

Theoretical and applied aspects of the formation of ecological culture of schoolchildren in the process of physical education

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Purpose: scientifically substantiate and develop a program of classes using ecological tourism for primary school age children, aimed at the formation of ecological culture of schoolchildren.

Material & Methods: pedagogical experiment was carried out in the form of ascertaining (191 schoolchildren: 96 boys, 95 girls) and formative (50 schoolchildren). The level of ecological culture of schoolchildren was assessed by the method of A. V. Asafova. The assessment of the level of physical health was carried out according to the method of G. L. Apanasenko.

Results: model of ecological culture of schoolchildren of primary school age is theoretically grounded and developed, which includes the following components: axiological, motivational, activity, cognitive, and the basic criteria and levels of its formation in schoolchildren. The low level of ecological culture of schoolchildren is revealed. It is established that effective forms of ecological tourism are the ecological lesson, the ecological path, the ecological game, the ecological trip of the day off, the ecological excursion, the ecological camp. These funds were used to build a program of physical preparedness.

Conclusion: positive influence of the developed program of ecological tourism on the indicators of physical condition, formation of ecological culture, organization of useful leisure and active recreation of children of primary school age.

Keywords: program, ecological tourism, ecological culture, schoolchildren, physical education.

Introduction

In modern conditions, one of the strategic tasks of the education system is the formation of a person with a high level of ecological culture. One of the most important periods for the formation of the foundations of an ecological culture of the individual, according to many authors, is the younger school age. Work on the formation of ecological culture of younger schoolchildren is of great importance for the formation and further development of the student's overall culture of personality.

Theoretical analysis of the data of special literature and advanced world experience on the research problem made it possible to establish that in the process of physical education of school-age children by researchers [1, 2; 6; 11; 13; 14] proposed to use a wide range of different means of motor activity, the direction of which is determined by the need to solve general and special problems. Despite the fact that scientists are intensively engaged in multifactorial research of ecological culture, the tasks of environmental education of schoolchildren in the process of physical education are given insufficient attention [8].

The state of ecological literacy of schoolchildren is characterized by significant gaps in education. An analysis of school practice shows that the modern education system does not provide a systemic impact on the student's personality in order to overcome excessive pragmatism in relation to the environment. The elementary school needs effective technologies aimed at harmonizing relations in the system of "schoolchildren – the environment", the result of which should be the formation of children's respect for nature [7; 8; 13].

The existing problems in the general education school, the lack of information about the state of the environment, the outdated material base lead to the formation of an inadequate worldview of schoolchildren. This situation causes a lack of basis for the formation of motivation for a careful attitude not only to the surrounding nature, but also the manifestation of indifferent behavior towards one's own health [12]. Therefore, the use of ecological tourism facilities, which have a universal, interdisciplinary nature, will increase not only the level of ecological culture of younger schoolchildren, but will also improve the indicators of physical condition. The need to intensify activities in this direction is also targeted by well-known foreign specialists [10; 14]. It should also be noted that the methods of combining motor activity, physical exercises and loads of various orientation in physical recreation by means of ecological tourism, the principles of drawing up extracurricular programs for the physical education of schoolchildren by means of ecological tourism remain insufficiently investigated. The need to substantiate theoretical approaches to the development of a program using ecological tourism in the extra-curricular work on physical education of schoolchildren in primary school age, aimed at the formation of ecological culture of students and the increase of their physical state, determined the choice of the research topic.

Relationship of research with scientific programs, plans, themes. The study was carried out in accordance with the plan of scientific work of NUPESU for 2016–2020 in accordance with the theme of the Department of Health, Fitness and Recreation "Theoretical and methodological foundations of recreational and recreational motor activity of various population groups" (state registration number 0116U001630).

The purpose of the research: scientifically substantiate and develop a program of classes using ecological tourism for primary school age children, aimed at the formation of ecological culture of schoolchildren.

Material and Methods of the research

To solve the tasks set in the work, generally accepted scientific methods of research were used. Theoretical analysis and generalization of special scientific and methodological literature was conducted with a view to studying in detail the features of the organization of physical education of schoolchildren, approaches to the formation of their ecological culture. The pedagogical experiment was carried out in the form of ascertaining (191 schoolchildren: 96 boys, 95 girls) and formative (50 schoolchildren). The duration of the formative experiment was one academic year. To participate in the pedagogical experiment, schoolchildren were invited (given that the children involved in primary school age participated in the research, the consent was obtained from the parents of schoolchildren).

