
RESEARCH ON THE FORMATION OF SCHOOLCHILDREN'S ENVIRONMENTAL CULTURE

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Abstract

The research aim of the present paper is the education of environmental culture of schoolchildren by educational and training process in schools, on the basis of ethno pedagogy. The research methods regard the theoretical, pedagogical and ecological analysis of different aspects of the investigated problem; theoretical and practical generalization of the research results taking into account basic factors and concrete terms. At the end of the research we got such results as spiritual development of national culture of a student and his readiness to percept the Russian culture; the necessity of taking into account national and common mankind cultural values. In the total we came to the next conclusions: facilities of folk pedagogy, national traditions, ceremonies and customs, stable norms and rules of children behaviour set into the environmental conditions of the wild nature, assist in educating environmental culture. Education of environmental culture of schoolchildren on the basis of ethno pedagogy has an ecological, scientifically-pedagogical, historical and socio-political value.

Keywords: culture, education, ecology, ethno pedagogy, research

1. Introduction

Environmental thinking, the necessity to commute with nature, skills of ecologically substantiated activity can be developed through involving schoolchildren in school forestry societies on the basis of ethno pedagogy. In this case, labour and environmental education of young generation is unified, integrated and solved as a single pedagogical process.

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2. Research methods

The methodological basis of the research are key points on ennoblement of native environment; principles of the interaction of society and nature, rational nature management, respectful attitude to the legacy of the past [1]; taking into account self-consciousness and cultural identity of the population living in this area; enforcement of behavioural norms of schoolchildren of the Kirovsky district; taking into account the features of the district, its historical, economical and environmental significance, implementation of behavioural norms in the environment and every day life.

The theoretical statements and conclusions made by such outstanding pedagogues as K.D. Ushinsky, A.S. Makarenko and V.A. Sukhomlinsky about the role of nature in the education of the young generation were used during this research [2].

The environmental problem is no longer an issue of separate cities or countries - is becoming global. For this reason, the students based their studies on the works of Russian and foreign scientists: S.D. Deryabo, V.A. Yasvin, G. Hefling [3], A.N. Khuziakhmetov, P.P. Kozlova, F. Sen-Marc [4] and others [5]. To solve the set tasks, the following methods were used: theoretical analysis of ethnic pedagogical and ethno ecological literature, application of sightseeing, hiking and field material on the issue, surveys and interviews with residents of the Kirovsky district, experiments conducted in field and in laboratory conditions, statistical processing of the results.

3. Studies selection type and method

The monitoring, spent by pupils, is a system of observation and control on the state of environment and its changes under the influence of technical activities of people for rational use and protection of natural resources and to preserve the health of the population. By itself, the monitoring cannot improve the state of the natural and social environment, because it requires specific practical measures.

The goals and tasks of the monitoring, conducted by the students of the group 'Green patrol' of gymnasium № 4 of the Kirovsky district of Kazan, were:

1. to evaluate the environmental situation in the Kirovsky district using folk and ecological knowledge;
2. to identify the sources of pollution and to define the level of pollution in the area;
3. to outline the solution ways of the complex environmental problems of the Kirovsky district.

The subject of the research is the environment state of the Kirovsky district from Kazan and the conditions of its ennoblement [6].

3.1. The hypothesis of the study

The environmental situation in the Kirovsky district can be improved by:

- landscaping of the surrounding natural environment on the basis of national ecological traditions;
- using educational, environmental knowledge accumulated by the residents of the district, scientific and ecological knowledge of natural-science in environmental beautification;
- involvement of several groups of students in research work on studying the state of the environment and in the future, the involvement of all schoolchildren of the district;
- inclusion of schoolchildren, parents and teachers in particular work on beautification of native wildlife of the area based on the ethno-ecological and scientific-ecological knowledge.

Z.A. Khusainov wrote: “Methodical recommendations on environmental monitoring include the creation of educational environment for the study of air, water, soil and school buildings” [7].

In their work schoolchildren used the following equipment: flasks, test tubes, device for determination the acidity of water and soil; scales, weights; research map of the Kirovsky district; literature and archival sources of information; pictures of sources of pollution; a projector for demonstration tables; summary information on the expertise.

Scientific novelty and theoretical significance of the research is that the state of the natural and social environment of the Kirovsky district was defined for the first time and the possibilities of overcoming the ecological crisis were shown; conditions for optimal use of the environment of the area were identified and justified; as well as levels of knowledge, skills, literacy in the study of the ecological situation and the beautification of area on the basis of the traditional ecological knowledge and practices; recommendations out of the difficult ecological state of the district were also given [8].

3.2. Practical significance of the research

The officials of the district, the population and schoolchildren were recommended the ways out of the difficult environmental conditions. These recommendations could serve in the future as a base for further environmental monitoring of the area, and also will allow to fill school textbooks with eco-content taking into account the possibilities of their application not only in the Kirovsky district but in other districts of Kazan.

The reliability of scientific results and validity of the conclusions are confirmed by the methodological soundness of the assumptions by using various methods and techniques that are adequate to the task, laboratory and experimental work, the versatile analysis and processing of data obtained in the study, broad discussions of the course and the results of the study, their positive

assessment by the head of the administration of the Kirovsky district of the city of Kazan.

