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Определение интегрального коэффициента психологической комфортности образования в сельской школе

Введение. Современный изменчивый глобальный цифровой мир все чаще обозначает проблему безопасности человека, которая напрямую связана с его психологической комфортностью. В этом контексте актуальным становится исследование, касающиеся оценки состояния психологической комфортности образования в сельских школах.

Цель исследования – изучить состояние психологической комфортности образования в сельской школе.

Материалы и методы. Использовались методы теоретического контент-анализа, сравнительного анализа, анкетирование с помощью Google-форм. Методы математической обработки (расчеты по формулам для показателя отношения к образовательной среде, индекса удовлетворенности характеристиками среды, индекса защищенности в соответствии с методикой И.А. Баевой). В анкетировании приняли участие 3223 респондента из 10 регионов Российской Федерации, на основе полученных данных выполнен метаанализ 217366 эмпирических фактов.

Результаты исследования. Главной характеристикой выступил интегральный коэффициент психологической комфортности образования в сельской школе, который, согласно модернизированной методике И.А. Баевой, определен на основе трех показателей. Интегральный показатель отношения к образовательной среде зафиксирован в процентах и характеризуется средним и высоким уровнями удовлетворения средой со стороны учителей, обучающихся и их родителей (от 61% до 80 %). Индекс удовлетворенности значимыми характеристиками образовательной среды (используется порядковая шкала от 1(min) до 5(max)) показывает, что в 9 из 10 регионов зафиксирован более высокий уровень удовлетворенности для учителей и родителей (высокий интегральный показатель – 3-3,9) по сравнению с обучающимися (средний интегральный показатель – 2-2,9). Индекс психологической безопасности образовательной среды школы отражает более высокую степень защищенности родителей (высокий интегральный показатель – 3-3,9) по сравнению с детьми и учителями (интегральный показатель ниже среднего – 1-1,9).

Значимость исследования. Полученные результаты могут быть полезными для руководителей образовательных учреждений, педагогов и родителей, заинтересованных в создании и поддержании психологически комфортной среды в сельской школе.

Ключевые слова: сельская школа, психологический комфорт, образование в сельской школе, образовательная среда, интегральный коэффициент психологической комфортности

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Determining the integral coefficient of psychological comfort of rural school education

Significance of the study. The modern global digital world often represents a threat to human security which is directly associated with psychological comfort. In this context, the research aimed at assessing psychological comfort of the educational environment in rural schools seems to be particularly relevant.

The objective of the study is to study the state of psychological comfort of education in a rural school.

Methods. The methods of theoretical content analysis, comparative analysis, methods of mathematical processing were used (calculations by formulas for the indicator of attitude to the educational environment, the index of satisfaction with the characteristics of the environment, the index of security in accordance with the method of I.A. Baeva), Google-forms. The Google survey involved 3223 respondents from 10 regions of the Russian Federation; meta-analysis of 217366 empirical facts was performed.

Research results. The main characteristic was the integral coefficient of the psychological comfort of education in rural school, which, according to the modernized methodology of I.A. Bayeva, is determined on the basis of three indicators. The integral coefficient of the psychological comfort of education in rural school was determined, which consisted of three indicators. The integral indicator of attitude to the educational environment is recorded as a percentage and is characterized by medium and high levels of satisfaction with the environment on the part of teachers, students and their parents (from 61% to 80%). The index of satisfaction with significant characteristics of the educational environment (an ordinal scale from 1 to 5 is used) shows that in 9 out of 10 regions a higher level of satisfaction was recorded for teachers and parents (high integral indicator – 3-3.9) compared with students (average integral indicator – 2-2.9). The index of psychological safety of the educational environment of school shows a higher degree of protection of parents (high integral indicator – 3-3.9) compared with children and teachers (integral indicator is below average – 1-1.9).

Research significance. The results obtained can be useful for heads of educational institutions, teachers and parents interested in creating and maintaining a psychologically comfortable environment in rural school.

