

14. Avvo B.V., Gladkaya I.V. Gotovnost' studentov pedagogicheskogo vuza k resheniyu zadach sotsializatsii podrostkov [Readiness of students of a pedagogical university to solve problems of socialization of adolescents] // Pis'ma v Emissiya. Offlayn. 2012. URL: <http://www.emissia.org/offline/2012/1870.htm> [data obrashcheniya 21.12.2012].

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DEVELOPMENT OF A TYPICAL MODEL FOR THE DEVELOPMENT OF ECOLOGICAL CULTURE OF STUDENTS (on the example, Ile-Alatau National Park)

Abstract

In this article, the problem of ecological culture of the student is considered, the educational-methodical model of its formation, consisting of content-target, operational-active and evaluation-effective blocks, is developed and presented. In the course of the study, the typical model of the Ile-Alatau National Park "Ekosokpak" was characterized, the creation of which is aimed at the development of regional systems of ecological culture in addition to students in the field of tourism and education. The model was developed on the basis of the principles of the ecosystem approach in education with the aim of involving students in research and project activities on the ground, the development of emotional activity in the region and the launch of drivers of its development. The purpose of creating a model is an attempt to form the ecological culture of students and raise its level by creating a model of an ecological educational project in the conditions of sustainable development of modern society, forming value attitudes and revealing the concept of "man-nature". This model is a program that includes practical classes, excursions, classes with an ecological and aesthetic orientation, scientific research activities. Thus, the obtained results allow us to conclude that the implementation of the environmental culture and educational project in the course of the activities of the students "Ekosokpak" will allow to solve the problem of the formation of the environmental culture of the personality of the student in the educational space of the university. The typical model developed by us from these positions includes content, target, operational and evaluation-productive components aimed at the formation of the student's ecological culture.

Keywords: typical model, ecological culture, educational process, method, approach, technology, natural park

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СТУДЕНТТЕРДІҢ ЭКОЛОГИЯЛЫҚ МӘДЕНИЕТІН ДАМУДЫҢ ҮЛГІЛІК МОДЕЛІН ЖАСАУ (Іле Алатауы Мемлекеттік Ұлттық табиғи паркінің мысалында)

Аңдатпа

Бұл мақалада студенттің экологиялық мәдениетінің мәселелері қарастырылып, оны қалыптастырудың мазмұндық-мақсатты, операциялық-әрекеттік және бағалау-тиімді блоктардан тұратын оқу-әдістемелік моделі әзірленіп, ұсынылды. Зерттеу барысында «Экосокпак» Іле Алатау Мемлекеттік Ұлттық табиғи паркінің типтік моделінің сипаттамасы берілген, оны құру туризм және білім

беру саласындағы студенттерге қосымша экологиялық мәдениеттің аймақтық жүйелерін дамытуға бағытталған. Модель білім берудегі экожүйелік көзқарас қағидаттары негізінде студенттерді жергілікті жерде ғылыми-зерттеу және жобалық қызметке тарту, аймақтағы эмоционалдык белсенділікті дамыту және оның дамуының драйверлерін іске қосу мақсатында әзірленді. Модель құрудың мақсаты – қазіргі қоғамның тұрақты дамуы жағдайында экологиялық-білім беру жобасының моделін құру арқылы студенттердің экологиялық мәдениетін қалыптастыруға және оның деңгейін арттыруға, құндылық көзқарастарын қалыптастыруға және "адам – табиғат" ұғымын ашуға бағытталған әрекет. Бұл модель практикалық сабақтарды, экскурсияларды, экологиялық-эстетикалық бағыттағы сабақтарды, ғылыми-зерттеу қызметін қамтитын бағдарлама болып табылады. Осылайша, алынған нәтижелер студенттердің «Экосокпақ» іс-әрекет үдерісінде экологиялық мәдениет пен білім беру жобасын жүргізу жоғары оқу орынның білім беру кеңістігінде білім алушы тұлғаның экологиялық мәдениетін қалыптастыру мәселесін шешуге мүмкіндік береді деген қорытынды жасауға мүмкіндік береді. Осы позициялардан біз әзірлеген типтік модель студенттің экологиялық мәдениетін қалыптастыруға бағытталған мазмұнды, мақсатты, операциялық және бағалау-нәтижелі компоненттерді қамтиды.

Түйін сөздер: үлгілік модель, экологиялық мәдениет, оқу үрдісі, әдіс, тәсіл, технология, табиғи парк.

