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PRINCIPAL DIRECTIONS IN THE FORMATION OF HEALTH-SAVING SPACE IN SCHOOL

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Abstract

Health status of modern pupils causes anxiety in the relevant experts, which is not a coincidence: a high percentage of first graders already come to school with a congenital, chronic or acquired diseases. A particular role in valeological education among all school subjects is played by biology. Creation of a health-saving space at the biology classes at school helps to improve physical and mental health of pupils and enhance their competence in the matters related to healthy lifestyle.This paper justifies the need for multidisciplinary work on the creation and implementation of the system of training the basics of health and health education, for both students and teachers: organization of educational process considering its psychological and physiological effects on the students; medical and psychological monitoring of health status; control over the observance of sanitary standards of the educational process and the normalization of the academic load; development and implementation of training programs for the formation of health culture; and organization of and control over a balanced diet at school.

Keywords: health-saving technologies, ecological and valeological competence, biological education, medical and psychological monitoring, sanitary and epidemiological expertise, research activities.

Introduction

Formation of health culture of students becomes one of the priority directions of development of modern education. It is the school that should be regarded both as a social environment and as a health-saving space in terms of human health. Although the educational function of the school is still the leading aspect of its activity, a health status of the pupils becomes an important factor in assessing the extent and quality of education [16]. To date, the Russian secondary school actively develops special measures to preserve and strengthen the health of students. This range of measures is called “health-saving technologies”. The short of their application is to provide an educational environment that will promote health of schoolchildren, their harmonious development, and correction of various

physical problems. Many domestic teachers and methodologists (Iu.K.Babanskii, E.P. Brunovt, N.M. Verzilin, I.D. Zverev et al.) considered in their works the formation of a healthy way of life of students. They identified the goals and objectives of education of healthy lifestyles, their functions, the content of and criteria for success of educational activity. However, nowadays, under implementation of the new federal education standards, a school demand for health-improving and strengthening programs has increased [6,10]. The analysis of the practice shows that the irrational organization of the educational process has a direct impact on pupils' health [23]. Moreover, numerous observations and surveys have revealed that not students have an immature idea of a healthy lifestyle, they do not realize how it is important to start monitoring their health at a young age. Thus, the problem of the study lies in what pedagogical conditions and methodological developments will contribute to the formation of a health-saving space in school.

Methods

This paper involved application of the following methods: theoretical analysis of psychological and pedagogical literature, the study of methodological guidelines on the relevant subject, observation, questionnaire survey, an ascertaining and forming pedagogical experiment, survey, conversation, study of school documentation and products of students' activities.

Results

By the end of the 90s, there was a sharp deterioration in health, in particular, in children and adolescents in Russia. It is enough to present data of the long-term analysis of students' health: 27-28% of first graders are conditionally healthy children, but only 19% of school leavers can be considered virtually healthy. That is, during the school years, including the entire life of teenagers outside of the school, the health loss is 9%. Consequently, the school from the very beginning deals with unhealthy children [22].

To date, reasons that contribute to the deterioration of the health status of students of educational institutions, may be:

1. Excessive stress as a result of the intensification of the educational process (increased number of academic hours, elective classes, etc.).
2. Non-compliance with sanitary standards [8].
3. Spreading of bad habits: smoking, drug use, sedentary lifestyle, poor diet, lack of real prerequisites for the formation of health culture in a family environment.
4. Low qualification level of teachers in applying health-saving technologies in the educational process, etc.

M.M. Bezrukikh in his work “Health-Saving School" also cites a number of risk factors, such as the "inconsistency of educational methods and technologies with the age and functional abilities of schoolchildren; irrational organization of educational activity the adverse socio-economic conditions of life in many families, and the negative impact of environmental and other factors" [4]. Teachers, as well as pupils, suffer excessive education load and stress. To check the neuro-psychological stability (NPS) of teachers, we conducted a survey for the NPS assessment, which results are shown in Table 1. The survey involved the teachers of biology and chemistry, taking advanced training during 2013-2015.

Table 1: Distribution of teachers by the probability of neuropsychiatric breakdowns.

Year	2013	2014	2015
High	28%	22.2%	20.9%
Medium	48%	50%	79.1%
Low	24%	27.7%	0%

Based on the results, we can conclude that the majority of teachers can have nervous breakdown in experimental situations. We also conducted a survey among the teachers of biology and chemistry with a different experience and place of residence.