Keywords: rural school, psychological comfort, rural school education, educational environment, integral coefficient of psychological comfort

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Introduction

In the era of the fourth technological revolution, rapid development of the world, and the changing social mandate, the rural schools are experiencing various problems, which are becoming more pressing. However, pursuing to solve urgent problems, it is important to create a favorable educational environment in rural schools. It is psychological comfort that can aid the solution of many problems of school life and educational activities.

The domestic and foreign literature review has shown that there is a growing interest in this issue. There are many domestic authors whose research and articles are devoted to rural school. L.V. Bayborodova explores the socio-economic conditions for the education of rural schoolchildren, the problems of education and upbringing of different ages [3; 4], V.R. Yasnitskaya is developing issues of social education of students [40]. Domestic researchers are building a strategy for the development of rural schools [36], including analyzing the possibilities of using the resources of rural areas for educational activities [12]; Z.B. Eflova and R.M. Sheraizin are developing the concept of lifelong education of a rural teacher in modern conditions [8; 34]. G.G. Sillaste studies the problems of value orientations of teachers, schoolchildren and their parents in a market economy in the countryside [31].

The relevance of research in the field of rural school education is acknowledged by our foreign counterparts who have made etymological analysis of various interpretations of 'rural', identified the purpose and function of rural school education, and also considered the relationship between rural and urban schools and community [14].

Psychological comfort is defined as an emotional state which is manifested in human activities [26]; it is associated with intellectual comfort which is seen as student satisfaction with their learning activities, outcomes and grades [38]. This term correlates with other terms, such as 'group morale' [33], 'psychological safety of educational environment' [5], 'psychological climate' [22]. Our research literature review has shown that [6; 41] offer more detailed analysis of the concept of 'educational environment'.

An assessment of the educational environment quality in terms of its potential for personal development is presented in the study by Laktionova [23], who is also interested in the development of theoretical foundations for psychological testing of the learning environment. The domestic researchers are involved in developing diagnostic testing techniques for the educational environment parameters [21].

The review of the educational research suggests that the rural school problems are currently identified and recognised, but they are not considered holistically, which definitely requires further research agenda.

Based on the said above, we set the goal and objectives of the study. The goal is to study the state of psychological comfort of education in rural school.

Research objectives:

1. To define the essence of the concept of "psychological comfort of education in modern rural school" with the identification of the components of the structure of the educational environment.

2. Collect an empirical data set in accordance with the necessary diagnostics and determine the integral coefficient of the psychological comfort of education in rural school.

Literature Review

There are a lot of Russian and foreign researchers and educationalists who e specific aspects of psychological comfort of school education.

Psychological comfort is primarily considered as a state, usually emotional state, which is manifested in human activities. The state of mental comfort implies optimal levels of mental activity, and optimal mental functioning. Physical comfort is associated with positive psychophysiological changes in the body which improve human life. A comfortable state is related to favorable conditions of the living environment [26].

Foreign researchers give consideration to psychological comfort of rural schoolchildren in the context of transition of our society towards urbanization and reduction in the number of rural schools. They come up with the idea of using the network educational model, when one of the rural schools becomes a kind of an educational center. However, there arises a problem which is associated with management of school networks [39]. In Russia, there are similar processes of creating so called flagship schools. There is an internet community of rural school teachers called Rural School Collaboration whose purpose is to help teachers exchange relevant information; collaborate on mutual issues and projects; explore funding opportunities for rural schools [29]. Rural schools cooperation is provided with small staff and the region contact centers. These educational practices improve psychological comfort of rural teachers.

The Ministry of Education of Chile conducted a study on how to create an effective management model for rural schools. The study considered the issues of favorable location and preservation of schools, as well as issues of reducing the cost of transporting schoolchildren [14]. Rural students will feel comfortable at school if they are provided with the same resources as urban schoolchildren, which means providing rural schools with the Internet access [9]. Katane describes one more resource for the rural school development. The author thinks that rural schools should expand their target audience integrating formal and informal education and training and expanding the range of functions. This will partially solve the problem of balanced development of rural schools compared to urban ones [19].

