

The conceptual approach to the development of student youth's favorable attitude to inclusive education in the system of higher education in the Russian Federation

El enfoque conceptual para el desarrollo de actitud positiva de jóvenes frente a la educación inclusiva en el Sistema de Educación Superior de la Federación Rusa

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ABSTRACT:

In modern conditions, the formation of pedagogical conditions for the implementation of inclusive education in the system of higher education in the Russian Federation (RF) is an important objective for the pedagogical community and an urgent problem of educational inclusion. The article objective is the elaboration of a conceptual approach to the development of a favorable socio-cultural environment for the effective integration of inclusive education in the system of higher education in the Russian Federation. Student youth's attitude to inclusive education in the educational process was analyzed, applying the sociological survey. Based on the Fibonacci scale, a classification of quantitative and qualitative characteristics of students' attitudes toward disabled people was developed taking into account the psychological-pedagogical classification of aspects of the relationship (tolerance, empathy, behavioral aspect and reflection). The factor matrix of indicators of students' attitude to inclusive education in the system of higher education was set up. By the method of hierarchical classification and k-means clustering, clusters of groups of students were determined according to the indicators of attitudes toward inclusive education in the context of the psychological-pedagogical classification of aspects of attitudes. The factors of the insufficiently loyal level of young people's attitude to people with disabilities in the educational process were revealed. A system of training exercises was developed to advance tolerance, empathy, a favorable behavioral aspect and reflection among students at Russian HEIs as regards persons with disabilities and the phenomenon of disability in the higher school educational process. The obtained research results will contribute to the development of students' readiness for inclusion in the higher education system, the creation of a stimulating socio-cultural environment for the effective adaptation of disabled people and the acquisition of qualitative higher education by them.

Keywords: inclusive education, student youth, physically challenged people and people with disabilities, higher education system, sociocultural environment, inclusion.

RESUMEN:

2217/5000 En las condiciones modernas, la formación de condiciones pedagógicas para la implementación de la educación inclusiva en el sistema de educación superior en la Federación Rusa (RF) es un objetivo importante para la comunidad pedagógica y un problema urgente de inclusión educativa. El objetivo del artículo es la elaboración de un enfoque conceptual para el desarrollo de un entorno sociocultural favorable para la integración efectiva de la educación inclusiva en el sistema de educación superior en la Federación Rusa. Se analizó la actitud de los jóvenes estudiantes hacia la educación inclusiva en el proceso educativo, aplicando la encuesta sociológica. Con base en la escala de Fibonacci, se desarrolló una clasificación de las características cuantitativas y cualitativas de las actitudes de los estudiantes hacia las personas con discapacidad teniendo en cuenta la clasificación psicológico-pedagógica de los aspectos de la relación (tolerancia, empatía, aspecto conductual y reflexión). Se estableció la matriz de factores de indicadores de la actitud de los estudiantes hacia la educación inclusiva en el sistema de educación superior. Por el método de clasificación jerárquica y agrupamiento k-means, los grupos de estudiantes se determinaron de acuerdo con los indicadores de actitudes hacia la educación inclusiva en el contexto de la clasificación psicológico-pedagógica de los aspectos de las actitudes. Se revelaron los factores del nivel insuficientemente leal de la actitud de los jóvenes hacia las personas con discapacidad en el proceso educativo. Se desarrolló un sistema de ejercicios de entrenamiento para promover la tolerancia, la empatía, un aspecto de comportamiento favorable y la reflexión entre los estudiantes de las IES rusas con respecto a las personas con discapacidad y el fenómeno de la discapacidad en el proceso educativo de la escuela superior. Los resultados de la investigación obtenidos contribuirán al desarrollo de la preparación de los estudiantes para su inclusión en el sistema de educación superior, la creación de un entorno sociocultural estimulante para la adaptación efectiva de las personas con discapacidad y la adquisición de una educación superior cualitativa por parte de ellos.

Palabras clave: educación inclusiva, juventud estudiantil, personas con discapacidades físicas y personas con discapacidades, sistema de educación superior, entorno sociocultural, inclusión.

1. Introduction

The tendencies of the social and economic development of the society testified that higher education is one of the leading factors in the prospects of human advancement, a factor of social, political and economic progress (Kankovskaya, 2016). In this respect, in modern conditions, one of the public priorities in the Russian Federation is to ensure the right to higher education for physically challenged people and people with disabilities in the context of inclusive education (Government of the Russian Federation, 2015).

UNESCO defines inclusive education as a process necessary to meet different needs of children by ensuring their participation in education, cultural activities and in public life by reducing exceptions in education and in the learning process (Conceptualization of Inclusive Education and its Contextualization within the Framework of the UNICEF Mission, 2014). That is, the development of an inclusive basis for education presupposes the formation of such a way of obtaining education, when pupils or students with special educational needs are trained in the general educational environment at their place of residence.

In the current conditions of the functioning of the national higher education system, apart from financial and infrastructure problems of the development of an inclusive educational platform in Russia, the most important factors of access to quality education for people with disabilities are cultural and institutional ones (Valeeva, 2015). In terms of the attitude of the socio-cultural environment in the educational institution, the process can become either stimulating or repulsive for them (Fernández, 2017; Moriña & Carballo, 2017). Since from 25% to 63% of them do not complete their studies at a university, subject to discrimination on the part of their peers, the socio-cultural environment will facilitate the effective psychological adaptation of physically challenged people and people with disabilities to the educational environment of educational institutions (Federal State Educational Standards of Higher Education Website, 2017). In this regard, the aim of the study was the development of a conceptual approach to the formation of pedagogical conditions for the advancement of a favorable public perception by a social group such as students of citizens with disabilities as full-fledged members of communities in the RF higher education system. In the course of the study, the following tasks of scientific research were solved: the main problems of development of inclusive education in the system of higher education in Russia were identified; quantitative analysis of student youth's attitude towards the integration of inclusive education in the learning process was performed; the classification of students' groups according to the level and nature of their attitudes towards disabled people within the framework of inclusion development in the system of higher education was carried out; recommendations were developed to shape pedagogical conditions for the development of students' loyal attitude to inclusive education.

2. Materials and Methods

In order to study student youth's attitude to inclusive education in the higher education system in the Russian Federation, a sociological survey was applied to estimate the level of cognitive tolerance, empathy, behavioral and reflective aspects (Font et al., 2016; Frankel, 2017; Daley et al., 2018).

The sociological survey was conducted by full-time teaching of students at the Moscow Humanitarian Economic University (MHEU) and the Moscow Technical University of Communications and Informatics. In the questionnaire, students were asked to assess their attitudes towards certain aspects of their opinion concerning inclusive education on the 5-point scale.