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РАЗРАБОТКА ТИПОВОЙ МОДЕЛИ РАЗВИТИЯ ЭКОЛОГИЧЕСКОЙ КУЛЬТУРЫ СТУДЕНТОВ (на примере Иле-Алатауского Национального парка)

Аннотация

В данной статье рассмотрены проблемы экологической культуры студента, разработана и представлена учебно-методическая модель ее формирования, состоящая из содержательно-целевых, операционно-деятельностных и оценочно-эффективных блоков. В ходе исследования дана характеристика типовой модели Иле-Алатауского национального парка "Экосокпақ", создание которого направлено на развитие региональных систем экологической культуры в дополнение к студентам в сфере туризма и образования. Модель разработана на основе принципов экосистемного подхода в образовании с целью вовлечения студентов в научно-исследовательскую и проектную деятельность на местах, развития эмоциональной активности в регионе и запуска драйверов ее развития. Цель создания модели-попытка сформировать экологическую культуру учащихся и повысить ее уровень путем создания модели эколого-образовательного проекта в условиях устойчивого развития современного общества, формирования ценностных установок и раскрытия понятия "человек-природа". Данная модель представляет собой программу, включающую практические занятия, экскурсии, занятия эколого-эстетической направленности, научно-исследовательскую деятельность. Таким образом, полученные результаты позволяют сделать вывод о том, что проведение экологической культуры и образовательного проекта в процессе деятельности студентов «Экосокпақ» позволит решить проблему формирования экологической культуры личности обучающегося в образовательном пространстве вуза. Типовая модель, разработанная нами с этих позиций, включает содержательные, целевые, операционные и оценочно-продуктивные компоненты, направленные на формирование экологической культуры студента.

Ключевые слова: типовая модель, экологическая культура, учебный процесс, метод, подход, технология, природный парк.

Basic provisions. Pedagogical education of the current generation is very demanding and is characterized by the introduction of increasingly new and effective approaches and methods. At the moment,

numerous methods of developing the necessary competencies for students of various educational programs are being developed in pedagogy. All this is necessary to obtain a highly qualified graduate in demand on the labor market. The model of a graduate in educational programs must meet the requirements and preferences of employers. Therefore, there is a need to include elements of modern innovation in the learning process. One of which is environmental literacy and environmental culture among young people. This work is aimed at studying the degree of awareness of environmental culture among students. This direction is especially relevant today, as it affects global environmental problems and ways to solve them. In this regard, the authors investigate the issue of methods of improving ecological culture. The novelty of the work is the development of a standard educational and methodological model for the development of ecological culture among students of educational programs of ecology and biology. In the course of the research, quite serious work has been done, as a result of which a model has been developed, which is a program that includes practical classes, excursions, classes of an ecological and aesthetic orientation, research activities. The authors plan to continue research in this area based on the ecological trails of the Ile-Alatau National Park.

Introduction. Nowadays, the formation of the personality of a professional becomes an important factor, because the fundamental change of values, cultural norms and ideals makes the issue of preparation for effective interaction with the environment relevant, where one of the undeniable factors is solving environmental problems, having beliefs that respect nature. Therefore, the problem of creating environmental culture in the higher education system is becoming urgent due to the insufficient development of the problem of studying environmental objects, environmentalization of subjects and complex teaching [1, p.64; 2, p.196], continuous environmental education at the level of regional and republican components of the educational standard [3, p. 28]. The work of National Reserves and Parks plays an important role in the successful formation of ecological culture, they form a worldview and ecological and moral qualities, help to consciously perceive the environment, understand the importance of respecting nature, rational use of its wealth, enrichment of natural resources[4, p.38].

Environmental culture of the student (environmental education, environmental awareness and nature protection activities) is formed through certain forms and methods that describe the pedagogical conditions of effective work[5, p.242].

Analysis of scientific-methodological literature and the educational process in higher educational institutions: Society's need for an ecologically competent person and insufficient preparation of the educational system for its formation; shows the existence of contradictions between the importance of increasing the level of environmental culture of students of higher educational institutions and the lack of development of theoretical and methodological bases for its formation during the study of natural sciences[6, p.263; 7, p.133].

Therefore, the research basis for the formation of the student's ecological culture is to make them walk ecological trails, master the system of ecological education, understand the laws of living and inanimate nature, and form scientifically based principles of attitude to the environment [8, p. 248].

The theoretical understanding of the study of the formation of ecological culture and the analysis of scientific and methodological literature help us and so on showed the need to create a model of ecological culture formation designed based on the rules. The components of the proposed model reveal the internal organization of the process of formation of environmental culture of students: goals, tasks, principles, content, organizational forms and methods, etc. b. and is responsible for constantly increasing interaction with the elements of this process [9, p. 92; 10, p. 102].

At the same time, it is more important from the point of view of environmental education, because within them the whole system of "natural environment - society - man" is born and constantly develops. In this regard, the role of the Ile Alatau State National Natural Park in the formation of ecological culture is huge.