The survey involved the teachers of biology and chemistry from Kazan and the surrounding areas and villages. The results were as follows: respondents with experience of 1-8 years showed the average NPS score of 17.8; 9-17 years - 23.8; 18-21 years - 23.2; 22-26 years - 22.2; and 27-35 years - 19.3. The surrounding areas had the average NPS score significantly lower than the in city. The results are shown in Table 2.

Table 2: Average NPS score in the city and in the surrounding areas.

YearsofExperience	1-8	9-17	18-21	22-26	27-35
City	20	22.8	23.4	22.6	18.5
District	14.5	20.3	24	23.5	21

Note: 0-6 - high; 7-13 - good; 14-28 - satisfactory; 29-40 - unsatisfactory.

The presented data suggest that the probability of neuropsychiatric breakdowns in teachers is higher in the city than in the regions. But even the average NPS score in the regions does not correspond to a good neuro-psychological stability. The experience increases together with gradual increase in the probability of neuro-psychological breakdowns (NPB), the maximum probability of breakdown falls on the experience of 18-21 years, followed by a

period of slight decrease in NPB. Activity of the modern teacher is one of the most stressful. Subject to these circumstances, in order to improve the health of teachers, we can recommend such things as change of activity, travelling, spending time with family and friends, training, consulting with a psychologist.

A health-saving educational space in the secondary vocational education institutions is a set of material and social conditions and factors, content, forms and methods of functioning of the educational institutions, aimed at the comprehensive development of the personality of the subject of the educational process in the harmony of its three principles: spiritual, moral and physical.

Along with this, there is a concept of "health-saving technologies". For example, N.K. Smirnov writes that "Health-saving educational technologies are a systematic approach to training and education, built on the desire of the teacher to prevent any harm to the health of students" [15]. V.D. Sonkin says that "Health-saving technologies are the education environment of a pupil at school (lack of stress, adequate requirements, adequate training and educational techniques); the rational organization of the educational process, compliance of the academic and physical load with the age opportunities of a child; and a necessary, sufficient and rationally organized motor mode" [5].

In our opinion, the concept of "health-saving educational space" is more correct to use, because it may include several technologies.

Since the early 90s of the XX century, the problem of health saving has been widely discussed at the national level [20]. During this period, the curriculum of secondary general education schools was extended with a new subject - "Basics of Vital Functions Safety". The course was aimed at developing the hygienic, technogenic, social, an environmental expertise in pupils. Scientists such as L.A. Mikhaylov, O.N. Rusak, V.P. Solomin, I.A. Shchegolev engaged in the development of theoretical and methodological foundations of teaching this subject [12, 21]. We should note that in the 90s the preconditions arose for the development of a concept of health-saving school, implementing a comprehensive approach to maintenance and strengthening of health of schoolchildren.

Today, one of the new areas of health maintenance and the formation of a healthy way of life of pupils is the creation of a "Health-promoting schools" aimed at:

1. Formation of a rational and active attitude to health and motivation for health-improvement in people.
2. Increase of personal responsibility for health maintenance.
3. Formation of skills and abilities in self-control and self-help.

4. Formation of skills and abilities in reducing the adverse health effects of behavioral controlled risk factors (diet, physical activity, stress control, cessation of bad habits, etc.) in the population.

Valeological education becomes widespread. Valeology is often an integral part of the curriculum of modern schools [1, 24].

From the perspectives of the modern system-activity approach, developed by Russian scientists, and in accordance with the standards of the second generation (FSES), introduced in 2012-2013 school year, two main directions must be provided in addressing the problems of formation, maintenance, improvement and correction of the students' health in the educational process, namely, the study of the factors and components of the students' health, as well as the formation, maintenance, improvement and correction of health [3].

The teacher's responsibility for the protection and care of health is specified by regulations, and primarily by the Law of the Russian Federation "On Education". One of the points of the Message to the Federal Assembly of November 5, 2008, the Prime Minister of Russia D.A. Medvedev rightly pointed out that "During the school period the human health develops for the rest of life " [13].

Nowadays, various rehabilitation models are used: the rational scheduling of education; improvement of sanitary conditions of educational and recreational facilities; increased physical training; the inclusion of schools in the public movement "Health-promoting schools", etc.

The principal difference between the FSES of second generation and the traditional standards is their focus on self-mastering of new activities by students. The second-generation standards require to organize the own cognitive trajectory of each student (including the formation of universal educational actions) [17,18]. After receiving the results of cognitive activity by themselves, the students experience positive emotions, which has a positive effect on their psychological and physical health.

An important innovation is the organization of extracurricular activities in the school curriculum. Now, every child and his/her parents will have an opportunity to choose an interesting activity, including sports and fitness classes.

