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Technological Education as a Means of Developing Students' Health Culture

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The urgency of the research is due to the fact that health of school-age children in Russia is deteriorating. The development of health culture has become an integral part of students' general cultural development. The purpose of this article is to reveal the potential of "Technology" as a school subject for the development of students' health culture. The activity approach is the leading one to the study of this problem. The activity approach takes into account students' individual characteristics, as well as the role and significance of certain activities and forms of communication, in order to suggest ways for the development of students' health culture. This article analyzes the subject matter of "Technology", which aims at health protection of students. In this regard, the article can be helpful to education workers responsible for health preservation of the younger generation.

Keywords: students' health culture, "Technology", interschool training center.

INTRODUCTION

The relevance of the study

At present the nation's health preservation and promotion, as well as assertion of healthy lifestyle values, especially among young people, is declared the state's priority and the cornerstone of successful development of the country and welfare of the citizens. Health condition of the younger generation is the key indicator of well-being of the society and the state, which not only reflects the current situation, but also gives a forecast for the future. According to the Bureau of Medical Statistics of the Russian Federation, the number of healthy children of school leaving age is not more than 10-12%. For children under 14 years of age the most frequent diseases are: 1) respiratory diseases, 2) diseases of the gastrointestinal tract, 3) diseases of the nervous system and sensory organs (Mitiaeva, 2008).

In this regard, today in school there is much tension around the issue of preserving the students' health. And although educating is still the school's main

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function, state of students' health has become an important factor in assessing the degree and level of training.

During schooling years the health of students is affected by the following negative "school" health factors: intensification of the educational process, lack of physical activity, curriculum overload, stress generated by authoritarian pedagogy, unhealthy diet, poor health state of teachers themselves (Kamalova & Zakirova, 2015; Sibgatova et al., 2015; Muravyeva et al., 2014; Sibgatova et al., 2016; Zaitseva, 2013; Masalimova, Porchesku & Liakhnovitch, 2016). The abovementioned factors are to be considered when planning educational material and study load. While the modern student is growing and developing, it is essential to timely instruct every teacher on the main task of preserving students' health in the process of schooling.

Explore Importance of the Problem

Students' health culture is formed both at study time and at extracurricular time. At study time this is achieved through learning school disciplines. This process improves various personal qualities of the individual learner and develops the culture of their behavior, academic work and communication in the classroom, especially at lessons of Physical Education, Health and Safety, Literature, Russian Language, Biology and others. Humanitarization of modern education involves expanding the subject matter of these school subjects by adding information about health, healthy lifestyle, ways and means of achieving both personal harmony and the harmony with the outside world and other people.

"Technology" as a school subject has great potential for the development of students' health culture. While offering students high-quality educational services for learning the subject matter of basic general education subjects, the school at the same time delegates teaching of "Technology" to the so-called resource center, which has sufficient personnel and necessary material and technical potential. The interschool training center generally serves as such a resource center. One of Russia's largest centers of this kind is Interschool training center No. 3 located in Kirov (hereinafter – ITC No. 3), which annually trains about 4,000 students from 20 Kirov schools.

The Essence of Students' Health Culture

Development of health culture is an integral part of students' general cultural development including physical culture, culture of social behavior and valeology-based behavior in the family and also corresponding principles of thinking. Health culture consists of three interrelated elements: valeological education, valeological consciousness and behavior based on valeological principles. Valeological education involves understanding of the essence of health and awareness of the need to follow a healthy lifestyle. Valeological consciousness is a student's sense of responsibility to themselves for their own health and lifestyle. Behavior based on valeological principles (or health behavior) is formed by health-conscious actions and healthy habits.

For successful development of students' health culture it is essential that each of its structural elements should acquire stability and become an essential quality of personality.

Status of a problem

Modern pedagogical science takes the concept of "health" into the sphere of its scientific interests. There are scientific papers (E. Weiner (2005) whose authors regard health not as a medical, but as a pedagogical category, emphasizing the role

of education in maintaining the health of the nation. Issues of health saving pedagogics have been considered by V. I. Kovalko (2007), A.M. Mitiaeva (2008), N. K. Smirnov (2002).

Since the beginning of the 1990s new conceptual approaches to the development of the structure and content of technological education have been investigated within schools of sciences under the guidance of leading scholars: P. R. Atutov (2003), N. V. Kotryakhov (2005), V. D. Simonenko (2005), Yu. L. Khotuntsev (1999).

According to the researchers, technological education aims at preparing students for practical transformation activity mainly through introducing them to the major modern industries and the most common instruments of labor.