Levels of indicators characterizing cognitive tolerance, empathy, behavioral aspect and reflection, are defined by the Fibonacci scale using the function system (Ruiz & Luca, 2017):

$$\begin{cases} E_{min} \leq E \leq E_1 \\ E_1 < E \leq E_2 \\ E_2 < E \leq E_{max} \\ E_1 = E_{min} + 0,38 (E_{max} - E_{min}) \\ E_2 = E_{min} + 0,62 (E_{max} - E_{min}) \end{cases} \quad (1)$$

where E_{min} – minimum possible score of the indicator characterizing student youth's attitude to inclusive education;

E_{max} – maximum possible score of the indicator;

$[E_{min}; E_1]$ – interval of the indicator's low values;

$(E_1; E_2)$ – average indicator interval;

$(E_2; E_{max})$ – interval of the indicator's high values.

To construct a factor matrix that expresses the students' attitude towards inclusive education, the method of factor analysis is used. The composition of the factors is determined on the basis of the values of the factorial loads of the indicators with the corresponding factor, starting from the factor model (2) (Menke, 2018):

$$x_i = a_1 * f_1 + a_2 * f_2 + \dots + a_i * f_i + dv, \quad (2)$$

where x_i – standardized value of the indicator ;

a_i – factor loadings;

f_i – factor values;

dv – model residuals.

Calculation of factor loads is carried out based on the hypothesis of a multidimensional normal distribution of the values of the indices x_i , the absence of correlation between the factors f , and the normal distribution of the residues dv . As a criterion of optimality in factor analysis, the minimization of deviations in the covariance matrix is used obtained after estimating factor loads from the covariance matrix of the original characteristics (Menke, 2018).

To classify the student groups by the criterion of the attitude to inclusive education, a cluster analysis is applied, the essence of which is reduced to the search for such a combination of clustering objects, in which the value of Euclidean distances (3) between objects belonging to the same cluster is minimized (Ramon-Gonen & Gelbard, 2017).

$$d_{ij} = \sqrt{\sum_k^n (x_{ik} - x_{jk})^2}, \quad (3)$$

where d_{ij} – distance between the i-th and the j-th objects;

x_{ik} – the value of the k-th index of the object;

x_{jk} – the value of the k-th index of the centre of the -th cluster.

To assess the quality of clustering, the indicators of intragroup (4) and intergroup (5) variance and the Fisher criterion are used (6) (Rousseau et al., 2018):

$$\sigma_j^2 = \frac{\sum_i^n (x_{ik} - \bar{x}_{jk})^2}{n_j}, \quad (4)$$

$$\sigma^2 = \frac{\sum_i^n (\bar{x}_{jk} - \bar{X}_k)^2 \cdot n_j}{N} \quad (5)$$

where σ_j^2 – the intragroup dispersion of the -th cluster;

σ^2 – between-group variance;

x_{ik} – the value of the k-th index of the i-th object;

\bar{x}_{jk} – the average value of the k-th index of the -th cluster;

\bar{X}_k – the average value of the k-th sample index;

n_j – number of the -th cluster objects;

N – sample size.

$$F_e = \frac{R^2}{1-R^2} * \frac{(n-m-1)}{m}, \quad (6)$$

where F_e – the empirical (calculated) value of the Fisher criterion;

R^2 – coefficient of multiple determination;

n – number of observations;

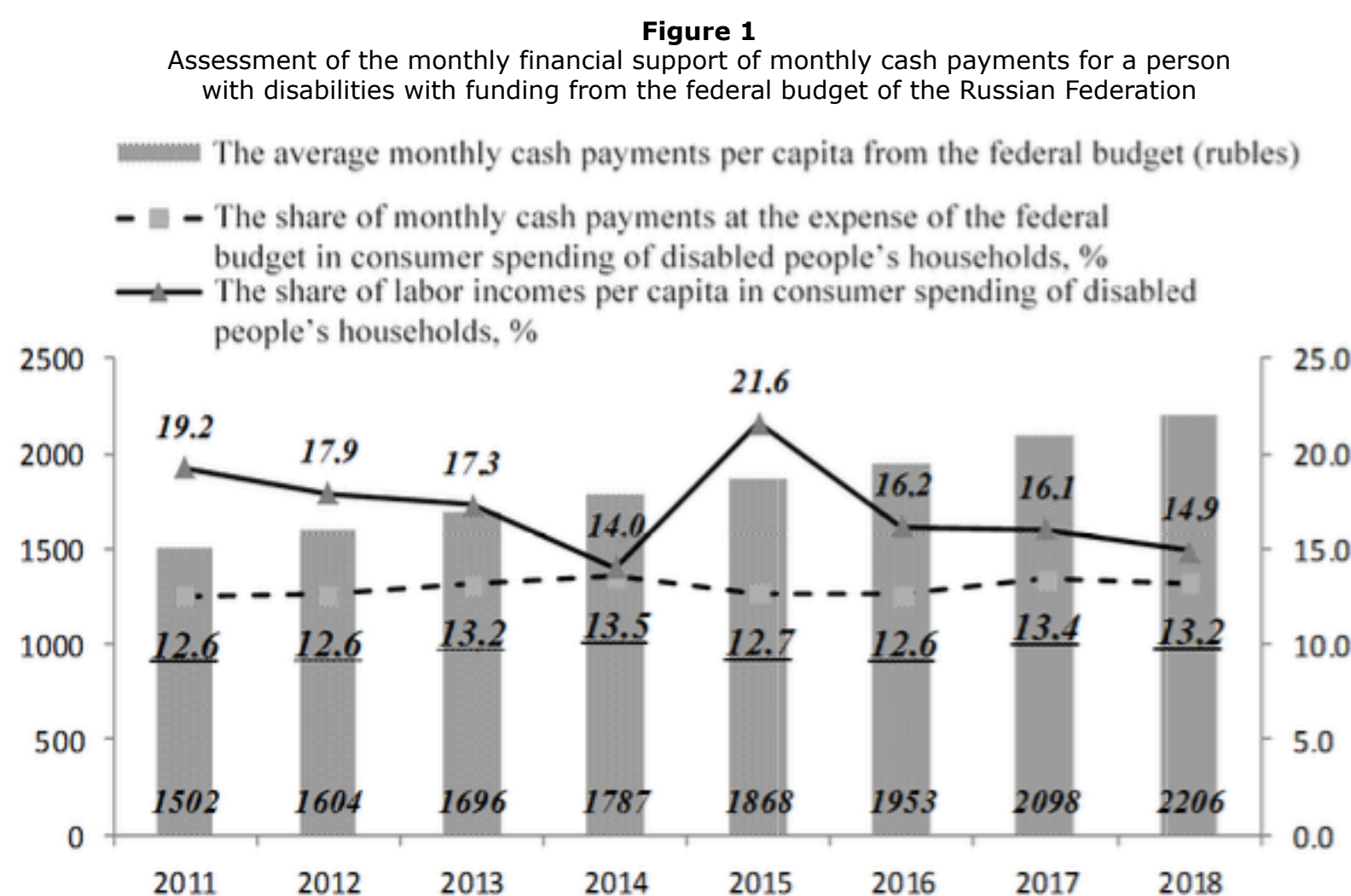
m – number of indices.