The Ile-Alatau State National Natural Park, created by the Government of the Republic of Kazakhstan Resolution No. 228 of February 22, 1996, is considered one of the most important places of the country. The purpose of creating a national park is to preserve unique landscapes, flora and fauna, improve conditions for recreation and tourism, and develop and implement scientific methods of conservation of natural complexes under recreational use. The total area of the park is 199,186 thousand hectares, the Ile Alatau mountain range is a natural area rich in flora and fauna. It stretches 120 kilometers from the valley of the Kaskeleng River to the valley of the Turgen River. There are unique natural monuments, including mountain lakes, waterfalls, and other natural, historical, and cultural monuments. The territory of the park is a priceless natural complex characterized by a variety of flora and fauna, and it is a favorite vacation spot for residents and guests of the

city, as it is located close to Almaty. Ile Alatau mountains attract attention with their natural beauty - mountain springs and rivers, gorges, various flowers, coniferous forests, alpine plants. The nature and ecological features of the national park cannot be duplicated. During your vacation or travel, you can see unique landscapes - from grassy meadows to alpine meadows and peaks covered with eternal snow and glaciers. The wealth and beauty of nature, monuments and objects of natural and cultural-historical heritage attract and attract thousands of tourists to the national park. Dozens of tourist trails, automobile, pedestrian and horseback routes have been built in the park. The Department of Environmental Education and Tourism of the Ile Alatau State National Natural Park performs the following tasks in the formation of environmental culture:

- organization and implementation of activities on environmental education of the population. Participation in personnel training programs, speaking in the mass media, on Internet sites, conducting lectures, classes, conversations in institutions, interacting with public organizations;
- participation in cultural and mass events, holding seminars, conferences, nature protection actions;
- development and production of booklets, guides, catalogs, albums, information shields, lists, indicators;
- development of programs for the prospective development of environmental education, tourism, nature use, limited economic activity;
- planning of landscaping of recreation areas;
- interaction with tourist companies, institutions, land users on creating a single tourist product;
- advertising services and opportunities of the park in terms of tourism and recreation in mass media, Internet sites, participation in tourist exhibitions;
- work with land users (preparation of documents and land lease terms);
- work on video and photo sessions in the park;
- organizing and participating in the removal of garbage and beautification of the territory of the park [11, p. 12].

Educating students' ecological culture and morality towards people and nature means contributing to solving the environmental problem. The connection between ecology and culture is direct: the state of ecology reflects the level of culture that a society is a carrier of [12, p. 229]. Revitalizing the culture of ancestors contributes to raising the culture of an individual. Environmental problems arise from ignorance of ecological culture and the basics of traditional culture. Nature protection projects of renewal, including educational projects, should ensure the implementation of approaches to the formation of such a level of environmental culture that contributes to achieving a state of balance in the interaction of "man-nature" [13, p. 115].

The typical models for the areas are designed in the ideology of developing and updating the content, technologies of additional education in accordance with the target development model [14, p. 7]. They are vague in nature, trying to clarify and correct the current situation in the field of additional education for students. Models are not static and find their purpose in constant development, setting guidelines for researchers and organizations, looking to the future based on current reality, leaving room for creativity and variability. In the research work, the idea of "Effective road reference" was introduced into the typical model of the "Eco-trail" tourist and local history route, taking into account its features, a unique point in each region "Eco-trail. It was aimed at establishing a general educational and methodological basis that would allow the compilation of the "Area" program. The general principles of the model are related to the organization of students' activities in the Ile Alatau State National Natural Park in the logic of an open educational space based on the ecosystem approach to education: the study of the surrounding world and the design of the development of local territories. Interest in this issue is the study of the beginnings of the students' ecological culture, the interaction between man and nature at different levels of development, and the theoretical basis of the students' ecological worldview - an exemplary educational and methodological model of the development of the ecological educational culture implemented in the "Ecopath" experiment within the framework of the Ile-Alatau National Park. created the need to do.

The purpose of creating a model is to create a model of an environmental education project in the context of the sustainable development of modern society, and it is an action aimed at forming and increasing the level of environmental culture of students, forming value attitudes and opening the concept of "man-nature". This model is a program that includes practical lessons, excursions, ecological-aesthetic lessons, and scientific research activities. In this work, we consider environmental culture as a social and personal quality of a person, it shows the nature of its relationship to the social-natural environment and

human health, it is reflected in the value orientations that stimulate environmental activities, it is implemented in all its forms to recognize, change and preserve the social-natural environment and human health. and due to the social mechanism of its formation. The following were identified as basic indicators: environmental knowledge, environmental thinking and the nature of motives that determine the actions and behavior of students in the social and natural environment. The main mechanism of formation of environmental culture is intended to be a target system of environmental education. The importance of environmental education in the development of society is determined by its dual role. On the one hand, it is one of the means of achieving the goal of education — education of a well-rounded personality, and on the other hand, it acts as a necessary means of changing the relations between society and nature. The creation of an environmental education model aimed at forming the environmental culture of future professionals is based on the following rules:

- the process of environmental education is implemented in the form of a continuous "algorithm" throughout the entire cycle of student education and is considered as a methodological system that includes educational goals, content, methods, forms and tools;

- the effectiveness of this system is based on a defined and justified set of principles of high and continuous environmental education that develops the individual;

- environmental education, which determines the content of environmental education, should have a worldview aspect based on natural science, socio-philosophical, humanitarian, historical and cultural content;

- the main factor in the process of formation of environmental culture of students and the leading principle of creating the content of environmental preparation courses is the principle of combining natural science and humanitarian knowledge, different ways of knowing the world.