The results planned in terms of the second-generation FSES, imply the following: the assimilation of understanding of the value of a healthy and safe lifestyle by the pupils; the formation of attitude towards the active physical culture and sports, readiness for selection of individual modes of physical activity; conscious attitude of students to the choice of the individual healthy diet; mastering of modern health technologies, including those based on personal hygiene; the prevention of infectious diseases, and confidence in the right choice of a healthy lifestyle.

Discussion

Formation of a healthy lifestyle in the school consists of two main tasks:

1. Global task - provision of physical and psychological health of the younger generation (school mode, the material base of schools, organization of healthy diet and active lifestyle).
2. Didactic task - provision of the required knowledge to students in the field of health safety, development of skills and habits that contribute to the maintenance of health, working ability and longevity.

It is a duty of teachers of biology to develop the ecological and valeological competence of students throughout the entire course from grade 5 to 11, which I.N. Vasilieva treats as "a level of education, characterized by knowledge of valeological and environmental culture and the basics of vital functions safety"[7]. Information related to health saving must be organically integrated into the content of the lesson, and shall not contradict its goals and objectives.

Section "Microorganisms. Fungi. Plants" can present a health-saving component through the information about photosynthesis as a basis of existence of all living things, the role of plants in the production of oxygen, and the importance of medicinal herbs.

Next section acquaints the students in details with the animals whose vital activity depends largely on plants. Studying this section, students receive information about the diseases transmitted to humans through animal bites, learn to identify carriers of diseases and provide first aid in case of bites of poisonous or dangerous animals.

Upon studying the section "Human", students can implement various types of health-saving technologies. Each chapter shall be presented in hygienic, valeological, health and sanitary, and environmental contexts [2, 11, 25, 26].

In the course of educational activity, the teacher demonstrates the importance of health strengthening by auto-training, hardening, regular physical activity. Particular attention is paid to information on the impact of bad habits on organs and organ systems of the human body [27,28].

Biological education at high school shall end with the study of the section "General Biology", where students will deal with the protection of human health under rapid qualitative changes in the ecological environment, and become environmentally competent [19].

We have conducted a research that included the analysis of health-saving activity of educational institution, the assessment of the level of risk of health deterioration in students, as well as a set of measures aimed at formation of the health value. The pedagogical experiment was conducted among the students of grade 9 "Б" and 9 "В", school No.171 of Sovetsky district of the city of Kazan, Republic of Tatarstan. The data obtained allowed us to determine

the degree of motivation of children to learning and the level of mental and physical health, to identify possible risk factors of health impairment, and to determine the influence of psychological stress and school-related anxiety on the students' performance. In the experimental class (9 "Б"), we implemented a system of biology classes and extracurricular activities of students on the basis of health-saving technologies (fitness pauses, breathing exercises, exercises for the eyes, relaxation techniques, alternating activities, visual imagery, sound imagery, object imagery, psychological training "Know yourself", aimed at the detection of stressful psycho-pedagogical factors of students) [29]. While no additional health-saving techniques were used in the control class.

The experiment lasted 3 years. We used the technique of "Self-evaluation of risk factors of health impairment, revealing the lifestyle features" in order to obtain an approximate self-assessment of the health status of students [15]. Test questionnaire was filled independently by each student.

Results of the study of behavioral risk factors of health impairment, revealing the lifestyle features, are shown in Figure 1.

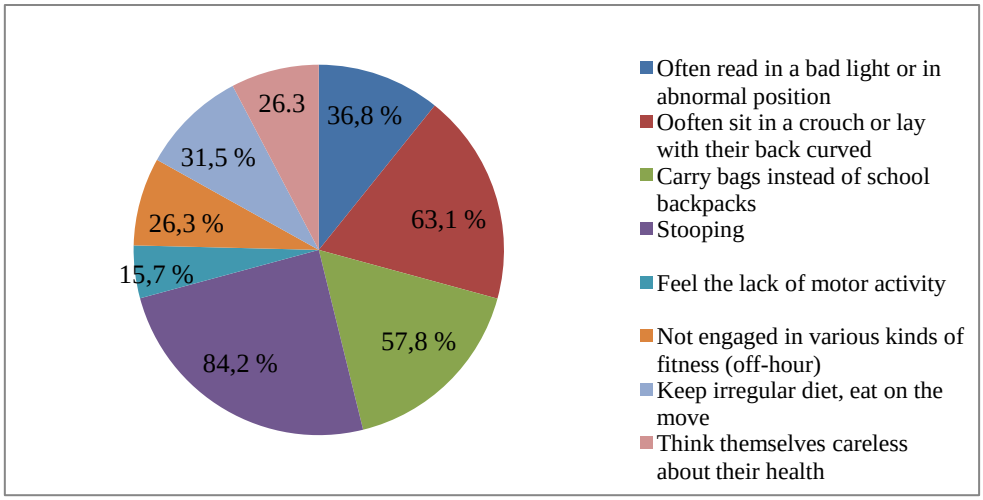

Fig. 1. Self-evaluation of risk factors of health impairment, revealing the lifestyle features.