Hargreaves emphasizes the importance of partnerships between parents, school and rural community. This collaboration maintains the schoolchildren emotional state and is established in the process of development of a locally relevant curriculum based on the nature and types of activities of a given settlement [13], or participation in school-based initiatives towards care and support [20]. Shamah points to the important role of extracurricular activities (sports, theater, band, Future Farmers of America) and community-based activities (for example, community symphony, community classes, community events), along with work experiences, which are all important for developing a strong sense of purpose that will further contribute to their professional education [32]. Zuckerman analyses partnership between rural school and community stating that it supports rural schools and improves quality of the educational process [42]. This collaboration provides an opportunity for cooperation, coordination of actions of all interested agents: educational, health-care, non-profit and public organizations, which may contribute to enhancing psychological comfort at school [1; 17].

John Hattie synthesises more than 50,000 studies in one of his books, and he also addresses this problem focusing on the internal factors of the school learning environment stating that:

- the situation when teachers can discuss professional problems identified during the analysis of their teaching practices with their colleagues has positive consequences;
- the main factor that contributes to a favorable psychological climate in the classroom and, as shown by meta-analyses, has the most impact on learning outcomes, is group cohesion – a feeling that everyone (teachers and students) work together to achieve positive learning goals [15].

Haertel & Walberg also argue that there is a positive correlation between learning productivity and group cohesion, learning satisfaction, task difficulty, and focus on achieving goals. They prove that disagreement, isolation, apathy and disorganization have a negative impact on learning outcome [16]. Johnson & Johnson report that cooperation between adults has a positive effect and contributes to better achievements, stronger interpersonal relationships and social support, improved self-esteem [18]. Evans & Dion confirm that the effect of group cohesiveness on learning productivity is stable and positive [10]. The fact stated in the study by Mullen & Copper is particularly significant for our study; they report that small groups, which are typical of many rural schools in Russia, have the highest degree of cohesion [25].

Thus, foreign studies reveal both external and internal factors influencing psychological comfort of rural school education. The sustainability of the rural school is significantly influenced by active participation of social institutions that operate in rural areas, provided that the demographic situation in a particular settlement does not deteriorate. Thus, as the experiences in other countries show, preservation of rural schools has clear advantages, and requires new educational technologies and teaching methods that correspond to the didactic base of small schools in Russia.

Domestic and foreign research creates the basis for a comprehensive and conceptual consideration of the issue. However, the analysis of scientific publications and educational practices shows that there is no clearly defined concept of 'psychological comfort of education' in the context of the rural school; no studies have been conducted to identify an integrated indicator of psychological comfort of the educational environment and education in rural schools.

It is necessary to note only separate studies devoted to the monitoring of the components of the psychological comfort of education: conducting a psychological examination of the educational environment through the assessment of the indicators of the personal development of students in conjunction with the indicators of the personal qualities of teachers [23]; development of an individual psychological map of a student to assess his psychological comfort [24]; creation of a diagnostic package to identify the level of psychological comfort of students [37]; assessment of the social and pedagogical situation in the schools of St. Petersburg [35]. The understanding of the phenomenon of psychological comfort of education in a rural school allows us to determine the line of research, relevant criteria and methods for obtaining information about the state of a particular criterion in rural schools, i.e., to develop the measurement toolkit.

Methods

The study 'Psychological comfort of education in modern rural school' is based on five methodological approaches – integrative-differentiated approach (ensuring that opposite processes happening both in rural school education and in research procedures are taken

into account), value approach (considering psychological comfort as an educational value), comparative approach (reflecting the comparative nature of the study), statistical approach (indicating the use of mathematical methods of statistics to process the empirical data), inductive approach (reflecting the logic of the research)

The time period of the research was from January 2019 through November 2020.

The criteria corresponding to the research areas of the phenomenon of psychological comfort in rural school education and diagnostic methods are presented in Table 1. The structural and content description includes 5 components of the educational processes taking place in the educational environment, and, accordingly, 7 criteria of psychological comfort.