Materials and methods. A number of methods were used for the purpose of research and verification. Advancing the hypothesis, we used a set of pedagogical methods:

- theoretical methods: analytical, scientific prediction, historical-logical, comparative in developing the research concept;

- empirical methods: asking questions, conducting surveys, researching and generalizing the experience of ecological trails, etc.

Experimental works were carried out in the process of teaching with the participation of students of the Kazakh National Pedagogical University named after Abay, Institute of Natural Sciences and Geography. In the first stage – planning – definition of the research problem, analysis of theoretical sources on the research topic, theoretical analysis and synthesis of didactic material, development of general principles and research criteria, environmental culture of students of educational programs in natural sciences 6B05202 – Ecology, 6B01513 Biology, 6B05101-Biology The features of the development process were determined. In the second stage – theoretical and modeling – on the basis of criteria determined by theoretical and empirical methods, the development of environmental culture of the students of the above-mentioned educational programs was analyzed, the culture and didactic conditions for the development of environmental culture were developed. The electronic version of the photobook "Ile-Alatau State National Natural Park" was introduced for students. In the third stage - summarization - analysis of the received data was carried out, their statistical processing, an exemplary teaching-methodical model was created in the ecological trail experiment on the development of environmental culture of students of natural sciences.

When determining the foundations of environmental culture of university students, we relied on the rules on organizing the educational process proposed by Vladimirov, according to which the future graduate must meet the requirements for the quality of professional and pedagogical training of the society, in particular, he must have a set of certain knowledge, skills and competencies. Three blocks forming the basis of the proposed ecological culture can be distinguished: 1) cognitive block; 2) motivational value; 3) organizational-practical [15, p. 27].

The cognitive block focuses on the study of information content; mastering, supplementing, deepening, systematizing and generalizing the student's environmental and pedagogical knowledge; deep understanding and determination of the diverse value of nature; be able to analyze environmental concepts and economics concepts.

The motivational component is to create motives related to the student's understanding of the need to acquire environmental and pedagogical knowledge; to revive internal, cognitive activity, emotional sphere; aimed at stimulating the need for environmental education and self-education.

The value component is represented by a set of ideas, norms that regulate and direct the student's actions and is expressed by attitudes and feelings towards nature (confidence in the need to provide possible help, expression of feelings of love, compassion, respect).

The organizational-practical block is aimed at turning ecological and pedagogical knowledge into a belief, confirming them, improving them on the basis of appropriate actions, operations, behavior and transferring them to others. A student of a higher educational institution should creatively reconsider the methods and methods of nature protection and nature conservation activities and apply them in practice, provide students with available environmental knowledge, objectively assess their professional capabilities in the organization of environmental education and training, and various technologies for the organization of environmental activities. and objects should be used [16, p. 2].

Results. The assessment-result block describes the levels of efficiency and the achievement of goals, solving the tasks set in the content-objective block. In addition, we offer interrelated components of the student's environmental culture: environmental education, environmental awareness and nature protection activities, personal direction, knowledge, skills, beliefs, attitudes, environmental responsibility, readiness for ecological-creative activities, etc. b. explains about In our opinion, in addition to the mentioned components, there is a need for the student to observe ethical behavior norms in nature, a sense of concern about the state of the environment based on the worldview, the integrity of nature and its universal value; interaction between nature and society, nature protection, etc. b.

At the same time, the main principles of ecological culture formation are: the method of ecological trail experience in ecological culture formation; The consistency and continuity of the study of ecological material belonging to the Ile Alatau State National Natural Park; the unity of intellectual and emotional-voluntary principles in the activity of research and improvement of the surrounding natural environment; is the interrelationship of global, national and local studies in solving environmental problems.

The project model was developed and implemented on the basis of the Kazakh National Pedagogical University named after Abay, Institute of Natural Sciences and Geography in Almaty. Students of the following educational programs participated in the experiment: 24 students of 6B05202-Ecology, 15 students of 6B01513-Biology and 18 students of 6B05101-Biology took part in the experiment. The initial stage of project implementation was testing to determine the level of environmental culture of students. It was determined by awareness in the field of environmental education, familiarity with information+ about the Ile Alatauy State National Natural Park, the presence of environmental skills in environmental protection activities, and the level of aesthetic and moral consciousness. The testing period allowed students to be divided into 4 levels of environmental culture: high, medium, low and completely unaware (Fig. 1).