Assessment of the level of physical health was carried out according to the method of G. L. Apanasenko [3]. For the diagnosis of environmental settings of the personality, a survey was carried out among schoolchildren of the lower grades according to the verbal associative method "EKPB" [10]. Questionnaire "Naturofil" [10] was used to diagnose the level of development of intensity of subjective attitude to nature. Diagnosis of attitude towards nature was assessed using the questionnaire "My Attitude to Nature" [10]. Studying the motives of schoolchildren's participation in the activity was carried out with the help of L. V. Bayborodov's method [5]. Level of ecological culture of junior schoolchildren was evaluated according to the method of A. V. Asaf [4] in the modification I. I. Golovach. Obtained results are treated by the methods of mathematical statistics [9]. Method of peer review was used in the form of a survey of a group of experts on the need and expediency of introducing the technology of forming an ecological culture of schoolchildren in the activities of general educational institutions. As experts, teachers-methodologists of physical culture of general educational institutions of Kyiv were involved (12 people). The degree of consistency of opinions of the interviewed experts was checked by calculating the concordance coefficient.

Results of the research and their discussion

Analysis of the assessment data of school motivation indicates that only 12% of respondents have an excellent (first) level of school motivation. A good (second) level has 14% of the studied students. 36% of schoolchildren perceive the school positively (third level), but the school of such children attracts mainly as an object of extracurricular activities. A third of children (28%) have a low (fourth) level of school motivation and in 10% of students (the fifth level), general school disadaptation. Results of the analysis of the physical condition of schoolchildren in primary school age indicate a decrease in individual indicators with age. Thus, in terms of physical health indicators, there is a decrease in the number of children with an average level of physical health from the second to the fourth grade, a similar picture is observed for indicators that characterize physical performance. There is also a decrease in the volume of motor activity among fourth-grade students (both boys and girls). Tendency to deterioration of

the indicators of adaptive-reserve capabilities of the body (disruption of adaptation was observed in 44,12% of girls and 33,33% of boys in the fourth grade compared to 25,93% in girls in the second grade and 27,59% in boys), the number of days missed due to illness (in the second grade – 5,1, the third – 9,8, in the fourth grade – 16,1 days per student). The obtained results testify to the worsening also of the indicators of physical development (the number of children that have a disharmonious development has increased – in the second class 60,34% of students have a harmonious physical development, in the third – 50,81%, and in 4 classes the percentage of children having a harmonious physical development is reduced to 38,8%).

According to the results of the research, it is established that the dominant type of installation of junior schoolchildren about nature is aesthetic (girls – 43,8%, boys – 30,4%), when nature is perceived as an object of beauty, that is, environmental settings are formed through perceptive-emotional channels. Next most rated cognitive setting is when nature is perceived as an object of study and an object of protection. This setting dominates in 29,5% of boys. Ethical setting dominates in 25,8% of boys. Only a small part of schoolchildren in the lower grades have a pragmatic attitude, that is, they treat nature as an object of benefit: girls – 18,8%, boys – 14,3%.

Results of the questionnaire and the findings of the ascertaining experiment testify to the potential opportunities for younger schoolchildren to form environmentally appropriate behavior. Schoolchildren have a certain degree of knowledge about the norms and rules of behavior in nature, the dependence of health on the state of the environment, but not all consider it necessary to comply with environmental requirements in everyday life. In school practice, the formation of this characteristic occurs sporadically, without proper methodological support.

Model of ecological culture of schoolchildren of primary school age is developed, which includes the following components: axiological (the system of value attitude to natural objects, moral-willed qualities, attitude to health as a value), motivational (presence of motives for environmentally appropriate behavior, emotional background of environmental activity, interest in environmental tourism), actionable (adequacy of environmental behavior, level of motor activity) and cognitive (depth and consistency of environmental knowledge, ability to transfer environmental knowledge in an environmental situation), and identified the main criteria and levels (very low, low, below average, average, above average, high, very high) of its formation in younger schoolchildren.