3. Results

Currently, about 12.1 million (8% of the population) of officially registered disabled people live in Russia, while disabled people of working age account for 29.4%, children under 18 – more than 5%. Most households with disabled people do not have the ability to pay for housing and utilities services and purchase durable goods (87% of the total number of families with disabled people). Some of them do not even have the necessary level of income to ensure a sufficient level of nutrition – 5.3% of households (Federal State Statistics Service, 2018).

As analysis of official data reveals that despite the increase in 46% of the state social benefits for families comprising disabled people in 2011-2018, the consumer spending per person from these funds is only satisfied by 13.2% a month (Figure 1). Furthermore, the level of incomes for disabled

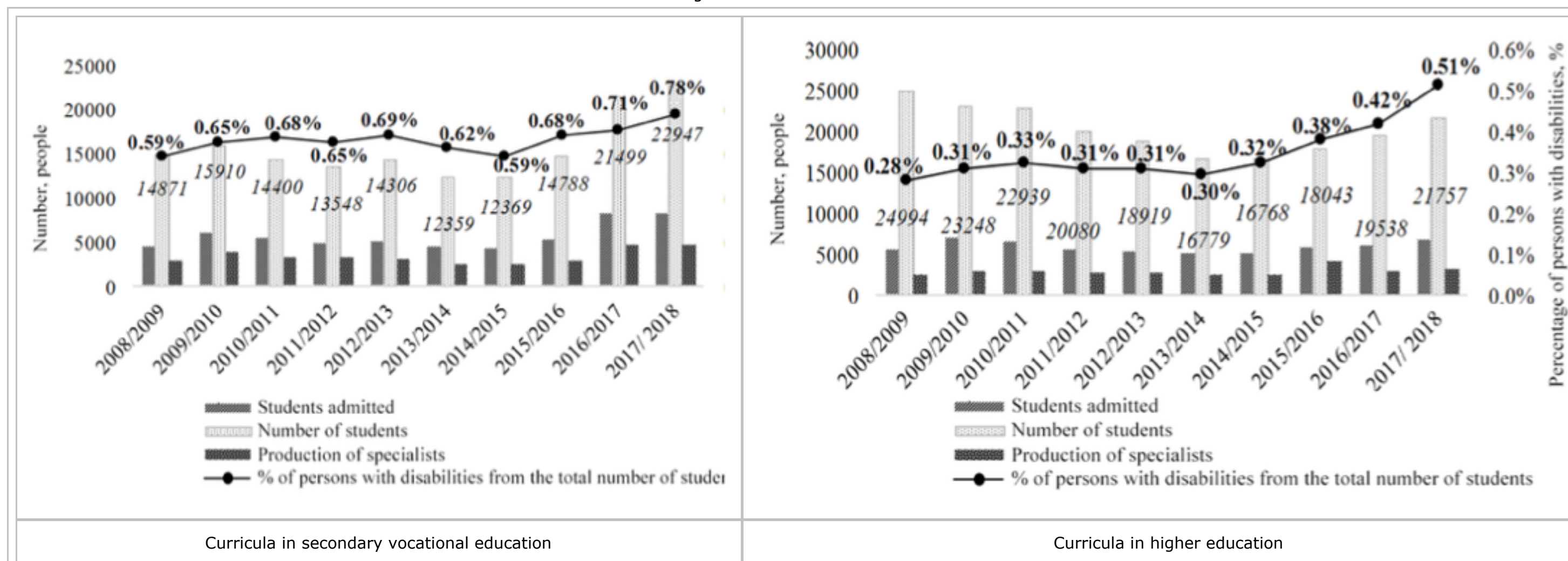
people is reduced. Thus, in 2018, only 14.9% of satisfaction of consumer spending per person in families with persons with disabilities was provided by incomes gained by physically challenged people, which is 4.3% lower than in 2011 (Figure 1).



(from: Federal State Statistics Service, 2018)

One of the most significant factors of the low level of financial support for disabled people in the Russian Federation is the problems with the recruitment of employable people with disabilities, caused by certain difficulties in the process of acquiring professional skills (Shabunova & Fakhradova, 2016). Currently, in most educational institutions in Russia, there is no opportunity of an inclusive training of people with disabilities in the environment of people without any health restrictions. Many do not admit disabled people because of the lack of integrated training programs, and the educational and sanitary facilities of organizations are not equipped for the specific needs of persons with disabilities (Marimuthu & Cheong, 2015; Vokhmyanin, 2017). In addition, a significant destructive factor in integrating inclusive education into the overall national education system is discrimination on part of the sociocultural environment of people with disabilities (Vokhmyanin, 2017). Meanwhile, the number of students with disabilities has been increasing over the past 10 years (2008-2018 academic years). So, the number of students admitted to vocational education programs increased by 83%, and in higher educational institutions – by 19%. It should be noted that the number of students with disabilities in the system of vocational education demonstrated a positive tendency. The increase in the number of students for the period was 54% (0.78% of the total number of students), while in the Russian higher education institutions their number decreased by 13% (0.51% of the total number of students) (Figure 2). But, despite the relatively positive numerical trend as regards disabled students, during the period under investigation the number of graduates of educational institutions who received secondary vocational and higher education in the Russian Federation does not exceed 3.07% of the total number of disabled people between the ages of 18 and 30. That is, about 20,000 people with disabilities receive education – one in every thirty third is a disabled person (Vokhmyanin, 2017).

Figure 2
Dynamics of the number of students with disabilities in the system of vocational and higher education in the Russian Federation



(from: Federal State Statistics Service, 2018)

In connection with the existing trends, there is an urgent need for the development of an inclusive environment in the RF education system. An inclusive environment as an opportunity to integrate a child, a young person with disabilities into a peer environment, into society gives huge benefits. The main drawback of the traditional form of education – the boarding school is a significant degree of isolation of the student from the family and society. In conditions of inclusion and preserving the opportunity to use traditional special education, he/she gets enormous additional chances to realize himself/herself as much as possible, and in many cases – to gain economic independence.

Inclusive education, in addition to solving problems in the field of education, contributes more to improving the quality of life of society. Supporting the idea of inclusive education, performing the implementation of inclusive practices, educational institutions operate in an innovative mode.

With reference to the foregoing, taking into account the priority of forming a favorable socio-cultural environment for the adaptation of people with special needs in the general education system, the study elaborated a conceptual approach to the formation of pedagogical conditions for the development of inclusive education in the system of higher education in the Russian Federation, particularly, in order to develop a loyal attitude of students to the perception of people with disabilities as full members of society in the system of higher education.