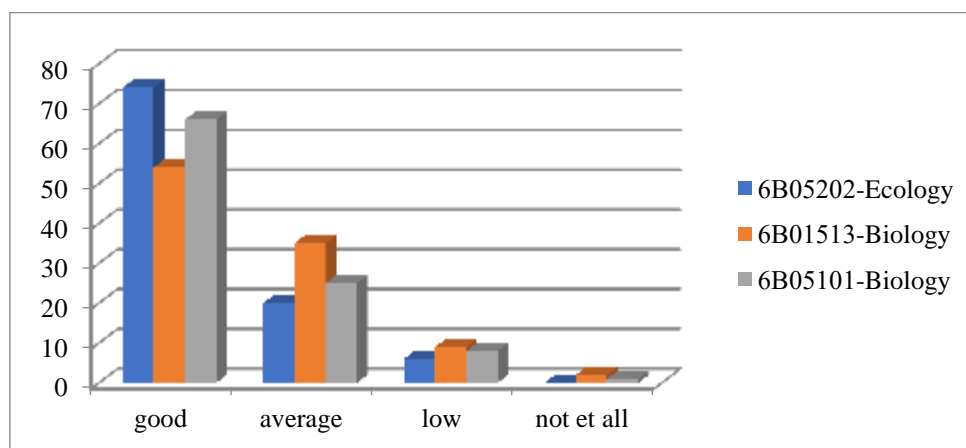


Figure 1. Initial indicators of environmental culture levels of students in experimental groups, %

The testing showed the following results: except for the students of 6B05202-Ecology educational programs, most of those who participated in the environmental experiment were students with a medium and low level of formation of the foundations of ecological culture: it was found that they have an incomplete and unsystematic environmental education, they are not interested in environmental issues, they believe that it is necessary to participate in solving environmental problems does not count, has everyday concepts about

the relationship between man and nature. A small part of the students who took part in the test consider the environment and "Ile Alatau State National Natural Park" as a part of spiritual value and general culture. However, they emphasize the need to change the attitude of consumers towards nature, but they do not have enough knowledge and practical skills for this.

On the basis of quantitative and qualitative processing of research results, a pedagogical diagnosis was made about the need to form environmental culture of students. Based on the analysis of the tools presented in the scientific literature, the following were selected as a component of didactic support for the process of forming the foundations of environmental culture of students of a higher educational institution (HEI):

- multi-level diagnostic and developmental tasks, ecological trails aimed at mastering environmental knowledge, forming environmental consciousness, developing students' skills of nature protection activities based on "Ile Alatau State National Natural Park";

- environmental-didactic games aimed at mastering pedagogical activities and behavioral skills of university students;

- diagnostic-heuristic tasks, the content of which is the acquisition and systematization of environmental knowledge, the development of ecological feelings and confidence in the need for a rational approach to nature, the search for the right ways to solve environmental problems, for example, the organization of an environmental experiment "Ecopath" in the Ile Alatau State National Natural Park. Students were presented with two visual test images: a clean forest and a forest after the arrival of tourists. Purpose: to create an understanding of the need to take care of nature.

- "action coordination" situation: the player solves an environmental puzzle, problem, question, etc. b. carries out all the cards, the meaning of the task is to find another student in the group, and offer options for solving this riddle, problem, question, which has an answer on his card;

- ecological messages, abstracts, multimedia slide-presentations are prepared;

- environmental, man-made disasters, human activities to provide assistance to the world of animals and plants, unique natural monuments, environmental activities, organizations dealing with nature protection issues, etc. search for information on search engines;

- environmental festivals, actions, concerts; publication of materials in mass media; participation in conferences and creative projects that contribute to the implementation of a person-oriented approach to education.

The project of the exemplary teaching-methodical model of the development of ecological-educational culture implemented in the practice of "Ekosokpak" aimed to develop and organize ecological-pedagogical activities aimed at the formation of ecological culture, interest in solving environmental problems in the context of sustainable development. The model consists of 4 modules: 1) cognitive-motivational: The module includes the first test, lectures: "ecological global issues", "ecological education and culture", familiarization and reading with a photo book about "Ile Alatau State National Natural Park", about "ecological resources" research work. The objective of the module is to preserve the natural landscapes and gene pool of this natural area, including research and monitoring of the natural environment in it and adjacent areas. The outcome of this module is the formation of skills in environmental culture and worldview and nature protection activities. 2) cultural and educational: "Eco-trail" environmental excursions, field educational hours: "Getting to know the Ile Alatau State National Natural Park", "green technology"; The round table of "ecological problems of the world" made it possible to perceive the surrounding natural world from a moral and value point of view. 3) creative activity - "parks of the native land" photo competition - gathering information about positive and negative scenes of anthropogenic nature; "environmental protection", "scientific and technical technologies" article competition, "living newspaper" column, "Principle of non-waste resources", laboratory works "estimation of atmospheric air pollution", etc. b. a number of other events were held. The result of the work of this module is the mastering of environmental skills for independent research work, mastering of scientific methods of researching environmental problems of society. 4) Monitoring and evaluation. According to the results of the implementation of the environmental education project, a descriptive test was conducted in order to determine the dynamics of the level of environmental culture of the participants of the experiment. The analysis of the conducted activities and test results made it possible to conclude that environmental educational work changed the perception of students, as the high level indicator increased (Fig. 2).