Consistency of opinions of experts (concordance coefficient $W=0.81$ ($p<0,05$)), indicates the advisability of introducing into the process extra-curricular work on physical education of younger schoolchildren of means of ecological tourism. Experts determined the most effective forms of ecological tourism for children of primary school age: ecological lesson – 19 points, ecological path (25 points), ecological game (30 points), ecological weekend trip (43 points), and ecological excursion (45 points), ecological camp (62 points). Received data testify to the need to include in the process of ecological education of younger schoolchildren of environmental-development situations, various methods and forms of work with children in organizing lively communication with nature, development of the perception of natural beings, the disclosure

of the values of nature through the organization of systematic observations, make it possible to realize the uniqueness of the natural world, the education of relations to the natural world, taking into account the structure and mechanisms of the development of ecological consciousness. Based on the analysis of the specialized literature and the results of the research, the set of organizational and pedagogical conditions for raising the level of ecological education of primary school children (an integrated approach to the use of educational opportunities for cycles of academic disciplines and reserves of extracurricular activities; rational combination of traditional and innovative forms and methods of accumulating experience of ecologically ethical behavior; appropriate didactic-methodical and staffing, etc.).

Basis for the development of the program of classes using the means of ecological tourism includes knowledge of the initial level of indicators of physical condition, environmental education, and motivation of children of primary school age. The main goal of the proposed program is to promote the development of a harmonious personality, to promote the adaptation of schoolchildren to intensification of the educational process, the organization of leisure and active recreation, the education of the ecological culture of schoolchildren. Program consists of theoretical and practical material, designed for 216 hours, aimed at the acquisition of basic knowledge and hiking skills, local history, sports orientation, focused on the child and takes into account their interests, is directed to a harmonious all-round education of the individual. Program provides for the following activities: educational, environmental, research, practical, cultural, entertainment, recreational, information.

Content of the extracurricular program for children of primary school age in the control group does not contain separately identified environmental activities. According to a smaller number of practical classes of environmental orientation and information activities. Younger schoolchildren of the control group have more thematic classes of special physical and tourist training. The program of extracurricular activities of the tourist and local lore profile is designed for 216 hours a year (6 hours a week).

Results of the conducted pedagogical experiment proved the effectiveness of environmental tourism taking into account the positive impact on the indicators of physical condition, the formation of ecological culture, the organization of useful leisure and active recreation for children of primary school age. There was a significant improvement in the indicators of the functional state, physical preparedness, level of ecological knowledge. So, there was an improvement in the results in the Rufieu trial with 7,5 conv. units up to 6,4 conv. units ($p < 0,05$), the adaptive-reserve capabilities of the body (ARC) increased by 2,19%, the indicators of power, speed and speed-strength indices improved, the health indicators, increased activity and mood in children of primary school age in the experimental group after experiment. In the control group, we also observe a tendency to improve the physical state after the experiment, but the changes in the indices have no significant differences ($p > 0,05$). In terms of the incidence rate of children of primary school age in the experimental group, the number of absences and cases of acute respiratory illnesses decreased during the school year, however, the overall pattern of the incidence of the subjects studied after the experiment did not change. The students of the control group also showed a tendency to

improve in reducing the number of days missed due to illness. Significant changes occurred in the indicators characterizing the ecological education of schoolchildren in the experimental group. So, it significantly influenced the level of ecological culture of the study group of the experimental group: it is determined that more than 40% of students have deep knowledge and have the skills to apply this knowledge in practice in various situations, characterizing a very high level of development of ecological culture, 45% of schoolchildren possess the basics of environmental knowledge and skills and the ability to give them a certain interpretation (high level) 12% had above the average level of ecological culture, 3% had an average level characterized by the presence of elementary ecological knowledge that the schoolchildren does not always know how to correctly apply. Low and very low levels in the experimental group were not detected, in contrast to the control group, 18% of whom had extremely limited volume of environmental knowledge and weak skills and the desire to independently apply them in practice.

So, it can be stated that the program of classes using the means of ecological tourism has proved to be effective due to the improvement of physical preparedness and physical readiness, a reduction in the level of acute morbidity, an increase in the level of ecological culture.