Within the research framework, based on the sociological survey, the character of the student youth's attitude to inclusive education in the system of higher education in the Russian Federation was determined. The sample group of the study was made up of students at the Moscow Humanitarian Economic University and the Moscow Technical University of Communications and Informatics. The study chose two universities to draw parallels between the universities of a different professional orientation.

The students' attitude towards inclusive education is expressed in four planes: cognitive, emotional, behavioral and reflective (Font et al., 2016). Cognitive aspects of interaction in the process of inclusive education are expressed by the level of tolerance – the degree of understanding and acceptance of another person's characteristics. The empathy is characterized by a positive or negative perception of personality, the ability to respond

emotionally to other people's experiences. Behavioral aspect determines students' attitude to the very procedure of inclusive education. The reflection determines the level of socio-reflection as the ability to recognize the problems of persons with special needs.

A questionnaire for students, designated by the university, consisting of 4 blocks (tolerance, empathy, behavior, reflection), was developed on the basis of a modified method for assessing communicative tolerance by V.V. Boyka (Kostyushina, 2016), Methods of the "Emotional Response Scale" by A. Megrabyan, N. Epstein (Skoritskaya & Motornaya, 2016) and methods for assessing the level of reflection suggested by M. Grant (Alieva, 2016).

To assess the students' tolerance for inclusive education, a questionnaire was developed, including questions that determine the students' attitude toward the appearance and the most common physical and psychological qualities of students. Students were offered using a 5-point scale to assess their negative attitude towards the characteristic qualities of persons with disabilities, where the rating "0" corresponds to a neutral attitude and, accordingly, a high level of tolerance, "5" – the most negative attitude and a low tolerance level.

The list of criteria is as follows:

- sluggishness;
- taciturnness / talkativeness;
- resentment;
- nervousness;
- bad manners;
- impatience;
- non-aesthetic appearance.

The basis for assessing the level of empathy is the identification of students' attitudes toward the mood, the experiences of others on a 5-point scale. The rating "0" corresponds to a neutral attitude to the problems of others and a low level of empathy, "5" – compassion and a high level of empathy.

The level of empathy was assessed on the following issues:

- To what extent are you disappointed by the loneliness of people with disabilities?
- Do you take personally the problems of people with disabilities?
- To what extent are you concerned with hardships of people with disabilities?
- To what extent does your mood depend on the mood of persons with disabilities?
- To what extent do you feel the unfair treatment towards people with disabilities?

To assess the behavioral aspect, students are asked to give answers to the following list of questions:

- To what extent do you assess the possibility of training disabled people with all students?
- To what extent are you ready to interact with people with disabilities without any difficulties?
- To what extent do you agree with the statement that training with disabled people does not impair the quality of education?

The level of socio-reflection is proposed to be assessed on the basis of the totality of questions:

1. To what extent are you inclined to understand the motives of the behavior of persons with disabilities?
2. To what extent do you tend to understand other people's feelings?
3. To what extent are you inclined to recognize the problems of the disabled people?

The system of assessing the behavioral and reflexive aspect is similar to the system of assessing the level of empathy.

The survey involved 300 students at the Moscow Humanitarian Economic University of the Humanities Faculty in the field of Journalism and Psychology, the Faculty of Economics and Management, the Faculty of Law and 300 students at the Moscow Technical University of Communications and Informatics at the Faculty of Information Technology, Radio and Television, Economics and Management. The number of respondents in each university (300 persons) demonstrates the sufficiency of the sample under general totality (> 30 persons) (Reid, 2015). The sample representativeness is indicated by the coverage of students from different faculties at universities with the developed conditions for training students with disabilities and without appropriate conditions, students of all years of study, of different sexes and nationalities.

To determine the levels of students' attitudes toward inclusive education, the Fibonacci scale is applied in the study. According to formula (1), the levels of indicators of student youth's attitude to inclusive education are defined (Table 1).

Table 1
Classification of the levels of indicators of student youth's attitude to inclusive education in MHEU and MTUCI

Level	Values of ballpoint scores, scores
Cognitive aspect	
Low	(21-35]
Average	(13-21]
High	[0-13]
Empathy	
Low	[0-9]
Average	(9-15]
High	(15-25]
Behavioral aspect	
Low	[0-5]
Average	(5-9]
High	(9-15]
Reflection	
Low	[0-5]
Average	(5-9]
High	(9-15]

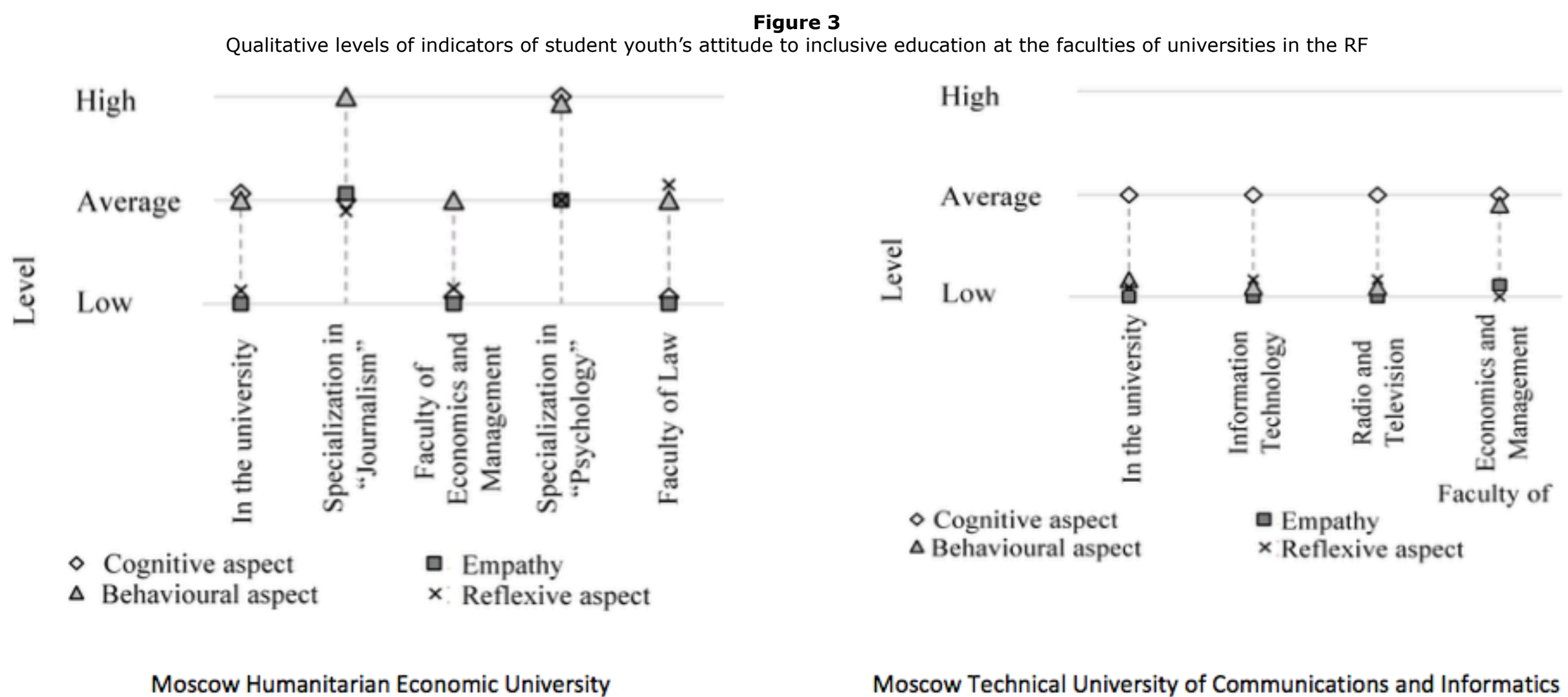
To evaluate the tolerance, 7 criteria are used, each of which is evaluated in the range of "0-5", therefore the minimum possible amount of points for the 1st survey block is "0", the maximum is "35". The survey provides for the setting of whole points: "0", "1", "2", "3", "4", "5", and therefore the limits of tolerance levels were: [0; 13], (13; 21], (21; 35]. The survey was based on an assessment of students' negative attitudes toward inclusive education, where the score "0" corresponded to the highest level of tolerance, so the high level of tolerance corresponds to the sum of the scores [0-13], the