4. Approbation and implementation of the research results

The results of the study were discussed and approved at the scientific-practical conference 'Youth research readings named after Kayum Nasyri' (Kazan, 2012). The research on the issue was approved by the head of the administration and the department of education, implemented in the educational process in the schools of Kirovsky district from Kazan.

Road transport generates a lot of noise. Currently, doctors tell about a noise disease, which is developing as a result of noise exposure, mainly affecting the hearing and nervous system. Residents of the city of Kazan, whose population exceeds one million people, find difficult to adapt to the adverse environment. Students came to these conclusions on the basis of monitoring of the natural and social environment of the Kirovsky district. The monitoring was performed by a group of pupils of the gymnasium № 4 of the Kirovsky district for five years under the supervision of the author. We split the students-experts in four groups; each group was given a task and instructions for its implementation:

- Group 1:** to determine the number of precipitation per month, and their content;
- Group 2:** to study the snow cover as an indicator of contamination of the area;
- Group 3:** to determine the character and level of pollution of the water in the river Kazanka; the status of water in the old line of the Kazanka; to determine the purity of tap water and the purity degree of underground waters of the Kirovsky district;
- Group 4:** to evaluate the environmental situation from literature, mass media, to make photographs reflecting the ecological state of the natural and social environment of the Kirovsky district.

Classmates of the first group took samples of snow during winter periods in nine different points of the Kirovsky district. The snow was placed in containers for melting. Then the students of the second group used the liquid to determine the status of the natural environment; the residue formed after thawing, was dried and weighed and poured into the tubes. We noted the identified sources of pollution on the map of the Kirovsky district.

The participants of the second group together with students from grade 9 and members of the club 'Young chemist' from gymnasium № 4 made tests on the pollution of the district's territory.

The settings in which members of the group 'Young chemist' had conducted investigations on pollution of the area were the following:

1. Ions of heavy metals were determined (Zn^{2+} , Pb^{2+} and Fe^{3+}). Solution of sodium hydroxide was added to tubes with samples of melt water. During the transfusion, turbidity was systematically found in

samples: № 3 from the stop of 'Frunze'; № 7 - from stop 'Khalturina'; № 9 - from the stop of 'River College'.

2. Salts of Fe^{3+} were determined. With the help of the indicator, soluble salts of iron (Fe^{2+}) were discovered, but particularly intense colouring was in a sample from the main thoroughfare of the road, which indicated a content of a large amount of Fe^{3+} .

We carried out the following test: we added a few drops of ammonium thiocyanate in tubes with 3 to 4 ml of melt water. All samples had red colouring, which indicates the presence of soluble salts of iron. Particularly strong was the colour of the sample from the main road of the Kirovsky district.

The students of the 3rd group conducted an analysis of tap water on the following characteristics: colour, smell, the presence of chlorides, sulphates, etc. Water from natural reservoirs of the area was tested on colour and smell in a following way: children initially had water in a flask with a capacity of 250 ml; they closed tubes and shook up the content. Then they opened the tube and defined the nature of smell (Table 1):

Table 1. Scale of water smell.

Intensity	The nature of smell	Smell manifestation
1	Weak	No
2	Weak	The smell is found at attention
3	Noticeable	The smell attracts attention
4	Distinct	Easily detected, the water is unfit
5	Strong	The water is unfit

The students collected information from various sources. They appealed to the head of the administration of the Kirovsky district. Thanks to the head of the administration of the district, it became clear what enterprises emit harmful substances into the surrounding natural and social environment of the area. Only in recent years the major polluters were: JSC 'Lnokombinat', JSC 'Safian', the plant 'Serp and Molot', OJSC 'Santekhpribor', JSC 'KVZ'.

On the basis of analysis of the environmental situation of the Kirovsky district, reports, statistical data and results of the research were identified the following ways out of the current complicated ecological situation:

- to hold a meeting with representatives of enterprises of the Kirovsky district, in order to clarify the specific measures taken for the improvement of the ecological situation;
- to recommend to the residents of the district to drink only defend, boiled or imported water;
- ecologists should develop new ways of recycling waste in order to improve the natural and social environment of the area;
- dumping of polluted waters into rivers and lakes is increasing every year, and as a result, the fish in the river Kazanka suffers from water pollution, and swimming in the river is dangerous for health.

5. Discussion and conclusions

A comprehensive study of the environment using ethnic pedagogical knowledge, customs, rites and traditions, relations with the outside world, has led the students to the understanding that health is not merely the absence of disease, but also physical, mental and social well being. Health depends not only on the nature of the area, but also on the environmental conditions in which the population lives. It was established by the students that some of the production wastes are toxic and can cause cancer diseases [9].

Thus, the monitoring was conducted both in terms of general assessment of the status of environmental education and to determine the most suitable complex program of ethnic pedagogical, ethno-ecological education and upbringing for the experimental phase [10].

The final results allow being critical to technologies used by teachers in environmental education of schoolchildren. Ecological content means primarily a students' research activity which has significant specific substantive weight and students' participation in the system of measures on determination of the purity of water, air, soil, with access to the relevant state authorities with proposals on improvement of ecological situation and prevention of possible negative environmental consequences. Rare cases of students' participation in a real environment protection were fixed. Z.A. Khusainov wrote: "the consequence is generally insufficient, and in many cases it results in low level of environmental culture of the students" [7].

In rare cases, problems are discussed with children at lessons but the solutions are unclear both to students and teachers and even to specialists in the field of Ecology. However, such problems would evoke students' interest to the educational process.

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