

ECOLOGICAL CULTURE AS A CONDITION FOR THE FORMATION OF HUMAN POTENTIAL

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Abstract

This article is devoted to the study of the essence of environmental education, which plays a very important role in the formation of an individual's ecological culture, as well as a person's caring attitude towards nature and the environment. The main goals and tasks of the category under consideration are aimed at the development of environmental thinking, and a better understanding of the relationship between nature and man, which affects the formation of an individual's ecological behavior. In addition, to achieve these goals and tasks, the basic principles of ecological behavior come to the rescue, in particular, a practical orientation, a systematic approach and the conditions of the local environment.

Undoubtedly, the availability of qualified personnel to train both the younger and older generations plays a very important role in the formation of a cult of personality, responsible for his/her actions and benefiting nature. But, unfortunately, at the present stage of human development, environmental education faces a number of problems, in particular, the lack of an adequate level of funding, appropriate personnel, the absence of merging ecology with other sciences, etc., which require prompt intervention and solutions. In our opinion, in the near future it is necessary to make environmental education a priority in order to achieve sustainable development and protect natural resources for future generations.

Keywords: ecology, environmental education, environmental training, ecological culture, ecological thinking, environment, natural management

I. Introduction

The emergence of such a science as ecology dates usually back to 19th century, during which the considered category served as a certain component of such a broad concept as zoology and studied the relationships within the environment.

But, as practice shows, with the development of civilization, the main direction of ecology also changes, to a greater extent, flowing into the social aspect.

Now the role of ecology is being studied in the context of science that helps people survive under environmental conditions and make this environment as "comfortable" as possible for existence.

Unfortunately, human resources and the importance of clean ecology were realized only after

an obvious conflict with the negative consequences of people's careless attitude towards nature, which, first of all, had a negative impact on people's health.

Accordingly, in modern conditions of development of society and the entire civilization, there is much concern about improving the quality of education, covering issues of the ecological environment, which is called environmental education.

In our opinion, before studying this term, it is important to focus our attention on the four well-known laws of ecology, which were put forward by the American scientist B. Commoner in the early 70s and became known under the slogan of the following aphorisms [1, 4].

So, let's consider the basic laws of ecology proposed by him:

1. "Everything is connected to everything else." The essence of the first law of ecology is interpreted in the context that all phenomena and processes in nature are closely interconnected. That is, this law "teaches" people to live without injudicious actions on individual parts of the ecological system, which can lead to global consequences.

2. "Everything must go somewhere." The second law states that any waste from economic activities must either be minimal or must go through a secondary usage cycle.

3. "Nature knows best." The third law of ecology focuses on the reasonable and conscious use of available natural resources. This law teaches people to cooperate with nature, instead of trying to completely transform it, and reminds us that we, humans, serve as an integral part of nature itself, but not its conqueror.

4. "There is no such thing as a free lunch." This is exactly what the latest Commoner Law says. After all, everything that we take from nature, we are obliged to compensate

For clarity, we would like to demonstrate the main 4 laws of ecology using by Barry Commoner 1917–2012, American biologist and ecologist:

1. Everything is connected to everything else.
2. Everything must go somewhere.
3. There is no such thing as a free lunch.
4. Nature knows best.

Undoubtedly, these laws play a key role in our life, although many of us are not even aware of it.

II. Materials and methods

We have to deal with environmental information almost every day in such areas as medicine, culture, education, etc.

But, unfortunately, the population usually doesn't know how to correctly assess this or that emerging problem, due to the fact that it doesn't have the proper qualifications and competence.

In this connection, the introduction of environmental education in people's lives is becoming highly relevant.

Thus, the main aim of environmental education is to create the most conscious, reasonable, positive attitude of a person towards nature and the environment, as well as the establishment of various interrelations between them.