average level – (13-21), the low one – (21-35).

As for the 2nd block (empathy) the minimum total points is "0", the maximum is "25", the limiting values of the empathy levels are [0-9], (9-15), (15-25]. As there is a direct dependence between the assessment and the level of empathy (the greater the value of the score, the higher the level of empathy), the low level of empathy corresponds to the sum of the scores [0-9], the middle one (9-15), the high one (15-25).

Regarding the 3rd and 4th blocks (behavioral and reflection), the minimum sum of the scores is "0", the maximum is "15"; levels of perception of the possibility of joint learning with disabled people and levels of reflection are: low – [0-5], medium – (5-9), high – (9-15).

Based on the results of the assessment of students' attitude to inclusive education who study at the Moscow Humanitarian Economic University and the Moscow Technical University of Communication and Informatics, we can conclude that empathy and reflection are on the low level, cognitive tolerance on the average level in both universities, and also the perception of the possibility of co-education with disabled people is on the average level in the Moscow Humanitarian Economic University and on the low level in the Moscow Technical University of Communications and Informatics. For students of the Faculty of Humanities in the educational program specialization in "Psychology" and "Journalism", the students' attitude towards disabled people and inclusive education is more benevolent than at the Faculty of Economics and Management and the Faculty of Law and Technology (Figure 3).



As the study showed, from the list of indicators characterizing the cognitive aspect, the most negative reaction among students is caused by: nervousness and unaesthetic appearance of disabled people (the average score – "4" for the Moscow Humanitarian Economic University and "3" for the Moscow Technical University of Communications and Informatics);

taciturnness / talkativeness, resentment, bad manners, impatience (the average score – "3" for the Moscow Humanitarian Economic University and "2" for the Moscow Technical University of Communications and Informatics).

The most patient students are to such a human quality as sluggishness (the average score – "1-2").

In terms of assessing the level of empathy, most students do not care about the problem of persons with disabilities. For 52% of students at the Moscow Humanitarian Economic University and 48% of students at the Moscow Technical University of Communications and Informatics, the average sum of scores for the block of empathy indicators is low: 1-2 points for the answer.

Assessment of the possibility of training disabled people on a common basis with students is at the average level of 2 points. For 42% of students at the Moscow Humanitarian Economic University and 35% of students at the Moscow Technical University of Communications and Informatics, the value of this indicator was low and average, respectively 58% and 56% of students are ready for joint education with students with disabilities.

Readiness of students' interaction with invalids on a high level was estimated by 19%, on the average level – 48%, on the low level – 33% of students at the Moscow Humanitarian Economic University. Distribution of answers of students at the Moscow Technical University of Communications and Informatics is as follows: the high level – 16%, the average level – 47%, the low level – 37%.

About 90-91% of students agree with the statement that training with disabled people does not impair the quality of education (the average value of the grading score on the issue is at a high level).

To systematize and form a hierarchical structure of the indicators of students' attitudes toward students with physical disabilities, the factor matrix of the questionnaire "Students' Attitudes to Inclusive Education" has been formed in the institutions of higher education under investigation in Russia. The system of indicators was formed: the relation to sluggishness (X1); attitude towards taciturnness / talkativeness (X2); attitude towards resentment (X3); attitude towards nervousness (X4); attitude towards bad manners (X5); attitude towards impatience (X6); attitude to the non-aesthetic appearance (X7); answers to the questions "To what extent are you disappointed by the loneliness of people with disabilities?" (X8); "Do you take personally the problems of people with disabilities?" (X9); "To what extent are you concerned with hardships of people with disabilities?" (X10); "To what extent does your mood depend on the mood of persons with disabilities?" (X11); "To what extent do you feel the unfair treatment towards people with disabilities?" (X12); "To what extent do you assess the possibility of training disabled people with all students?" (X13); "To what extent are you ready to interact with people with disabilities without any difficulties?" (X14); "To what extent do you agree with the statement that training with disabled people does not impair the quality of education?" (X15); "To what extent are you inclined to understand the motives of the behavior of persons with disabilities?" (X16); "To what extent do you tend to understand other people's feelings?" (X17); "To what extent are you inclined to recognize the problems of the disabled people?" (X18). To implement factor analysis, the Statistica 10.0 program was applied.

The total percentage of variance of these indicators is 88%, which demonstrates the representativeness of the selected indicators for peer review of students' attitude to inclusive education and the statistical significance of factor analysis results. The optimal number of factors that describe students' attitude to inclusive education is determined by the Kaiser criterion. According to this criterion, those factors whose eigenvalues exceed 1.0 are relevant (Menke, 2018).

Identification of the composition of factors (indicators forming the factor) is based on factor loads determined by the program using the factor model (2). Statistically significant factor loads are loads whose values are not less than |.70| (Menke, 2018). Therefore, the indicator refers to the factor with which the correlation coefficient (factor load) is $\geq |0.70|$.

The factor matrix of the questionnaire "Students' Attitudes to Inclusive Education" is as follows (Table 2).

Table 2
Factor matrix of the questionnaire "Students' Attitudes to Inclusive Education" in MHEU and MTUCI

Factor	Explicable dispersion, %	Indicators forming a factor					
		X1	X2	X3	X4	X5	X6
Attitude to the psychological characteristics of students with disabilities (F1)	35.1%	X1	X2	X3	X4	X5	X6
Readiness for interaction with students with disabilities in the learning process (F2)	28.9%	X11	X14	X16	X17	X18	-

Attitude towards personal problems of students with disabilities (F3)	12.6%	X8	X9	X10	X12	-	-
The effectiveness of joint learning with students with disabilities (F4)	7.2%	X13	X15	-	-	-	-
Attitude towards the appearance of students with disabilities (F5)	4.2%	X7	-	-	-	-	-

The adequacy of factor analysis is indicated by the percentage of cumulative variance (88%) with a statistically significant level of 70% (Menke, 2018).

