest academic performance was observed in students who had 11–15% and 21% and over individual lessons (one student). Therefore, the proportion of individual lessons that influences student academic performance most is 11–21%.

Apart from individual lessons (one student), lessons in small groups (2–5 students) and large groups (6 or more students) are used in the learning process. The analysis of the correlation between the proportion of lessons in small groups (2–5 students) and academic performance of students with disabilities shows that the highest academic performance was observed in students with disabilities who had 11–15% and 16–20% of lessons in small groups (2–5 students) in the learning process. Consequently, the proportion of lessons in small groups (2–5 students) that influences student academic performance most is 11–20%.

The performed analysis of correlation between the proportion of lessons in large groups (6 or more students) and academic performance of students with disabilities demonstrates that the highest academic performance was observed in students with disabilities who had 16–30% and 61% of lessons in large groups (6 or more students) in the learning process. This means that the proportion of lessons in large groups that influences student academic performance most is 16–30%, 61%.

Second, a significant correlation is observed between the academic performance of students in the study sample and the fact of growing up in a two-parent family in which parents have higher education. This correlation proves the positive influence of growing up in a two-parent family where both parents (or one of the parents) have a higher education, on students' academic performance.

Third, the correlation between academic performance of students with disabilities from the survey sample and the following contextual data was not statistically significant:

- Mode of study (academic performance of the surveyed students does not differ much depending on the mode of study – intramural or extramural – and is approximately the same);
- Year of study (academic performance of the surveyed students in their 5th year of study is slightly higher compared to that of students in their 2nd, 3rd and 4th years. Academic results of students in their 6th year of study are slightly lower compared to those of students in their 2nd to 5th year of study);
- Age (academic performance of students of the most represented ages in the survey sample (19–24 years) is approximately the same);
- Gender (academic performance of both female and male students of the survey sample is approximately the same);
- Nosological group of disability (academic performance of students with visual impairment, hearing impairment and somatic disorders is the same; academic results of students with musculoskeletal disorders are slightly lower compared to those of students with other disorders in the study sample);
- Presence or absence of previous education (children's art school, vocational education, university, etc.);
- Place of residence before starting a university of the cultural sector (academic performance is approximately the same regardless of whether students lived in the same place as the higher education institution is located or had to move from another region of the Russian Federation or even from another country to study at the higher education institution of the cultural sector);
- Availability or unavailability of adaptation and rehabilitation facilities, necessary for studying, at university (academic performance is approximately the same regardless of the level of availability of adaptation and rehabilitation facilities at university);
- Successful adaptation of students in their first year of study to the learning environment at the university (academic performance is approximately the same regardless of the success of student adaptation to the learning environment at the university in their first year of study);
- Co-education of people with disabilities and health limitations in the same study group (academic performance is almost the same regardless of whether they study in the same group with people with disabilities and health limitations);
- Growing up in a single-parent family (academic performance of students who were brought up in a single-parent family, regardless of presence or absence of higher education, is approximately the same).

5. CONCLUSION

The results of this study indicate the presence of two correlations between the development of students' learning skills and parameters of the student population structure. The obtained results allow making a conclusion about the impact of the student population structure in higher education institutions of the cultural sector on the development of learning skills in students with disabilities.

The results presented and the conclusions drawn are consistent with the recommendations of the leading Russian and foreign scientists and practitioners on forming inclusive educational groups of students doing basic general education programs (preschool; primary; basic; and secondary general education) and supplementary general education programs, both in terms of the quantitative representation of people with disabilities in study groups and academic achievements.

In this regard, the results obtained in the course of research can be applied to practice at higher education institutions of the cultural sector when performing the following activities:

- Developing and implementing adapted educational programs of higher education;
- Designing the policy on forming student population structure and substantiating the enrolment campaign plan;
- Creating and assessing the learning environment;
- Designing a special teaching aids system for the period of training of people with disabilities and health limitations;
- Planning and managing facilities of an institution.

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