The analysis of the abovementioned scientific papers and many other publications has revealed the need to consolidate the theoretical material and practical experience of students' health culture within the subject area of "Technology".

The hypothesis of the Research

The analysis of theoretical material and practical activities of the problem under review has proved that a comprehensive analysis of the potential of "Technology" for the development of students' health culture at the premises and with the resources of an Interschool training center remains an insufficiently studied and poorly developed issue. As a result, the hypothesis of the research has been formulated: the topical area of "Technology" offers considerable room for the development of students' health culture; implementation of "Technology" at the premises of the Interschool training center promotes active research and professional activity, which improves students' state of health.

METHODOLOGICAL FRAMEWORK

Specific character of teaching "Technology" at the premises of ITC No.3

The topical area of "Technology" was introduced in the basic curriculum of general education institutions of the Russian Federation in 1993. It replaced labor training.

"Technology" is studied at schools in the UK, France, Germany, the USA, Australia, Israel, the Netherlands, Sweden, Bulgaria, Kazakhstan, China and many other countries. It is included in the list of compulsory subjects for all students. In these countries industry and business actively support the idea of including "Technology" in the curriculum since this subject aims to develop creativity and intellectual abilities of students and to involve students in constructive labor.

"Technology" is the main practice-oriented area which consolidates scientific, scientific-technical, technological, business and humanities knowledge. "Technology" discloses methods for their use in various fields of human activity and provides a pragmatic orientation of general education.

Technological training of students in ITC No. 3 offers four stages. The first stage is introduction to labor. At this stage the student recognizes this process as an appropriate and necessary activity. The second stage is the labor basics, which introduces the student into the world of use values. At the third stage, which is a professional test, the student "tries on" a variety of professions and chooses the one that suits him best. The fourth stage is meant for self-improvement in the chosen sphere of professional activity. The first two stages are implemented in Grades 5-8, the third and fourth – in Grades 9-11.

At high school, the subject of "Technology" in ITC No. 3 offers programs of initial training in the following specialties: a turner, a construction metal worker, a radio

equipment wireman, a computer operator, a car repairs mechanic, a sewer, an embroiderer, a lace-maker, a wood and bark carver, a cook, a seller of food products, a youth leader, an advertising agent, an assistant nurse.

For two years students master the chosen profession, undertake an internship at the enterprises of different ownership forms, pass a qualifying examination, and then receive a certificate of Level 2 qualification. It is important to emphasize the role played by industrial enterprises and institutions offering real working careers for adolescents to acquire initial professional experience (students earn their first money, obtain employment record books acquire job placement skills and experience of acting as part of workforce).

Factors of development of students' health culture at the premises of the interschool training center

ITC No. 3 is a resource center for 20 schools in the city of Kirov. As a rule, students walk to the center on foot, which ensures their sufficient physical activity.

"Technology" classes consist of two coupled lessons: theoretical and practical. During the second lesson students do practical work on preparation of culinary dishes, manufacturing of garments, performing mechanical fitting and turning operations. Lessons of technology shift the students from mental to more emotional physical activity. The students, as well as the teacher, get positive emotions, which determines the positive effect of studies on health. Moreover, alternation of mental and physical work in the classroom creates optimal conditions for the active work of students and restoration of the body. In this educational field 70% of the learning time is devoted to project and research activities of students, contributing to their creative development.

At technology lessons it is essential to observe safety rules and hygiene requirements, which aim at preventing injuries and preserving students' health. Each introductory lesson begins with labor safety briefings for the students to understand the essence of their work objects and labor tools, and to develop safe working methods.

New approaches to define the subject matter of "Technology", aimed at developing students' health culture

Teaching of "Technology" allows you to fit the principles of health preservation in lesson topics and also in various tasks in the classroom.

In fact, according to new standards, "Housekeeping Technologies" Section includes new approaches to defining the content of educational material aimed at preserving students' health. This objective can in the first place be realized at cooking lessons.

While studying the topic "Sanitation and Hygiene", it is necessary to consider the sanitary requirements for the kitchen and dining room, and also for dishes and kitchen utensils. Our health depends on the food that we consume, and the food depends on the cooking process, so high- quality dishes do not only promote aesthetic values, but also preserve people's health.

While studying the topic "Kitchen Utensils" in the 5th grade, it is necessary to pay attention not only to cookware but also to the materials it is made of. Nowadays, they often sell dishes made of new materials: teflon, silicone, plastic, glass. In order to avoid harm to health, it is necessary to observe the instructions for use of products made from these materials.