The factor matrix has confirmed the psychological and pedagogical classification of the students' attitude to inclusive education ("cognition – empathy – behavior – reflection"), only with a deeper specification, which is incorporated into the basis of the questionnaire. Thus, the cognitive aspect is divided into 2 factors: the Factor of the relation to psychological features of students-invalids with dispersion 35.1% and the Factor of the relation to appearance of students-invalids with dispersion 4.2%; the level of empathy characterizes the Factor of attitude to personal problems of students with disabilities (% of variance is 28.9%); behavioral aspect – the Factor of the effectiveness of coeducation with students with disabilities (% of variance – 7.2%).

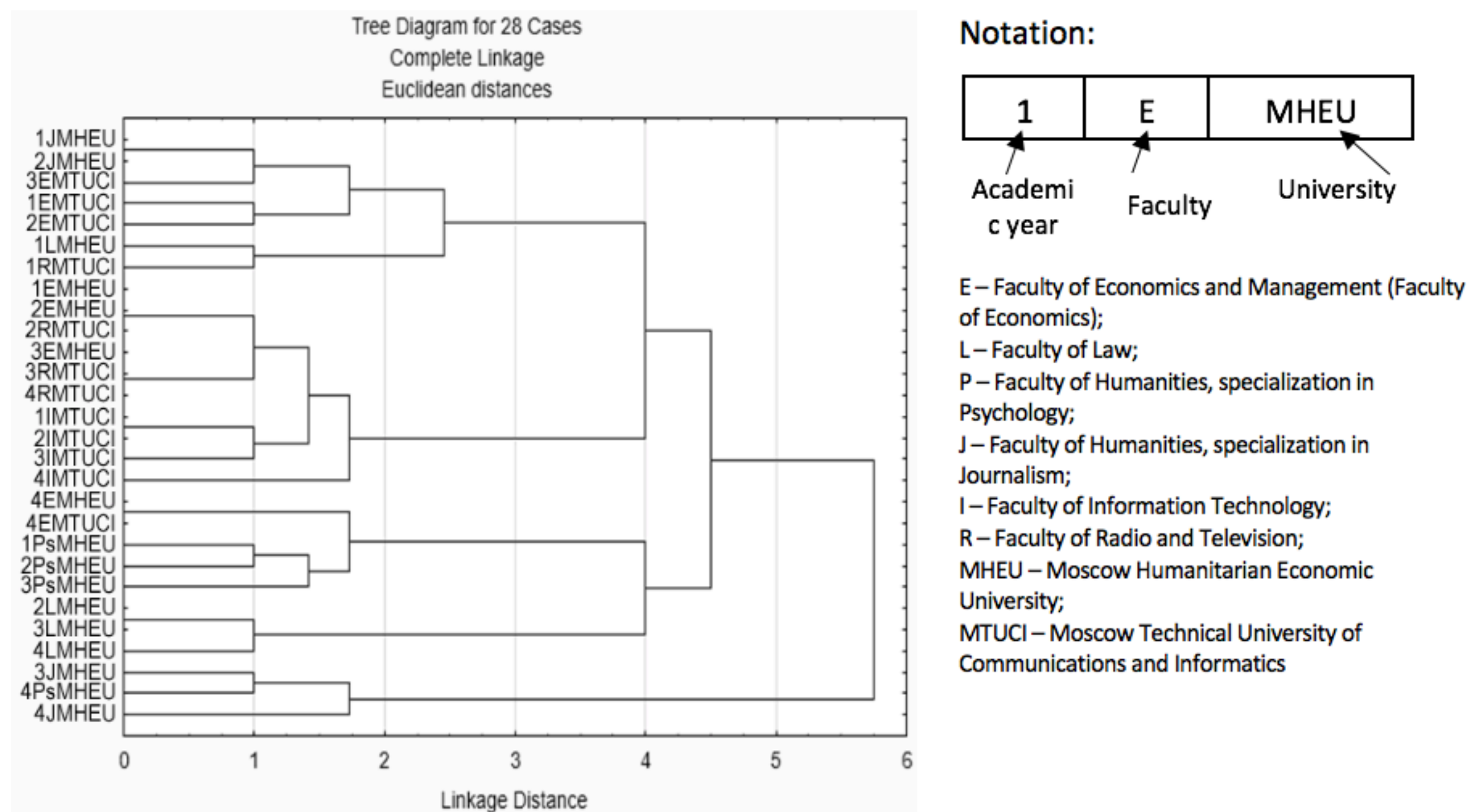
The factor of readiness for interaction with students with disabilities in the learning process includes 5 indicators and characterizes the possibility of interacting with people with disabilities, the level of reflection and the degree of dependence of one's mood on the mood of persons with disabilities.

The study showed that the highest share of the variances (35.1%) is inherent to the psychological characteristics of students with disabilities, therefore it is decisive for students' attitude to inclusive education, that is, to the perception of disabled people in the educational environment as equal members of society.

On the basis of a sociological survey and a factor matrix of priorities, a classification of students of MHEU and MTUCI according to the indicators of students' attitudes toward inclusive education in the system of higher education in the RF was performed in the context of the psychological and pedagogical classification of aspects of relations.

Cluster analysis was used to identify student youth groups: the hierarchical classification method and the k-means method, implemented in Statistica 10.0 (Figure 4). This research method implementation is based on minimizing Euclidean distances between clustering objects (formula 3).

Figure 4
Dendrogram of clustering students' groups in relation to inclusive education in MHEU and MTUCI



To confirm the adequacy of cluster analysis, the dispersion analysis was used in the study, the results of which are presented in Table 3.

Table 3
Indicators of the variance analysis of the clustering results of student groups in relation to inclusive education in MHEU and MTUCI

Indicator	Between - SS	df	Within - SS	df	F	signif. - p
Cognitive tolerance	20.63	4	5.80	23	20.47	0.000000
Empathy	10.30	4	0.67	23	88.82	0.000000
Behavioral aspect	19.68	4	9.18	23	12.32	0.000017
Reflection	9.55	4	5.12	23	10.72	0.000047

Criteria for assessing the adequacy of cluster analysis are statistical characteristics such as intergroup and intragroup dispersion, the Fisher criterion (formulas 4-6). For all indicators, the value of the intergroup dispersion (Between-SS) exceeds the value of the intragroup (Within-SS) one: for the group of indicators of cognitive tolerance, the value of the intergroup dispersion is 20.63, intragroup dispersion is 5.80; for indicators of empathy – 10.30 and 0.67, respectively; for indicators characterizing the behavioral aspect, – 19.68 and 9.18; for indicators that determine the level of reflection – 9.55 and 5.12.