Table 1

Research criteria and diagnostic techniques used in the research

Research field (education component)	Criteria of psychological comfort	Diagnostic techniques
Object-spatial	Organizational	4 comprehensive questionnaires for school administrators, students of basic general and secondary education, students' parents, teachers [28]. The questionnaires include standardized techniques: a questionnaire for studying the lesson organization from physiological and hygienic standpoints [7]; psychological diagnostics of the school educational environment safety [5]; method for diagnosing psychological conditions of school educational environment [2; 7]; 'School as viewed by parents' questionnaire [30]. Some modifications to the standardized methods were made, in particular, to the method developed by Baeva, to calculate the integral coefficient of psychological comfort of rural school education.
Psychodidactic and informational	Activity-based, teacher's psychopedagogical competence	
Socio-communicative	Communicative, effective communication in the reference group	
Subjective personal	Personal, subjective well-being	

Meta-analysis of 217366 empirical facts (taking into account the number of questions in questionnaires and the number of respondents) was performed, which guarantees credibility of the results.

The Google survey involved 3223 respondents from 10 regions of the Russian Federation including 1438 (44.62%) students of basic general and secondary education (8-11 grades) (<https://clck.ru/MEy8m>); 1043 (32.36 %) parents (<https://clck.ru/MEyL7>); 585 (18,15%) teachers (<https://clck.ru/MEz6Y>); 157 (4.87%) school administrators (<https://clck.ru/MEyaE>). 325 (10.08%) respondents used reserve questionnaires. The general information on the composition of the respondents in each region is represented in Table 2 (excluding reserve questionnaires).

Table 2

Research respondents

Region*	Students			Parents			Teachers			Administration			Total
	rural area	city	total	rural area	city	total	rural area	city	total	rural area	city	total	
1	78	0	78	92	0	92	48	0	48	12	0	12	230
2	52	36	88	35	32	67	21	17	38	5	4	9	202
3	103	41	144	88	23	111	51	20	71	9	3	12	338

4	12	1	13	14	0	14	15	1	16	7	0	7	50
5	248	189	437	88	138	226	72	59	131	16	8	24	778
6	74	39	113	41	38	79	24	12	36	5	2	7	235
7	28	18	46	24	13	37	14	11	25	5	4	9	117
8	2	9	11	9	11	20	6	6	12	1	0	1	44
9	68	44	112	50	56	106	29	25	54	8	7	15	287
10	183	77	260	163	12	175	117	44	161	42	2	44	640
%	65.13	34.87		65.16	34.84		67.06	32.94		78.57	21.43		
Total	1302			927			592			140			2921

* 1 – Vologda Region, 2 – Ivanovo Region, 3 – Kirov Region, 4 – Kostroma Region, 5 – Krasnoyarsk Territory, 6 – Nizhny Novgorod Region, 7 – Perm Territory, 8 – Republic of Dagestan, 9 – Republic of Karelia, 10 – Yaroslavl Region.

Results

Determining psychological comfort of rural school education.

The result of the analysis of the theoretical approaches to understanding psychological comfort of education suggests the following interpretation of the phenomenon:

- the concept of psychological comfort in education is closely related to 'psychological health', 'physical health', 'mental health', 'intellectual health', 'psychological climate', 'ethical climate';
- psychological comfort of education correlates with dynamic balance; balanced processes and parameters of school education, and its agents;
- this phenomenon implies the key role of school in psychological development of an individual, and suggests that the material resources of an educational organization are of secondary importance for the emotional well-being of each of its agents;
- this phenomenon is considered from at least three standpoints:
 - as a psychological characteristic of the educational environment;
 - as a state that develops in the process of an individual's daily living activities as a result of reasonable interaction with school and external environment;
 - as a factor of identification of students with teachers in school learning environment [28].

Determining the integral coefficient of psychological comfort as a complex characteristic of rural school education

The study has found the values for the integral coefficient of psychological comfort of education in rural school compared to urban school for 10 regions of the Russian Federation (full report on the link <https://docs.google.com/document/d/1jJtGxoeJLMLpZiQoiiWcgkof o508Gvv/edit>).