Based on the results of the research, the structure was established and the content of "school environmental monitoring" was developed in the course of extra-curricular physical education classes, which included the diagnosis of the ecological education of primary school children, the level of adaptation-reserve capabilities, physical activity and physical health of schoolchildren.

Monitoring structure includes (Table):

- assessment of the initial level of indicators of physical condition (definition of indicators of morbidity, physical development, physical readiness, physical performance, level of physical activity, physical health, adaptive-reserve capabilities);
- comparison of obtained data with normative indicators;
- diagnostics of ecological education of children of primary school age;
- determination of value orientations to regular exercise, attitude towards nature;
- assessment of the ecological culture level.

Results of environmental monitoring can be used to develop a program of classes using the means of ecological tourism and serve as criteria for the effectiveness of the program.

Conclusions

On the basis of the analysis of professional scientific literature, it is revealed that the problems of using the potential of physical education in the process of forming an ecological culture of schoolchildren have not been practically solved. It has significant opportunities in the field of formation of ecological consciousness and behavior of schoolchildren, first of all, in relation to their own organism as an object of environ-

Content of the stages of school environmental monitoring

Stages	Indicators	Techniques
Assessment of definition of morbidity indicators	class of illness; the number of illnesses per academic year; duration of each disease	a copy from medical cards, a visit log and medical certificates. The class of illness was determined according to ICD-10.
Determining the level of physical performance	Ruffie's index	Ruffie's test
Assessment of the adaptive-reserve capabilities of primary school children	indices of Rohrer, Robinson and Kerdo	Screening of the ARC (N. Polka, 2014)
Evaluation of the baseline level of indicators of physical condition:		
Evaluation of physical development	body length, body weight, chest circumference	Anthropometric methods
Evaluation of the functional state of the respiratory system	VC (ml)	Using a portable spiograph according to a conventional technique
Evaluation of the functional state of the cardiovascular system of the body	HR _{reast} , AP _{syst} , AP _{diast}	Palpation method by Korotkov method (tonometer "Omron-M1")
Evaluation of physical health	Physical Health Index	Express assessment of the level of physical health G. L. Apanasenko
Evaluation of physical activity level	Index of motor activity	Framingham method
Evaluation of the level of school motivation	Level of school motivation	Method of N. Luskanova "Assessments of the level of school motivation"
Diagnosis of environmental education	Intensity of the subjective attitude to nature	Method "Diagnosis of environmental education "Naturol"
Determination of value orientations	Motives for schoolchildren to participate in environmental activities	Analysis of ecological installations "EKPB" L. V. Bayborodova Methodology "Motives of schoolchildren's participation in activities"
Evaluation of the relationship to nature	Relation to nature	Questionnaire "My attitude to nature", A. Kozin's and A. Stepanyan's "Attitude of schoolchildren to the surrounding nature"
Evaluation of ecological culture level	Definition of environmental education, environmental awareness and environmental activities	Methodology for assessing the level of ecological culture

mental concern. Complications of the educational process in general educational institutions require the active introduction into the daily life of schoolchildren of physical education for the restoration of physical and spiritual forces. Main forms of ecological tourism are walks, ecological trails, excursions, trips and hikes, relay races, competitions, rallies, expeditions. Implementation of ecological and tourist activities in general educational institutions is a pedagogical process of purposeful systematic influence on schoolchildren by physical exercises and environmental factors with the aim of ecological education, physical recreation, health promotion and development of physical qualities. It is problematic to study and determine the necessary organizational and resource support for classes on various types of ecological tourism in the conditions of general education schools. The potential of tourism and local lore studies for establishing intersubject connections in the process of teaching schoolchildren is not fully

utilized. When developing the program, we used traditional and innovative forms of classes' organization. Taking into account the recommendations of experts on the advisability of using the forms of organization of classes for environmental tourism for primary school children, assessing the best world and domestic experience, and own experience in conducting classes, we recommend the following forms: ecological paths, ecological games; environmental quizzes. Effectiveness of the developed program of classes using the means of ecological tourism is proved in the pedagogical experiment, as evidenced by the obtained results.

Prospects for further research in this area are the development of a scientifically based system of classes using the means of ecological tourism for schoolchildren of different age groups.

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