The result of not more than 6 points is considered satisfactory. "Risk zone" - more than 12 points. As can be seen from the data presented, the so-called "risk zone" includes two students.

We have also used the Gissen Complaints Questionnaire designed by a team of German scientists on the basis of Psychosomatic clinic of Giessen University [14]. This questionnaire consists of a list of complaints relating to overall health, vegetative disorders, impairment of internal organ functions, and helps to determine their conditionality in terms of psychological factors. To determine the emotional attitude to the learning process and diagnose school anxiety of the experimental class we used test methods such as "Questionnaire of adaptation tension for the secondary school students" to evaluate the effectiveness of a child's adaptation to the learning process.

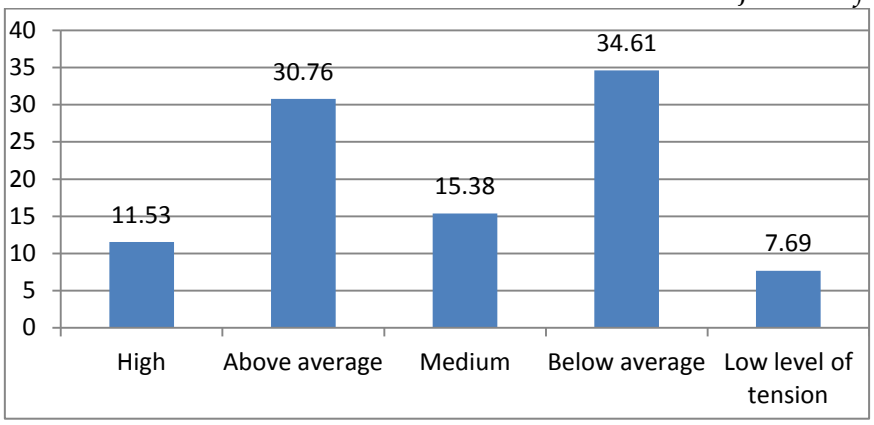

Fig. 2. Distribution of tension estimation.

Figure 2 shows that 2 of 40 students have a high level of tension, which is 11.53%; an increased level of tension can be seen in 9 students, which is 30.76%; normal level of tension is presented in 4 students, which is 15.38%; 8 students have a reduced level of tension, which is 34.61% and 3 students have an extremely low level of tension, which is 7.69%. Having analyzed the effect of this technique on the tension of learning environments, we can say that just more than half of the students feel comfortable in classes. High and above-average levels were revealed in 25% of students of the experimental class. These are children who have an unformed control system, problems with self-control, low self-esteem, an incorrect assessment of their capabilities and real progress in the learning activity. According to the class register, academic performance of these children is quite average, they lag behind their peers in some subjects. The results of the method “Motivation for and emotional attitude to learning activity in secondary and high school", based on the questionnaire by C.D. Spielberger adapted by A.D. Andreeva, indicate that 11.53% of students have a negative attitude to learning, and 53.84% of students have a reduced level of motivation for learning. Such children more often experience negative emotions, feelings of depression and dissatisfaction with their school achievements, which has an adverse effect on their health. Only 7.63% of students of the experimental class have positive motivation, an optimistic, cheerful mood, which is in conjunction with the self-confidence and emotional satisfaction, and results in a state of common comfort (Fig. 3).

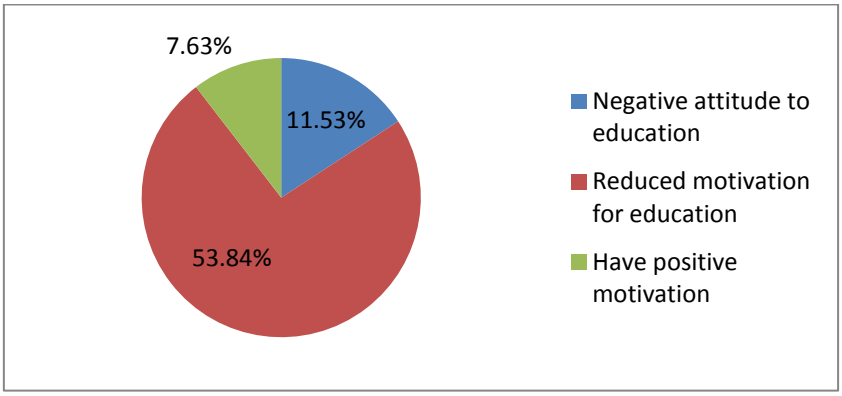

Fig. 3. Motivation for and emotional attitude to learning activity in secondary and high school.