The basis for calculating the integral coefficient value is the modernized technique by Baeva [5] implying determination of a) the attitude indicator for school educational environment (1, as % of positive attitude to the cognitive, emotional, and behavioral components of the environment); b) the satisfaction index for relevant characteristics of the educational environment (2, as an average value from 1 (min) to 5 (max) for the most important characteristics of the environment); c) the psychological safety index (3, as an average value from 0 (min) to 4 (max)). By modernization of Baeva's technique we mean the fact that after calculating the values for the components

indicated above, we use the original table to determine the integral coefficient of psychological comfort of school educational environment taking into account the combination of the three indicators [28].

Due to the large volume of quantitative data in the study and the impossibility of presenting this volume of material in the article, we will present the final qualitative results. The results showing the degree of psychological comfort suggest that the state of the Russian school education is quite satisfactory. However, they show the average of the existing conditions that do not reflect specific problems of the learning process. Nevertheless, the study, showing positive results on the whole, has recorded specific facts which reveal obvious problems.

The technique developed by Baeva assesses the respondents' attitude to the cognitive, emotional and behavioral (conative) components of the educational environment. Determining the integral indicator of the attitude of the agents of the educational process to these components (fluctuations are indicated below), we have found that all groups of respondents in all regions show the lowest relative positive evaluation of the behavioral component. We consider this fact as evidence of problems existing in interaction between the agents involved in organizational activities in a school educational environment. As for fluctuations from the general tendency, the Krasnoyarsk Territory, Dagestan, the Republic of Karelia, and the Yaroslavl region demonstrate the lowest relative positive assessment by urban schoolchildren of the emotional component. It should be mentioned that the teachers' positive attitude to the educational environment in most regions (80%) is higher, or at least not lower than that of their students (the exception is the Perm Territory). Consequently, teachers seem to not always see the problems existing in the modern educational process in both rural and urban schools, looking at the real state of affairs and events taking place in the learning environment through rose-colored glasses.

36 out of 50 groups (72%) of respondents demonstrated the average level of satisfaction with the educational environment and its 11 identified parameters [5]. The data analysis clearly indicates that subjective well-being is still a promising guideline for development and transformation of the educational process in the modern school. 9 out of 10 regions show a higher level of satisfaction for teachers and parents in comparison with students [28]. The proportion of the respondents showing a positive attitude to the school educational environment: the average values of teachers' satisfaction are not lower, and in most cases exceed the values of students' satisfaction. Thus, it can be assumed again that the teachers' assessment of the situation is not always adequate, that teachers "do not see" the "weaknesses" of the educational environment which do not allow schoolchildren to feel comfortable in the educational process. However, these "weaknesses" vary from region to region, which suggests that it is necessary to consider the specific circumstances in each region and identify the underlying reasons.

When analyzing the values of the index of the psychological safety of the school educational environment as one of the components of the integral coefficient of psychological comfort of education, one of the registered tendencies is that of a higher degree of teachers' safety with regard to colleagues and school administration, but lower degree of safety with regard to students. These indicators in magnitude are lower for urban school teachers than those for rural teachers. As a rule, parents give higher scores in terms of safety than their children. The analysis of the specified 'lines of unsafety' again demonstrates a certain 'relationship gap', a problematic nature of interaction between the main agents of the educational process: teachers and students.

We believe that the parameters of the school educational environment make it possible to provide reliable judgment about psychological comfort of education characteristic of this environment. All three standpoints in understanding the phenomenon of psychological comfort in education are manifested and developed in the educational environment which today extends and goes far beyond school thanks to the possibilities opened up by digital technologies. It is possible to influence the psychological comfort of education by transforming the parameters of the educational environment.

Discussions

The experts point to a number of challenges rural schools are facing, which are “staggering at times” [11]. The American scientists associate psychological comfort in rural schools, primarily, with measures aimed at reducing the number of students living in poverty, having the right to free and subsidized meals, at identifying priorities to improve funding strategies and provide further training for administrators and teaching staff.