At classes on cooking egg dishes, pasta, dairy products and vegetables it is important to pay attention to the dishes we use, because different materials have

different effects on the processing of products. When cooking cereals, it is important to consider kitchen appliances: multicookers and slow cookers.

At classes devoted to cooking lunch on a hike in the 6th grade it is important to pay attention to the disposable tableware, discussing its advantages and disadvantages, and inform the students about the rules of using disposable plastic tableware.

At classes on cooking dough products it is important not only to talk about the inventory and devices for dough preparation, but also materials (silicone, plastic, glass), which they are made from, operation rules, the rules of maintenance.

Section "Cooking" plays a large role in the development of students' health culture. Students get acquainted with the composition of food products, their energy value, a human need for energy derived from food. Students' attention is drawn to the need of a timely and balanced diet. Students learn to make a menu with account of healthy diet requirements, get the necessary information about the processes occurring with food, when it is being cooked. Work is underway to improve the culture of eating, as well as maintain basic hygienic requirements.

So, the 7th grade lesson "Physiology of Nutrition" discusses the concept of micro-organisms, beneficial and harmful effects of microorganisms on food products; sources and pathways of disease-causing microbes in the human body; the concept of food infections; diseases transmitted by food; prevention of infections; first aid for food poisoning.

At the lesson on the topic "Proper breakfast is a key to a good day", students learn about the breakfast value for human health, the definition of a full breakfast and which dish for breakfast is the most useful. Under this theme the students can be asked to hold a mini-survey research. Thus, ITC No. 3 students conducted a survey of their classmates and relatives and asked two questions:

- "Do you have breakfast?"
- "What do you prefer for breakfast?"

To the first question, 40% of respondents answered that they always eat breakfast. The rest either have breakfast sometimes or never eat breakfast. Among the preferred products 100% of the respondents said tea, coffee, cocoa; 46% – a sandwich; 26% of respondents prefer creamy cottage cheese for breakfast, and porridge – 23%. Moreover, 8% of respondents said that they drink soda water for breakfast.

In class the teacher and the students analyze the results, find out which of the respondents does the right thing and benefits their health. The teacher informs about the consequences of ignoring breakfast and tells about the best foods for the morning meal. Students on the basis of the information received compose their own breakfast menu.

The value of elective courses in the development of students' health culture

Individualized learning is an important condition for the development of students' health culture in ITC No. 3. In the 9th grade students have an opportunity to choose the area of professional activity. The psychologist accompanies the students in their choice. At individual and group profession consultations he helps students to determine their interests, aptitudes, abilities, and on the basis of these results, together with the student selects an appropriate sphere of professional activity.

Students' differentiation results in groups of students with an average number of 16 people. It should be noted that, when studying in a small group, they are in more favorable psychological conditions than the entire study group: they express their opinions more freely, communicate with each other in a more active, relaxed manner. A teacher in such a group has an opportunity to apply a method of

educational talks, during which the student is given an opportunity to freely express their thoughts related to personal experiences and interests. Often, the topic of conversation arises from the arguments of the students themselves.

The content of education in the 9th grade in ITC No. 3 is represented by elective courses for different study course profiles (Table 1).

Elective courses for all profiles include topics with elements of how to develop students' health culture. Some elective courses are entirely devoted to human health.

As an example, let us take a course schedule for the elective course of the profile "Medicine", "Seven Steps to Beauty and Health" (Table 2).

As a part of an elective course, students are introduced to the concept and components of a healthy lifestyle, means of a healthy lifestyle. In the course of practical work students learn about the impact of unfavorable natural elements on the human body, about the influence of bad habits on beauty and health. Students get acquainted with the rules of personal and general hygiene, skin care and hair care, as well as general duty nursing. Of particular interest are classroom labs on spirometric research using anthropometric equipment: weighing on medical scales, height measuring, abdominal circumference, muscle strength.