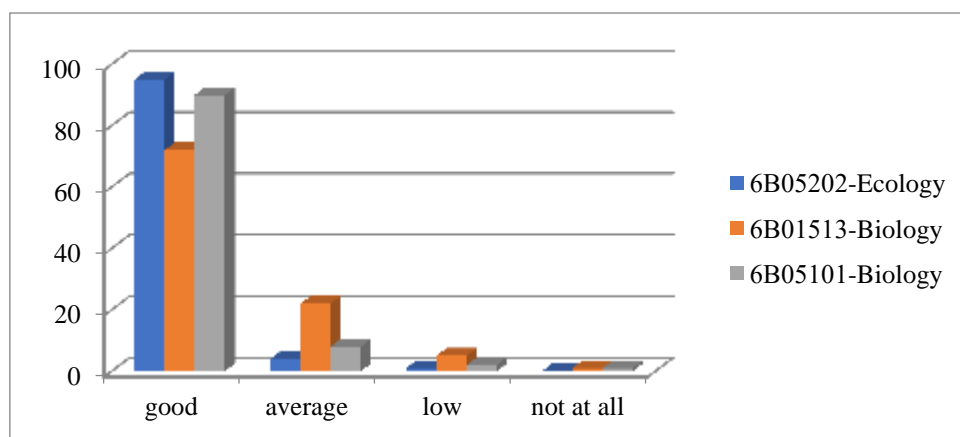


Figure 2. Development of environmental culture of students dynamics of levels, %

Thus, the obtained results allow us to conclude that conducting the environmental culture and education project in the "Ecopath" activity process of the students allows to solve the problem of forming the environmental culture of the learner in the educational space of the higher educational institution. Within the "Ile Alatau State National Natural Park" there was a significant difference between the levels of the model model for the development of environmental culture of students.

Discussion. Most of the participants of the experiment had a high level of environmental education. They have adopted an active environmental position, students are not only engaged in improving their environmental culture, but also spread their knowledge to other students, actively promote careful attention to the national park, nature reserves, the environment in general, and the rational use of natural resources. Based on these positions, the typical model developed by us includes content, goal, operational and evaluation-result components aimed at forming the environmental culture of the student (Fig. 3). At the same time, the content-objective block of the model includes the purpose, tasks and principles of forming the environmental culture of the student, and the operational activity - forms and methods, as well as conditions for effective work.