The following tasks can be considered as the main tasks of environmental education [12, 15]:

- ✓ Extension of knowledge in the field of ecology for better understanding various environmental terms and concepts;
- ✓ Increasing the level of interest in environmental conservation among the population;
- ✓ The introduction of knowledge and skills for a proper attitude to nature;
- ✓ An increase in the level of environmental literacy among both the younger and older generations;
- ✓ Fostering a humane attitude towards nature;
- ✓ Increasing the level of competence in the study of various objects and phenomena;
- ✓ Upgrading the existing skills in helping the environment;

✓ Development of the qualities of competent analysis of all consequences of the environmental environment.

That is, for the formation of environmental education it is important to have environmental consciousness, because these terms are interrelated.

As for the methodology of environmental education, it is necessary to consider the complex of methods that are used to achieve the set goals and objectives.

The methods of environmental education are chosen depending on pedagogic and educational tasks, as well as the age criteria of students.

So, it is customary to distinguish the following methods of environmental education [5]:

✓ Visual methods, the essence of which is to study natural objects in real life or using images. Various types of observations, both live and with the help of illustrations, serve as vivid examples of this method. For example, observing the growth of plants or the behavior of animals;

✓ Verbal methods, including conversations, stories, reading information about ecology. Here, in our opinion, an important role is given to works of art, which clearly describe those processes of nature that become impossible to see;

✓ Practical methods covering various practical tasks and exercises. These methods usually include modeling, design, experiments, games, etc.

The terminology of environmental education was first discussed at a conference in the USA in the 70s of the XX century.

At that time, the following definition of this term was put forward: "Environmental education is the process of a person's awareness of the value of the environment and clarification of the basic regulations necessary to obtain the knowledge and skills necessary to understand and recognize the mutual dependence between man, his culture and his biophysical environment. Environmental education also includes the development of practical skills in solving problems related to interaction with the environment, developing behavior that contributes to improving the quality of the environment" [11].

According to Yu.L. Khotuntsev, the main goal of introducing environmental education in schools is to form in individuals the correct views and beliefs, covering the norms of moral responsibility of individuals for the state of the environment and for its improvement.

In other words, the main significance of environmental education is to teach people to make the most rational and effective decisions to protect the environment, based on moral norms and values [7].

A well-known expert in the environmental field I.D. Zverev offers a similar interpretation of this category, defining it as "... a continuous process of education, training, and personal development, aimed at forming a system of knowledge and skills, value orientations, moral, ethical and aesthetic relations, that ensure the environmental responsibility of an individual for the condition and improvement of socio-natural environment..." [9].

In his opinion, the main pedagogical tasks of environmental education include the following stages:

✓ Training is acquiring new knowledge about the environment;

✓ Education is introduction of moral qualities, guidelines, habits for environmental protection;

✓ Development is the ability to competently analyze the resulting environmental situation.

That is, as we see it, there is a fairly close relationship between environmental education and environmental training, which is a certain mechanism that ensures the presence of certain fundamentals of caring for nature and the environment in individuals, as well as the most rational use of natural resources.

Accordingly, in turn, the key component of environmental training is environmental consciousness, which is a complex phenomenon and evolves through the development of the intellect, emotions and desires of students.

So, as for environmental consciousness, the following factors take place [2]:

✓ Having an interest in problematic aspects of the environment

- ✓ Having a sense of responsibility towards nature;
- ✓ Willingness and readiness to participate in environmental activities;
- ✓ Concern about the environmental views of the population.

In turn, the structure of consciousness includes a number of environmental values that play a key role in the formation of certain norms of ecological behavior of people.

Accordingly, as we see it, ecological behavior is formed on the basis of various actions and views of a person on certain actions, which are directly related to the goals and motives of the individual [10].

We'd like to note that, according to A.A. Pavlov, the modern younger generation, unfortunately, does not particularly have environmental values in matters of careful natural management and preservation of the entire environment.

Thus, to sum up all the mentioned above, we can conclude that environmental education acts as an important tool in the pedagogical process for the formation of certain knowledge and skills that help to form in the individual the most important qualities necessary for a responsible and careful attitude towards nature.

In other words, an important task of environmental education and training is the creation of a developed ecological culture.

Some scientists identify these terms with each other. Others, on the contrary, believe that environmental education is formed only through the presence of ecological culture.