Exceeding the values of the intergroup dispersion over the intragroup one, the calculated values of the Fisher's criterion (F) over the tabulated (2.82) ones; the error level (signif.-p), not exceeding 0.05 (Rousseau et al., 2018), indicate the adequacy of clustering results.

By reference to Figure 2 and the characteristics of the cluster analysis, five clusters of students are distinguished, whose characteristics of attitude to inclusive education are given in Table 4.

Table 4
Quantitative characteristics of clusters of students according to indicators of their loyal attitude to inclusive education in MHEU and MTUCI

Cluster	Members of the cluster	Mean			
		Cognitive tolerance	Empathy	Behavioral aspect	Reflection
1	1JMHEU, 2JMHEU, 1LMHEU, 1EMTUCI, 2EMTUCI, 3EMTUCI, 1RMTUCI	20.3	9.2	5.2	4.4
2	1EMHEU, 2EMHEU, 3EMHEU, 2RMTUCI, 3RMTUCI, 4RMTUCI, 1IMTUCI, 2IMTUCI, 3IMTUCI, 4IMTUCI	20.6	6.0	4.0	3.0
3	4EMHEU, 4EMTUCI, 1PsMHEU, 2PsMHEU, 3PsMHEU	16.1	9.0	5.5	5.3
4	2LMHEU, 3LMHEU, 4LMHEU	23.0	9.8	6.0	5.6
5	3JMHEU, 4PsMHEU, 4JMHEU	10.4	10.0	9.9	5.0
Mean for all clusters		18.1	8.8	6.1	4.7

Based on the average values of the indicators (Table 3), students of the 5th and 4th clusters demonstrate the most loyal attitude to inclusive education. Next in order of decreasing loyalty are: members of the 3rd, 1st, 2nd clusters.

4. Discussion

As the result, on the basis of the research, it can be shown that in the system of higher education there is a differentiated attitude of students towards the integrated training of persons with special needs. In general, for all selected clusters, applying the presented classification of the levels of indicators of students' attitudes toward inclusive education (Table 1), there was determined: the average level of tolerance – 18.1; the low level of student empathy – 8.8; the average level of the behavioral aspect – 6.1 and the low level of reflection – 4.7.

The first cluster of student groups is characterized by the low level of reflection. The second cluster has the low level of empathy, reflection and students' behavioral aspects. The weak point of the third cluster is the low level of empathy of students, as for the fourth cluster – the low level of tolerance. Vulnerable for students of the fifth cluster is the low level of reflection within the framework of integrated inclusive education in higher education.

The results of the research testified to a higher loyal level of perception of disabled people by students at the humanitarian, economic, and law faculties in MHEU and MTUCI. The overwhelming number of groups of students from these faculties formed the fifth and fourth clusters of loyalty (Table 4). That is, it can be noted that this is fostered by an in-depth study of psychological disciplines at these faculties by students, which allow them to develop skills of empathy, reflection and tolerance to the surrounding social environment at a higher level as compared to students at the Faculties of Economics, Radio and Television (Documents Regulating the Educational Process in Higher Education, 2017). Nevertheless, groups of students from the Faculties of Law, Sociology and Journalism, Psychology and Pedagogy also formed the third and first clusters, characterized by a low level of loyalty to inclusive education (Table 4). This provision is explained by the fact that the individual psychological characteristics of the student's personality (temperament, upbringing, will, etc.) as a shaped social subject under the influence of the environment and life conditions are also an essential factor of the attitude.

It should be noted that students' attitude towards inclusive education is not the information that can be conveyed. The attitude is shaped based on psychological factors, as it was proved in the study. Consequently, the pedagogical task in the system of higher education within the development of an inclusive educational platform in modern conditions is the formation of pedagogical conditions for stimulating and developing students' loyal perception of disabled people as full-fledged members of society. In this regard, within the framework of this study, specialized workshops on the criteria of psycho-pedagogical aspects of the individual's attitude have been developed. The practical implementation of the presented and similar group exercises in the educational process by a teacher-psychologist in the system of higher education in the RF should be carried out on a regular basis during extracurricular activities or curatorial hours, additional electives at the university.

The objectives of the development of tolerance among students as a sociocultural environment for disabled people are the development of the following skills:

- minimization of negative emotional manifestations;
- stress relief in a student group;
- teaching self-regulation skills;
- emotional sensitivity support;
- development of the emotional stability;
- development of the volitional system;
- actualization of the desire to communicate with people with disabilities;
- upbringing of a positive attitude to them as full-fledged members of society.

The development of these skills will be facilitated by follow-up workshops developed on the basis of an activity-based approach.

Assignment "We are similar"

Procedure. A group of students sit in a circle. The teacher invites one of the students to the circle on the basis of any real or imaginary resemblance to himself/herself. For example: "Alexander, please come to me, because we have the same hair color (or we are similar regarding the fact that we are the inhabitants of the Earth, we study at the same university or we are of the same height, etc.)." The student stays in a circle and invites one of the participants out in the same way. The game continues until all students of the group are in a circle, inviting others for a certain similarity.

The purpose of such exercise is to create a relaxed and welcoming atmosphere in a student group; the development of intra-group trust and cohesion.

Assignment "The best definition of tolerance"

Procedure. The teacher divides the students into groups of 5-6 people. Each group has to work out and formulate the wording of the concept of "tolerance" through "brainstorming". It should be emphasized that students should include in this definition what they consider to be the essence of tolerance. The interpretation of the definition should be concise, but substantial. After discussion, the representative from each group of students presents the formulated definition of the concept by all group participants. After the end of the discussion in the groups, the presented definitions are written out on the board or on a large sheet of Whatman paper.

After the discussion process, the teacher presents definitions of tolerance available in the scientific literature for students to familiarize and express their opinions on:

- the existing differences between the presented definitions;
- common points and characteristics in the presented definitions;
- which definition is the most accurate and comprehensive;
- formulations of the general definition of the concept of "tolerance".

The goal of such an exercise is to form a clear understanding of the notion of tolerance and the development of the ability to identify the boundaries between concepts.

Assignment "Development of the emblem of tolerance"

Procedure. On the basis of understanding and assimilation of the content of tolerance, students should independently represent such an emblem that could most fully and exhaustively present the essence of tolerance in the form of a drawing. The drawing process takes 10-15 minutes. On the work completion, students view each other's drawings (for this you can freely move around the audience). After getting acquainted with the results of other students' creativity, participants are divided into subgroups by the criterion of similarity between the drawings. It should be emphasized that each student independently decided to join a particular group. As a result, each formed subgroup should argue common particularities of their drawings and formulate a slogan that would reflect the essence of their emblems (discussion: 7-10 min.). The final stage of this exercise is the presentation of each subgroup's emblems with an explanation of its content and the proclamation of the slogan of tolerance.