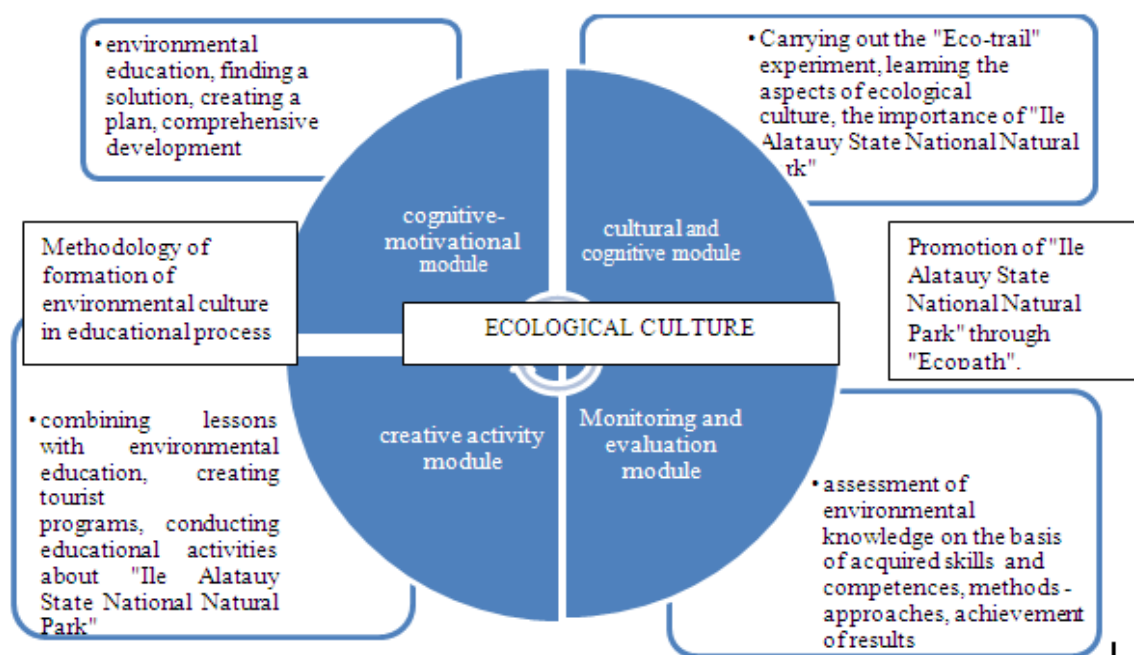


Figure 3. Model model of formation of environmental culture of students in the conditions of sustainable development of society

Environmental culture of students of educational programs in natural sciences (6B05202-Ecology, 6B01513-Biology, 6B05101-Biology) is an integral part of the general human culture. It includes a set of environmental and social activity that contributes to the coordination of the interaction of the technosphere and the biosphere with the general human values and ideals, humanistic ideas, methods of knowledge and activity, moral and ecological norms and requirements. Analyzing the research work, the important didactic conditions for the development of the environmental culture of the students of the above-mentioned educational programs are as follows:

– transition from the anthropocentric direction of technical education, which is characterized by accepting the environment as a useful resource in the activity of mankind, to ecocentrism, which declares that nature is self-appreciating and dependent only on man; creating educational programs for environmental education, forming an environmental education system in the process of studying natural sciences and special subjects;

– a combination of direct and indirect management of the formation of environmental culture of students of educational programs 6B05202 – Ecology, 6B01513 – Biology, 6B05101 – Biology in all educational activities; improvement of the range of tools and methods used in educational tools on the basis of the ecocentric principle and the use of a variety of available teaching methods and tools, for example, electronic textbooks, tools, and business technologies.

All students who took part in ecological practical research work gave a positive answer about the usefulness of the work: "I received a lot of new information that will be useful in the future professional work on environmental education and training of educators", "I received the necessary theoretical knowledge on environmental issues, a lot about the main areas of work I learned something", students enriched their inner spiritual world, learned to love and understand nature, "Working with information materials, we enriched our knowledge with technologies, forms", methods of working with children to awaken their love for nature, to educate a sense of responsibility for all living things. Pedagogical monitoring of the formation of the foundations of environmental culture of university students made it possible to determine that this process is directly related to the manifestation of the activity of students in acquiring environmental knowledge, developing skills, and developing the skills of careful and rational treatment of nature[17, p. 257].

Analysis of the empirical material of the research, monitoring of students' activities, testing, generalization of evaluation results allows to draw conclusions about the effectiveness of using didactic components to form the foundations of environmental culture of university students.

Conclusion. Studying the problem of forming the environmental culture of the student, we came to the conclusion about the need to introduce a typical model based on the experience of the ecological trail of the Ile Alatau State National Natural Park "Eco-trail", which contributes to the development of the system of knowledge about nature and ecology, which has a significant impact on the formation of the environmental culture of the student through the study of environmental objects. . Formation of environmental culture in society, promotion of environmental knowledge at all levels of education, development of environmental education and enlightenment in order to ensure sustainable development is one of the tasks of implementation of the unified state environmental policy in the Republic of Kazakhstan. The national development plan of Kazakhstan until 2025, as the main strategic document of the country, sets before the educational system the task of providing environmental education to children and youth, increasing their level of knowledge about environmental protection, and taking measures to absorb environmental values. In addition, the development of ecological culture of citizens should be carried out through the principles of caring for nature, protecting animals and supporting environmental organizations. The formation of environmental education and culture becomes especially relevant, because the illiteracy of students, young people and the general population in environmental issues has a harmful effect not only on nature, the flora and fauna of the surrounding world, but also on the intellectual and spiritual life of each of us. Education of ecological culture in society is possible only in the case of purposeful systematic work on the formation of a scientific education system aimed at learning the processes and results of the interaction of man, society and nature, i.e. the project of the exemplary educational and methodological model of the development of ecological-educational culture implemented in the experience of the proposed "Ecopath" is ecological culture can be formed.

References:

I. Bagapova A.R. Model' stanovleniya ekologicheskoy kul'tury lichnosti v usloviyah ustojchivogo razvitiya obshchestva/A. R. Bagapova, I.V. Abdrashitova. – Tekst: neposredstvennyj // Pedagogika: tradicii i innovacii: materialy VIII Mezhdunar. nauch. konf. – Chelyabinsk: Dva komsomol'ca – 2017. – S. 63-66.