For example, V.A. Yasvin considers ecological culture in the context of people's abilities to use personal knowledge and skills in the field of ecology at a practical level.

After all, many people, even having a lot of knowledge, do not have the ability to use it competently due to the lack of the necessary level of ecological culture.

In this regard, environmental education of the population is becoming more relevant. It consists in disseminating knowledge about environmental safety, healthy lifestyle, the state of the environment, etc. [16].

III. Discussions

Thus, as we see it, the role of environmental education in the modern world is constantly increasing. But, unfortunately, in the process of development it faces a variety of problems that require prompt solutions to increase the effectiveness of the entire educational cycle.

We'd like to note several main problems of environmental education.

First of all, we'd like to start with the factor of insufficient awareness of existing environmental problems. Indeed, very often people do not realize the scale and seriousness of certain environmental situations, which undoubtedly have a direct or indirect impact on our lives.

In our opinion, this phenomenon may be connected with the fact that the population does not adequately own the entire information base and does not have a correct understanding of nature and the environment.

And the task of environmental education is to instill knowledge about careful attitude towards nature, as well as a sense of responsibility for its well-being, in people's minds.

As for education, in our opinion, the absence of merging ecology with other disciplines is also an important problem.

After all, environmental education is most often considered as a completely separate discipline, without showing the connection between it and other subjects, which is the wrong decision [13, 14].

Therefore, it is necessary to integrate the object of our research at all levels of education, in order to explain to students the close relationship between ecology and other sciences [8].

A negative factor is the absence of appropriate personnel who could teach the younger generation to environmental friendliness.

To do this, in our opinion, additional classes and trainings are needed to prepare the best

specialists in environmental education.

And finally, another acute problem is the lack of funding, which is necessary for conducting excursions, purchasing equipment and materials, etc. [3].

In this regard, it is important to ensure the appropriate level of funding for the object of our research for its further development and prosperity [17].

IV. Results

Thus, having considered the main problems of environmental education, we would like to dwell on promising directions for its development.

First of all, we'd like to start with the formation of ecological thinking, the essence of which lies in the ability of students to see the connection between certain components of nature and understand their interrelation.

With the help of ecological thinking, an individual gets the opportunity to make the most effective management decisions and function in defense of the interests of the environment.

Also, as a perspective, we would like to note the formation of sustainable behavior skills, which consist in the most rational use of available natural resources, in particular, production waste sorting, reducing energy costs, etc.

These actions will serve as a certain incentive for students in matters of preserving the environment and increasing the level of responsibility for their actions.

Careful attitude to the conservation of various living organisms also serves as a perspective for the development of environmental education.

And finally, the development of environmental education is accompanied by the development of ecological culture among the population, which plays a key role in environmental protection due to various norms and values.

That is, there is an increase in the level and quality of people's knowledge about environmental ethics, a fair and careful attitude towards natural values.

V. Conclusions

Thus, based on the above-mentioned, we can conclude that environmental education has quite a serious development potential in order to solve various global environmental problems and ensure a decent future.

But, unfortunately, at the present stage of development of society and the economy, environmental education faces a number of problems in matters of training appropriate personnel, financing and absence of its merging with other disciplines that require prompt solutions.

After all, only by solving at least the basic problems of environmental education we will be able to see the potential of environmental education and its benefits for all humankind.

References

[1] N.A. Nazarbaev, *Vzglyad v budushchee: modernizatsiya obshchestvennogo soznaniya* [Looking into the Future: Modernization of Public Consciousness]. Accessed on: August 04, 2021. [Online]. Available: https://www.akorda.kz/ru/events/akorda_news/press_conferences/statya-glavy-gosudarstva-vzglyad-v-budushchee-modernizaciya-obshchestvennogo-soznaniya

[2] Alekseeva E.V., Gorbenko N.V. Main directions of environmental education implementation in the Nizhny Novgorod region. // Nizhny Novgorod Institute of the Education Development. Nizhny Novgorod education. – No. 4. – 2009. – pp. 48-54. – URL: <https://elibrary.ru/item.asp?id=14751310>.