The analysis of the foreign research on rural schools gives us some insights on how to improve psychological comfort:

- expanding the educational practices called ‘place-based education’. They integrate the requirements of a standard curriculum and the local resources, history and nature of the area. This approach allows educationalists to develop the content of education in a rural school taking into account historical traditions and specifics of the local environment. It was found that place-based education improves the examination results of rural schoolchildren in different subjects, develops critical thinking and improves students’ attitude to learning;
- developing strong relationships with other rural educational organizations to consolidate the resources and educators’ expertise;
- organizing networks of schools and professional communities so that more experienced teachers can help rural educators develop curricula to provide for high-quality classroom activities.

Similar mechanisms are typical for Russian rural school. So, in the works of O.V. Korshunova and S.S. Bykova [28], the ideas on the use of “local” resources in the educational process. Z.B. Eflova [8] and R.M. Sheraizin [34] talk about the need to create network communities of teachers and strengthen ties between educational organizations.

The research data has revealed the so called ‘matryoshka effect’ (Fig. 1) similar to that found by Yasvin in a collective study (1996-2015) where it was reported that different categories of the school educational community have rather different subjective images of it [41]:

- the administration sees the school as “worthy in all respects” showing a kind of patriotism or organizational commitment;
- teachers have a less positive evaluation of their school;
- students studying at this school see it as significantly different from a ‘great’ school run by the school principal;
- parents who receive information from children and teachers typically look at the school through their eyes.

Figure 1 The “matryoshka” effect: different subjective images of ‘their’ school described by different categories of the agents in the educational process

The attitude towards their school is different for different agents in the educational process: schoolchildren focus on only those possibilities existing in the school environment which are available to them personally. Therefore, it is so important to consider the problem of maintaining psychological comfort from the standpoint of various agents. The revealed differences between the perception of the school environment by teachers and students are presented as a statistically recorded difference between educational conditions (today we are trying to “create conditions for ...”) and educational opportunities (what is available to an Individual). The data obtained in our study are consistent with the data of the study by V.A. Yasvin [41]. The “Matryoshka effect” image (Fig. 1) also demonstrates that students show lower relative values of satisfaction with the school educational environment.

The obtained data contradict the results of a study carried out at the beginning of XXI century which recorded a more positive attitude of teachers and students to the educational environment in comparison with their parents [5; 27]. So what has changed over the past 20 years, and why does the positive attitude of students to school tends to decline? This tendency is alarming and requires special attention from academic specialists and practitioners. One more tendency revealed is teachers’ higher safety from colleagues and school administration, but lower indicators of safety from students; parents demonstrate higher safety than their children. These data are also different from those obtained at the beginning of XXI century [5; 27]. Therefore, the situation requires further studies and analysis.

Conclusion

In the course of our research the following conclusions were made:

The concept of "psychological comfort of education in modern rural school" is considered from three positions: as a psychological quality of the educational environment in which the educational process takes place; as a state that arises in the process of an individual's life as a result of his optimal interaction with the internal school environment and external environment; as a factor in the identification of students with teachers in the educational environment of school.

The psychological comfort of education in rural school is a dynamic system, which, in addition to internal factors, is also influenced by external factors (which manifested itself, for example, in the context of the introduction of restrictions to prevent coronavirus infection in March 2020 - February 2021). For rural school, the nearest social environment and the state of the agricultural enterprise on the territory of which the school is located are important.

The integral coefficient of the psychological comfort of education in rural school, measured by three indicators: an integral indicator of the attitude towards the educational environment; selection of significant characteristics of the educational environment and the index of satisfaction with them; the index of psychological safety of the educational environment of school is generally positive, as evidenced by the results of diagnostics. The integral characteristic for rural school is determined for the first time, therefore we had the opportunity to compare only individual data obtained in the course of its calculation with similar data found in psychological and pedagogical science.

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