Table 1. Areas of professional activity, and profiles of ITC No. 3

Areas of professional activity	**Profiles**
Man-to-Man	Medicine Pedagogy and psychology Commercial service Young journalist
Man-to-Machinery	Auto-repair service Fitting services Turnery Radio electronics Sewing
Man-to-Nature	Cookery
Man-to-Artistic image	Lacemaking Wood carving Textile painting Hand made art needlework
Man-to-Sign	Economy Information Technology

Table 2. Course schedule for the elective course "Seven Steps to Beauty and Health"

No.	**Topics**	**Hours**		
		Total	Theory	Practice
1	Ecology. Man and environment.	1	1	
2	The impact of unfavorable natural elements on the human body.	1		1
3	Formation of a healthy lifestyle.	2	1	1
4	Effects of bad habits on beauty and health.	1	1	
5	Anthropometry. Carrying anthropometric studies.	2		2
6	Thermometry.	1		1
7	Rules of personal and general hygiene. Skin care and hair care.	2	1	1
8	General duty nursing.	5	2	3
9	Excursion to the regional clinical hospital.	2		2
	Total:	17	6	11

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Thus, the study of the elective course "Seven steps to beauty and health" promotes, on the one hand, the development of students' health culture, and on the other hand, the assessment of readiness to choose a profession in the medical field.

The profile "Pedagogy and Psychology" within the elective course "The development of the child from 0 to 7 years" studies the topic "Preparing for parenthood. Sex education in the family". The teacher and the students discuss in class such issues as:

- Puberty.
- Rules of conduct in the puberty.
- The concept of sex education, the importance of sex education in the family for a harmonious development of the teenager. Methods of sex education in the family.

Studying the topic "Child's life before birth", students receive information about what abortion is, and what negative consequences it leads to; what are the factors of fetal risk, and how to prepare to conceive a child.

The study of these issues allows students to understand the value of health and the need to strengthen and maintain health from their youth.

The content of lessons to develop students' health culture at the elective course "Me and my profession"

All profiles of the 9th grade have an elective course "Me and my profession". Its purpose is to form students' personal-professional self-determination, which involves choosing further education and career path at the end of basic education. The curriculum includes lessons on the topic "Health and choice of profession". Classes are held in the form of lectures and practical studies.

At the lectures the teacher tells the students the following information.

Everyone who chooses a profession should be aware of the factors that are considered to be unfavorable for the organism. It will help to assess their capabilities. In one case, it's great physical exertion, deviations from the optimal microclimate (low or high temperature), in the second case – the increased dust, noise and vibration, in the third – contact with toxic substances, etc. Professions can be divided into four groups, depending on the effect of working conditions on human organism.

The first group includes occupations with ordinary labor conditions. As an example, we can take professions of watch manufacturing, service sector. This is the largest group of blue-collar occupations. Professions of the second group, for example, the profession of a cook, are associated with mild or intermittent exposure to an unfavorable impact of production factor. In such occupations the body is temporarily affected by high air temperature, humidity, etc., which causes increased heart rate, increased sweating. Consequently, such a profession can be recommended only for those who have a well-developed self-regulation and do not have diseases of the cardiovascular system, the respiratory system. The third group includes occupations, which are characterized by a set of various unfavorable factors of production. As an example, we can take a profession of a weaver. A person with the following diseases (or predisposition to the diseases): heart disease, respiratory and hearing disease, disease of the musculoskeletal system, with poor vision, this profession is contraindicated. The fourth group consists of the profession with severe and harmful working conditions (a welder, a steelworker, a miner, etc.). Women are contraindicated to work here.

So, the list developed by the Ministry of Labor and Social Protection of Russia has about 500 professions and types of work with harmful or dangerous working conditions, in which it is prohibited to employ women. In particular, women in our country may not work as divers, climbers, dockers, seamen, steelworkers, miners,

firemen, machinists on the railways and even wood floaters. The list of professions in Russia is much longer than in some Western countries.

The country carries out a certain system of measures to prevent work-related diseases. The authorities established a list of industries and occupations, whose workers enjoy the benefits: reduced working hours, additional leave, diet food, the right to a pension at 45-50 years, etc. Medical contraindications to the choice of occupations are determined by the nature of the disease. It is only a doctor, who can give an opinion of whether health corresponds to the chosen profession.

In practical studies students are encouraged to conduct self-assessment of the individual's health by using the following methods:

- "The state of health, performance, mood"
- "L.P. Buteyko test"
- "Pulse rate"
- "The size of health" by N.M. Amosov"
- "Grade based on a 5-point system"
- "Emotions and Health"
- "Physical fitness in your life"
- "Check your posture"
- The test "Do you know how to lead a healthy life and work productively."

RESULTS

Importance of Health for Students

After the elective courses students take part in the feedback questionnaire. Questioning of basic school graduates is carried out to assess the significance of elective courses in the personal-professional self-determination of students. The questionnaire contains a question about the development of students' health culture: "Is it important to be healthy at your age?" In 2015 academic year, 90% of students gave a satisfactory answer (Figure 1.).