[3] Anchukova S.N. Creativity and the ecology of personal culture // Trends in the

development of science and education. 2023. No. 97-1. pp. 95-98.

[4] Bondarenko M.A. Implementation of state policy to protect the environment by the example of the Murmansk region // Trends in the development of science and education. 2023. No. 96-10. pp. 138-141.

[5] Zimnenko V.A. Environmental education: a new aspect. // The project "National Strategy for. Environmental Education in the Russian Federation". – URL: <http://samson-corp.ru/Developments/MM23/mm23-02.pdf>.

[6] Klubnikina A.V., Musatova O.V. Educational program as a means of environmental education for younger schoolchildren. – URL: <http://files.scienceforum.ru/pdf/2012/1939.pdf>.

[7] Lykova I.A. Integration of aesthetic and environmental education in kindergarten / I.A. Lykova. – M.: Tsvetnoy mir, 2018. – 828 P.

[8] Maryin E.V. Sustainable development as a way to achieve a compromise between ecology and economics // Scientific aspect. 2022. V. 5. No. 3. pp. 554-558.

[9] Nikolaeva S.N. Theory and methodology of environmental education for children. – M.: Publishing Center "Academy", 2002. – 336 P.

[10] Kuptsov, M.I., Yablochnikova, I.O., Yablochnikov, S.L., Dzobelova, V.B. & Mineev, V.I. (2020). Modeling Internet Business Optimization Processes, 2020 International Conference on Engineering Management of Communication and Technology (EMCTECH), Vienna, Austria, 2020, pp. 1-5, doi: 10.1109/EMCTECH49634.2020.9261507.

[11] Petrova E.V. Ecology as a methodological principle // The problem of the relationship between the natural and the social in society and man. 2023. No. 14. pp. 56-65.

[12] The program "Continuing environmental education in St. Petersburg". – URL: <https://flatik.ru/programma-neprevivnoe-ekologicheskoe-obrazovanie-v-sankt-peter>.

[13] Savvateeva O.A., Spiridonova A.B., Lebedeva E.G. Modern environmental education: Russian and international experience // Modern problems of science and education. – 2019. – Issue No. 5. – URL: <https://science-education.ru/ru/article/view?id=29188>.

[14] Radoushinsky D. A. , Radushinskaya A. I., Khaykin M. M. Improving the quality of implementation of the container transportation project along the NSR based on the environmental and energy transition agenda Polar Science. 2023. №35. pp. 100923-100923. <https://doi.org/10.1016/j.polar.2022.100923>

[15] Radoushinsky, D.; Gogolinskiy, K.; Dellal, Y.; Sytko, I.; Joshi, A. Actual Quality Changes in Natural Resource and Gas Grid Use in Prospective Hydrogen Technology Roll-Out in the World and Russia. Sustainability 2023, 15, 15059. <https://doi.org/10.3390/su152015059>

[16] Digitalization of the Social Sphere in Russia During the COVID-19 Pandemic: Analysis, Risks, Prospects / V. Dzobelova, N. Davlethbayeva, O. Tegetaeva [et al.] // Fundamental and Applied Scientific Research in the Development of Agriculture in the Far East (AFE-2022) : Agricultural Cyber-Physical Systems, Tashkent, 25–28 января 2023 года. Vol. 733-1. – Zug: Springer Cham, 2024. – P. 323-332. – DOI 10.1007/978-3-031-37978-9_31. – EDN CIFHRE.

[17] Digitalization and Industry 4.0-Changes Caused by COVID-19 / M. S. Rysalieva, V. B. Dzobelova, A. V. Olisaeva [et al.] // Strategies and Trends in Organizational and Project Management, Rostov-on-Don, 19–20 мая 2021 года / Editors: Pavel V. Trifonov, Marina V. Charaeva. – Rostov-on-Don: Springer Nature, 2022. – P. 12-20. – DOI 10.1007/978-3-030-94245-8_2. – EDN ZVSEKQ.