

Organizational and legal principles of environmental education in higher education institutions

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Abstract. This article is devoted to the definition of organizational and legal bases for environmental education in universities. The introduction actualizes the problems and prospects of professional environmental education, defines its object, the relationship of the subject of professional activity with the environment and the subject, organizational and legal foundations of establishing the relationship of the subject of professional activity with the environment. In the course of description of materials and methods of research the conclusions are made that ecological education is realized actively at all educational stages. As a consequence, the entrants have formed an ecological culture and the corresponding ecological experience of the subject. Each educational level is completed and is a springboard for the formation of ecological consciousness and ecological thinking. The main results of the research in the article are presented by the description of the model of environmental education in higher education institution, which includes target, methodological and methodological blocks. The purpose of environmental education is the definition of organizational and legal conditions for establishing the relationship of the future subject of professional activity with the environment. The methodological basis of environmental education is represented by a set of principles of axiological, activity and system approaches. The methodological block reveals and substantiates the most appropriate forms and methods of environmental education in higher education. Forms - conferences and forums, among the many methods mentioned in the article the project method takes a priority place. The discussions formulate organizational and legal conditions for establishing the relationship of the future subject of professional activity with the environment.

1 Introduction

In the conditions of economic transformation, the relevance of environmental education is especially acute, which is caused by high rates of economic growth with a great limitation of natural resources.

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At first glance, competing environmental and lean technologies are actualized. But I.G. Altsybeeva, E.V. Ganebnykh, E.S. Gurova [1], V.A. Leventsov, A.N. Leventsov [2] proved the synergy of these processes, namely, scientists note that lean production leads to environmental management.

Environmental issues are dealt with by specialists of all, without exception, professional spheres. It should be noted that this issue was considered already in 2002 (UN Summit, Johannesburg) and in 2005 (document "Strategy of the UN European Commission for Education for Sustainable Development", Vilnius). As a result of these events, the main cause of the environmental crisis was identified - the crisis of management, the main tool of which should be the transition to a new model of education, which is a system of man-society-nature, based on "the unity of modern scientific knowledge and humanistic values and worldview" (E.V. Rubanova, E.Y. Chulkova). In this regard, there is an acute issue of training graduates of different profiles, ready to perform professional activity with simultaneous solution of environmental problems in it.

These circumstances have led to the introduction in the Federal State Educational Standards of Higher Education, regardless of the direction and specialty of training, the category of universal competencies - "life safety", providing the ability to create and maintain safe conditions for the preservation of the natural environment (MC 8) (educational directions "Nursing", "Pedagogical Education", "Jurisprudence").

Thus, the problems and prospects of professional environmental education are actualized, under which, following M. Maximov, we understand the ability to establish relationships between the subjects of professional activity with the environment.

The issues of ecology and environmental education have not lost their relevance at all times. Thus, famous ecologists I.P. Borodin, M.I. Budyko, V.I. Vernadsky, N.N. Vorontsov, K.G. Hoffman, G.A. Kozhevnikov, A.V. Yablokov made a significant contribution to its scientific component. Formulating the basic laws of ecology B. Kommoner emphasized the interconnectedness of natural phenomena and the need for careful handling of natural systems. The main issues of environmental education were treated in his works by N.M. Verzilin. At the present stage, steps have been made towards the ecologization of the educational process through the formation of environmental consciousness, thinking, and culture (D.A. Baranov, A.V. Verle, M.D. Miroshnichenko, S.S. Petryashin, M.V. Salnikova, S.V. Sokolovsky, A.A. Filatova, S.Yu. Shevchenko) [3].

A number of studies revealing the content and result of environmental education can be continued, but the issue of organizational and legal foundations of training specialists for professional activity aimed at improving the environmental situation in general remains poorly studied. There is a contradiction between the need to prepare specialists for the implementation of professional activities, which is based on the ecologization of the process and the poorly studied issue of the organization of training of specialists. Hence the problem arises - what are the organizational and legal conditions of the process of professional training of a specialist to perform ecological professional activity. The object of the study was the relationship of the subject of professional activity with the environment. The subject of the study was the organizational-legal bases of establishing the relationship of the subject of professional activity with the environment.

2 Materials and methods

As it was said in the introduction, currently a model of education is being created, which is based on the trinity of "man-society-nature". In this regard, to solve the research problem, we proceeded from the integration of the principles of environmental education and environmental law.