Analysis of the results by the method of "Health behavior index" (S.D. Deriabo, V.A. Iasvin and V.I. Panov) has revealed the baseline and the characteristics of the existing attitude of students to their own health, and the level of knowledge of the basics of a healthy lifestyle. The intensity of health behavior includes four main components: emotional, cognitive, practical, and behavioral [9].

Results of the survey showed that the average intensity of the attitude to a healthy lifestyle among the students of grade 9 "Б" (experimental) amounted to 32.8 points, and 9 "В" students (control) - 27.3 points (Fig. 4). This indicates that the experimental class has better formed ideas about healthy lifestyles, formed inner position that defines a goal-oriented activity aimed at strengthening their health.

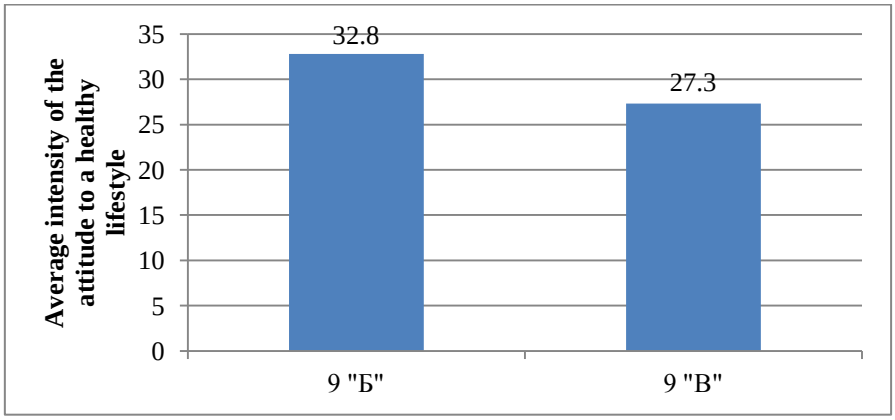

Fig. 4. Average intensity of the attitude to a healthy lifestyle.

Summary

In a changeable life environment, both a developing educational environment and a health-saving environment are relevant from the social perspective for the modern school.

Our pedagogical study has shown that the strategy and technology of the modern school should be aimed at maintenance of the students' health and development of skills of a healthy lifestyle. It requires an extensive work for the creation and implementation of the system of training the basics of health and health education. For this purpose, a clear scheme of sequential actions must be developed:

1. Organization of the educational process subject to its psychological and physiological effects on the body of students.
2. The system of correction of the deterioration of systematic health with the use of complex health-promoting and medical measures on the job.
3. The system of medical and psychological monitoring of health status and physical and mental development of students.

4. Monitoring of compliance with sanitary and hygiene standards of the educational process and the normalization of the education load.
5. Development and implementation of educational programs for the formation of a health culture.
6. Carrying out of activities aimed at strengthening the health of the subjects of the educational process, and creation of conditions for their harmonious development.

Conclusion

Health of the subjects of the educational process is the result of a strategic management, which effectiveness depends on how well the priorities, the idea, the mission and objectives have been defined. They serve the basis for further determination of the directions, content, forms and means of health-saving activities of the educational institution. In a changeable life environment, both a developing educational environment and a health-saving environment are relevant from the social perspective for the modern school.

Our pedagogical study has shown that the strategy and technology of the modern school should be aimed at maintenance of the students' health and development of skills of a healthy lifestyle. It requires an extensive work for the creation and implementation of the system of training the basics of health and health education.

The results of the experiment have confirmed the need for introduction of health-saving technologies in the educational process. It has been proven that students had a significant increase in the level of motivation for education and their practical orientation in the basics of a healthy lifestyle.

During the study, we determined the role of health-saving component in learning biology, revealed the extent of formation of healthy lifestyle culture among the students, and introduced a system of classes with the use of health-saving technologies. Thus, the creation of a health-saving space in the educational institution helps to improve physical and mental health of pupils and enhance their competence in the matters related to healthy lifestyle.

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