2. Solodyankina T.V. *Proekt «Ekologicheskie tropy kak obrazovatel'naya tekhnologiya, napravlennaya na grazhdanskoe, patrioticheskoe i ekologicheskoe vospitanie molodezhi»* // *Molodoj uchenyj*. – 2018. – № 6 (192). – S. 194-198.
3. Satueva L.L. *Formirovanie ekologicheskoy kul'tury i esteticheskogo otnosheniya cheloveka k prirode posredstvom ekologicheskogo vospitaniya* // *Pedagogika vysshej shkoly*. – 2016. – № 1 (4). – S. 27-30.
4. Boranbaev A.S. *Ekologizaciya kak vazhnaya sostavlyayushchaya pedagogiki* // *Molodoj uchenyj*. – 2015. – № 19.2 (99.2). – S. 37-39.
5. Schmäing T., Grotjohann N. *Environmental education in teaching science on the Wadden Sea ecosystem: What are the effects on environmental psychological constructs?* // *Environmental Education Research*. – 2023. Vol. 29(2). – P. 232-247. Doi: 10.1080/13504622.2022.2102584
6. Yared N.D., Harm, J.A., Biemans, R.W., Martin, M. *Fostering students' systems thinking competence for sustainability by using multiple real-world learning approaches* // *Environmental Education Research*. – 2023. – Vol. 29(2). – P.261–286. Doi: 10.1080/13504622.2022.2141692
7. Kishore M., Frances Q., Sue, E. *Action-oriented approaches to teaching environmental science in Bhutanese secondary schools: Stakeholder perceptions* // *The Journal of Environmental Education*. – 2023. – DOI: 10.1080/00958964.2022.2157368
8. Fleming S.W., Watson J.R., Ellenson A. et al. *Publisher Correction: Machine learning in Earth and environmental science requires education and research policy reforms*. // *Nat. Geosci.* – 2022. – Vol. 15. – P. 245-262. <https://doi.org/10.1038/s41561-021-00881-3>
9. Siegmar O., Pamela P. *Nature-based environmental education of children: Environmental knowledge and connectedness to nature, together, are related to ecological behavior* // *Global Environmental Change*. – 2017. – Vol. 47. – P.88-94. <https://doi.org/10.1016/j.gloenvcha.2017.09.009>
10. Arnim Sch., Daniela, D.B., Juan, L., Grettel, N., Sara, M., Federico, D., Sofia, A., Brototi, R., Irmak, E., Leah, T., Joan, M. *Environmental conflicts and defenders* // *Global Environmental Change*. – 2020. – Vol.63. – P. 102-104, <https://doi.org/10.1016/j.gloenvcha.2020.102104>
11. *Ile-Alatau memleketik ul'tyik tabigi parki. Gosudarstvennyj nacional'nyj prirodnyj park Ile-Alatau. Ile-Alatau state national nature park. Fotokitap – Almaty: «Tau-Kajnar» ZHSHS.* – 2020. – 204 b.
12. Abdimalip N., Abdaimova K., Zholmagambetov N., Abishova, G., Akeshova, M. *Neutralization of the polluted soil by a composting method* // *News of the National Academy of Sciences of the Republic of Kazakhstan, Series of Geology and Technical Sciences*. – 2017. – Vol. 2(422). – P.228–233. <http://www.geolog-technical.kz/images/pdf/g20172/228233.pdf>
13. Yantuan Y., Ning, Zh. *Environmental regulation and innovation* // *Global Environmental Change*. – 2022. – Vol.76.102587.P.12-125. <https://doi.org/10.1016/j.gloenvcha.2022.102587>
14. Marina P., Sverker C. *Environmental commitments in different types of democracies: The role of liberal, social-liberal, and deliberative politics* // *Global Environmental Change*. – 2022. – Vol.74. – 102523. – P. 4-11. <https://doi.org/10.1016/j.gloenvcha.2022.102523>
15. Vladimirov N.M., Dorovskih I.G., Ivanov O.N. *Osnovy formirovaniya ekologicheskoy kul'tury studentov VUZa* // *Mezhdunarodnyj zhurnal eksperimental'nogo obrazovaniya*. – 2019. – № 3. – S. 27-31
16. *Ob utverzhdenii Nacional'nogo plana razvitiya Respubliki Kazahstan do 2025 goda i priznanii utrativshimi silu nekotoryh ukazov Prezidenta Respubliki Kazahstan: [Elektronnyj resurs].* – 2018. – URL: <https://adilet.zan.kz/rus/docs/U1800000636>. (data obrashcheniya: 16.01.2023).
17. Siegmar, O., Gary, W. Evans, Min J. Moon, Florian G. Kaiser *The development of children's environmental attitude and behavior.* - *Global Environmental Change*. – 2019. – Vol.58,101947. – P.253-278. <https://doi.org/10.1016/j.gloenvcha.2019.101947>