In terms of environmental education, we studied the works of S.V. Alekseev, A.G. Asmolov, A.A. Verbitsky, I.T. Gaisin, D.N. Zamyatin, A.N. Zamyatin, A.N. Zakhlebny, I.D. Zverev, L.V. Moiseeva, V.N. Kholina and others. The researchers define the main aspects of environmental education, its content, methods and forms. Analysis of the works of these authors allowed us to present its content as a process of transformation of ecological knowledge into ecological relations through the formation of ecological culture and consciousness (L.Y. Ivanova [4], Y.V. Maslova [5], D.K. Stozhko, K.P. Stozhko [6], I.N. Usacheva [7]). The analysis of literature also showed that regardless of the educational level at which environmental education is studied, there is a common opinion that continuity should be a mandatory principle in its methodology [8].

Undoubtedly, each stage of such a holistic, systemic, continuous environmental education should, in turn, have its own completeness and result. In this regard, we analyzed the study and effectiveness of environmental education at each stage, identified and evaluated the problems that have emerged to date, and predicted ways to solve them.

The study of researches devoted to the issues of preschool environmental education (L.S. Ignatkina, N.N. Kondratyev, L.Y. Musatov, S.N. Nikolaev, D.F. Petyaev, E.F. Terentyev, A.M. Fedotov, I.A. Haidurova, etc.) showed the multidimensionality of the representation of this issue. In the course of the analysis, we came to the conclusion that the purpose of preschool environmental education is the formation of environmental culture, expressed in environmental awareness and education. As a consequence, mastering the experience of human interaction with nature.

Studies in the field of school environmental education (M.V. Argunova, A.N. Zakhlebny, I.D. Zverev, B.G. Ioganzen, D.V. Morgun, G.G. Nedurmagedov, N.A. Rykov, etc.) [9], the purpose of which is to enrich the experience of interaction with nature through the assimilation of environmental norms, have also become widespread. The students master the system of ecological knowledge, skills and abilities. They form a valuable attitude to the surrounding world as a whole, including themselves as part of nature.

However, there is no development of ecological style of thinking in the understanding in which it was presented by S.N. Glazachev, I.D. Zverev, N.M. Mamedov, I.T. Suravegina, after them D.N. Kyrov, N.V. Nesterova, O.A. Prituzhalova, L.D. Cheremnykh [10]. There are significant gaps in critical thinking, an important component of environmental education (M.V. Solodokhina, A.A. Solodokhina) [11]. The researchers proved that the acmeological point of ecological thinking development is the formation of ecological outlook, expressed in the application of acquired ecological knowledge, skills and abilities in practice.

The mentioned problem changes the goals of professional environmental education. The main goal of environmental education in higher education is the formation of environmental outlook, which allows the future specialist to realize the consequences of his professional activity in relation to the environment and, accordingly, to rethink the environmental experience in accordance with the future specialty, to establish relationships of subjects of professional activity with the environment.

It should be noted that based on the research conducted by N.V. Levchenko, A.V. Rogovaya [12], we concluded that not all university teachers are ready to form such thinking in students. And in this sense, the author showed us several categories of teachers: the first - actively implement environmental education in their classes; the second - do not see the need for it; the third - support the idea of the need for environmental education, but do not know how to implement it in the study of the discipline they teach.

The study of the methodological basis of environmental education in higher education, following L.S. Vasilchenko, E.V. Vezetev, N.G. Malkevich, L.Y. Chuikova, etc., allowed us to distinguish two interdependent approaches in its organization:

- the first one is aimed at students' realization of the interaction between nature and society;
- the second one is aimed at forming students' perception of themselves as a part of nature.

Since our research is devoted to determining the organizational and legal foundations of environmental education, in search of a solution to the problem we have studied the legal framework of its organization.

Thus, the Constitution of the Russian Federation (Article 42) designates human rights. Among them:

- the right to live in a favorable environment,
- the right to receive reliable information about its condition, which, in our opinion, in the process of environmental education can be used as a "starting point" for developing a strategy of human relations with nature;
- the right "to compensation for damage caused to his health or property by an environmental offense".