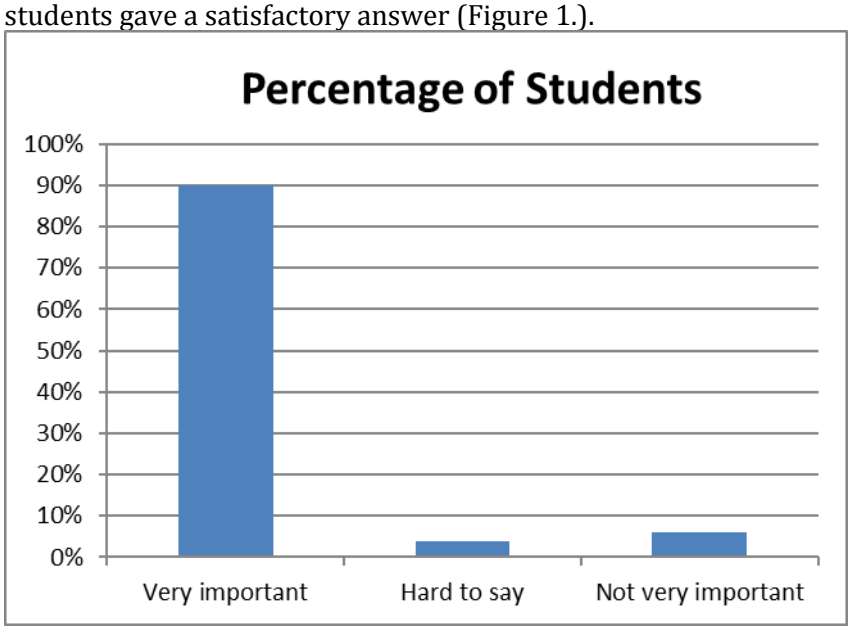

Figure 1. Importance of Health for Students

The development of students' health culture in professional activities

High school students, while taking the subject "Technology" in the interschool training center, do practical training in their chosen field of professional activity.

The activity of students during the practical training is clearly useful for the development of students' health culture. So students specializing in "The assistant nurse / brother" do their practical training in the Kirov Regional Hospital; students of the specialty "The seller of food products" are employed in shops of the city, students of the pedagogical profile have practice as counselors in children's out-of-town and school health camps. Individual entrepreneurs formally employ blue-collar students to practical training and give students an opportunity to earn 6-7 thousand rubles a month.

A chance to show their worth in professional activities, to create a product of labor with their own hands contributes to self-realization of students, formation of professional interests and aptitudes, and as a result, contributes to prevention of deviant behavior, aimless pastime at the computer, which has a beneficial effect on the health of schoolchildren.

DISCUSSION

A. D. Kalimullina (2010) considers factors of students' health protection in the interschool training center, in particular such a factor as psychological and pedagogical support of students. The author reveals the problems of psychological and educational support for students. The author gives a range of areas, carried out by educational psychologist to create a favorable psychological climate in educational institutions.

V. I. Kovalko (2007) in his work "Health protection technologies: a school student and a computer: Grades 1-4" presents information about modern methods and means of health protection pedagogy under the conditions of informatization of learning. The author has developed a program of a healthy lifestyle and the technology of health promoting school in an educational institution. In his work, the author proposes scenarios of events for disease prevention among younger students.

A. M. Mitiaeva (2008) presents a comprehensive analysis of health protection technologies used in the educational process. In her work, the author analyzes the ways and conditions to form adolescents' health culture in secondary school. Much attention is paid to the development of programs promoting students' health.

The issue of students' health culture within a particular school subject is still underinvestigated. Moreover, with the adoption of new standards school subjects have more possibilities to preserve students' health. It requires new research in this area, one of which was conducted by the author of this article.

CONCLUSION

Thus, this study allows us to conclude that the subject "Technology" has wide opportunities to develop students' health culture. These opportunities are due to the specific content of the educational area under review, which is as follows:

- Presence in the educational standard of the subject such topics, which aim at forming valeology-based education;
- active project and research activities of students, practical work aimed at creating valeology-based awareness;
- the ability to express themselves in their professional activities and to create a product of their labor with their own hands, promotes the formation of health behaviour.

The proposed in the article content of the subject "Technology", including elements of students' health protection, is the result of teachers' experience of technology in ITC No. 3 in Kirov. Analysis of the results leads to the conclusion about

the importance of health for school children, their desire to live a healthy lifestyle and actively participate in professional activities.

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