The goal of the assignment is the development of expressive forms of display and fantasy, the ability to work in a group and to take into account a different opinion.

To develop empathy among students in the context of the proliferation of inclusive education, the following types of workshops are offered. The key targets of using these exercises in the learning process are:

- understanding the content of the definition of "empathy" in students;
- awareness of their emotions and feelings regarding people with disabilities;
- development of skills required to recognize the emotional states of people with disabilities;
- formation of empathic ability, empathic understanding of the interlocutor.

Assignment "Drawing by the two together"

Procedure. The teacher sets the following rules for the task: draw in silence; it is forbidden to exchange pencils with each other; it is forbidden to push each other. Students are divided in pairs and draw a house, a tree and a little man with one pencil. Making a drawing should be performed without prior agreement on the person in a pair of performers. Students should pick up pencils and twist their hands, put a dot on a sheet of paper and, without taking a pencil from the paper, draw parallel lines.

After the work is completed, a discussion takes place: What feelings did you have? Who painted which object? Who confidently held a pencil? Was it difficult to draw in the suggested conditions? Was there consistency in the work? What was the difference between the tasks? What was common?

The purpose of the exercise is to develop the skills of an empathic understanding of the interaction partner.

Assignment "My feelings today"

Procedure. The teacher offers students cards with a picture of different shades of mood (Figure 5). Participants should choose emotions that are the most similar to their mood, the mood of the father, mother, brother, sister, friend, cat, etc.

On completion of the assignment, you should discuss: Why did you choose this "mood"? How did you find out that your father is in such a mood today? How can you help him improve it (if the mood is bad)?

Figure 5
Supporting material for the task "My feelings today"



The goal of the assignment is to develop students' skills of understanding the emotional state of the interlocutor or partner in the process of

communication.

Assignment "Create a positive image"

Procedure. The teacher suggests that students close their eyes and remember the student with whom it is difficult to establish a normal relationship. The presentation is held for 7-10 minutes. Participants try to see and hear it in their thought. After the appearance of a clear image, students open their eyes and should find at least five positive traits in the actions and character of this person and describe positively. For example: instead of "lazy" – able to abandon steep demands; instead of "stubborn" – able to say "no", to object to authorities, to have their own point of view; instead of "timid" – able to avoid threatening events; instead of "aggressive" – capable of responding to something spontaneously and directly, to protect yourself, etc.

The purpose of the task is to formulate the ideas of the influence of a positive attitude on the quality of communication in a sociocultural environment. In order to develop reflection in students they are encouraged to introduce the following types of workshops into the educational process.

Assignment "Compliment"

Procedure. The teacher offers every student, a participant in the interaction, who is in the circle, to say a compliment to the person sitting on the left (or on the right). If desired, you can use some things (a pen, a postcard) or a live flower, which will create an atmosphere of favorable communication (especially if there are girls in the group). The teacher sets the algorithm of reflection:

- describe your emotional state;
- explain the reasons for the positive mood;
- get a fix on your emotional uplift;
- think about why we say compliments to each other;
- why do negative addresses appear in our thoughts faster and more often than positive treatment?
- what would the world be if all people spoke only positive and soulful words?

The goal of the assignment is to develop skills of self-analysis and self-understanding.

Assignment "Commission store"

Procedure. The teacher suggests making a game "in the commission store". Goods that the seller accepts are human qualities, for instance: kindness, stupidity and openness. Students write down the traits of their character, both positive and negative on the card. Then it is suggested to make a bargain in which each of the participants can get rid of some unnecessary quality, or a part of it, and acquire something necessary. For example, someone lacks eloquence for the effective life, and he can offer for it some part of his/her calmness and sobriety. At the end of the task, the results are summed up and the impressions are discussed.

The purpose of the exercise is the formation of skills of self-analysis, self-understanding and self-criticism; identification of significant personal qualities for teamwork; the deepening of knowledge about each other through the disclosure of each participant's qualities.

Assignment "Self-portrait"

Procedure. The teacher sets the conditions for presenting students with a situation when they are going to meet a stranger and need to be recognized by him. It is necessary to describe yourself using the most characteristic features, find such features that distinguish a person from the crowd; describe your appearance, gait, manner of talking, dressing; typical gestures can be mentioned as well. The work is held in pairs. During the presentation of one of the partners, another person can ask clarifying questions, in order to make the "self-portrait" more complete. The discussion takes 15-20 minutes and is held in pairs.

At the end of the assignment, participants sit down in a circle and share their impressions with each other.

The goal of the task is the formation of the skills of recognizing an unfamiliar personality, the development of the skills of describing other people on various grounds.

It should be noted that the most important component of the effective process of forming and developing students' perception of disabled people as full-fledged members of society within the framework of integration of an inclusive educational platform in the system of higher education in the RF is the organization and conduct of public educational events. This approach will increase the level of the behavioral aspect of student youth's attitude. Realization of eventivity is possible through the organization and holding of significant public events: master classes, trainings, workshops, youth intellectual games, international conferences and student competitions. The eventual poly-cultural community is characterized by the completeness of connections and relations between representatives of different groups of students, which are achieved through joint life-sustaining activity and a series of significant social events that determine the formation of tolerance of those who teach them in interaction.

5. Conclusion

On the basis of the empirical study, the following conclusions were drawn.

- The formation of a favorable socio-cultural environment in the system of higher education in the Russian Federation is one of the essential factors for the effective implementation of an inclusive education platform. In this regard, a classification of the levels of indicators of student youth's attitude to inclusive education in the system of higher education is developed according to the criteria of tolerance, empathy, behavioral aspect and reflection. It is established that the determining factor in students' attitude to disabled people is the attitude to the psychological characteristics of students with disabilities.
- Classification of the levels of indicators and a factor matrix of students' attitude to the integration of inclusive education in the overall system allowed identifying 5 clusters of students according to the aggregate levels of indicators of students' attitude to disabled people. It is determined that students in the universities under investigation in Russia have the average level of tolerance – 18.1; the low level of empathy – 8,8; the average level of the behavioral aspect – 6.1 and the low level of reflection – 4.7. It is reported that the insufficiently loyal level of young people's attitude to people with disabilities is determined primarily by the personal characteristics of the individual and by the available training of students in psychological disciplines within the framework of the university curriculum.
- The developed list of group classes for students at MHEU and MTUCI is based on the activity approach and is aimed at developing tolerance, empathy, behavioral aspect and reflection in students with the goal of effectively integrating inclusive education in the modern higher education system in the RF. Practical introduction of such gaming technologies into the educational process in the university have a number of advantages: they are implemented with reliance on the student's activity, consciousness and independence; oriented not on verbal impact, but on the activity of students themselves; provide a subjective freedom in the choice of activity and its components. This approach serves as the basis for the development of the educational system that shapes students' social and value qualities, adequate to the needs of modern Russian society.

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