In the course of literature analysis (M.A. Artamonova, A.G. Bezverkhov, T.F. Yudina) [13], we came to the conclusion that there are different approaches to the interpretation of the right to live in a favorable environment. Following A.P. Anisimov, S.A. Balashenko, L.A. Rezvanova, D. Shelton [14], we believe that this environmental right has a dual nature and is considered as a combination of material (level of health) and procedural (effective remedies for environmental damage) rights. It should be noted that in the same context the mentioned environmental right was considered already in 1994 in the draft Declaration of Principles of Human Rights and Environment.

The study of approaches to explaining the right to receive reliable information on the state of the environment has shown the need to use the concept of "environmental information" (Article 2 of the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention)). Thus, legal costs in terms of accessibility of environmental information are the following contradictions: firstly, if it is available only in the mass media, where it is not presented in full, in order to obtain additional information, it is necessary to apply to the authorized public authorities; secondly, given the right to receive reliable information enshrined in the Constitution, not all environmental information is subject to dissemination due to its confidentiality.

The interpretation of the right "to compensation for damage caused to one's health or property by an environmental offense" seems contradictory to us. In accordance with O.S. Dubovik, we believe that the contradiction is set by the current legislation. Thus, specifying in the Federal Law "On Environmental Protection", the scope and amount of compensation for harm (part 2, article 79) is limited to the area of this harm - "in the field of environmental protection", while in the Constitution of the Russian Federation these boundaries of action are not indicated. In addition, the issue of subjects who are obliged to compensate for the harm caused (Part 2, Art. 74) is not clear.

It should be noted that in this article we specified the conditions in which environmental education takes place - in the conditions of digital transformation of higher education institutions, where online learning is updated (Yu.O. Gerasimova, A.V. Kulieva, P.R. Urtenova) [15], hybrid learning (O.N. Alkanova, D.P. Ananin, A.E. Baizarov, K.A. Barannikov, N.G. Strikun) etc. [16]. These conditions expand the goal of environmental education in the conditions of higher education institution - the formation of environmental outlook and, as a consequence, the ability to organize lean production. In our opinion, the main components of environmental outlook are cognitive, emotional, volitional and behavioral. The cognitive component is a system of ecological knowledge. Emotional-volitional component allows to perform professional activities in accordance with environmental norms. Finally, the content of the behavioral component is represented by subjective ecological experience, which includes the formed ways of activity, allowing to carry out professional activity in the conditions of lean production.

As a result of the literature analysis, we came to the following conclusions:

When organizing environmental education in higher education institution it is necessary to be guided by the following provisions:

1. Environmental education is actively practiced at all levels of education, as a consequence, applicants have environmental culture and relevant subjective experience.

2. Ecological education in Russia has a systemic holistic character, in this regard, the student's subjective ecological experience is reconsidered at the university from the position of establishing its relationship with the environment in the process of performing professional activities.

3. Each educational level has, on the one hand, a completed character, on the other hand, the result of environmental education at each of them represents a springboard for the formation of an ecological worldview.

4. At the present stage, the result of school environmental education does not fully correspond to its purpose, which affects its content in higher education.

5. Not all university teachers are motivated to realize interdisciplinary environmental education.

6. There is insufficient methodical preparation of teachers for the implementation of environmental education in higher education institutions.

7. When organizing unified professional environmental education, it is necessary to be guided by the Constitution of the Russian Federation, Federal Law No. 7-FZ "On Environmental Protection" dated January 10, 2002, while focusing on the existing contradictions in the legislation and jointly solving these contradictions.

8. Not all environmental information is covered in the mass media. To obtain additional information it is necessary to make a request to the authorized public authorities.

9. Environmental information of secret nature is not provided.

10. A university graduate, regardless of the specialty profile, should have an ecological outlook and the ability to organize and work in a lean production environment.

3 Results

Based on the data obtained in the course of literature analysis, we have identified the organizational and legal foundations of unified professional environmental education in the conditions of digital transformation of higher education institutions. By unification we understand universal ways of establishing relationships of the subject of professional activity with the environment, regardless of the specialty in which they study (from technical to humanitarian).

In order to ensure the integrity of this process, we have developed a model of environmental education in higher education, which is represented by the following interrelated blocks: target, methodological and methodological.

The purpose of environmental education is the definition of organizational and legal conditions for establishing the relationship of the future subject of professional activity with the environment. To achieve it, within the framework of our model we propose to solve a number of tasks aimed at the formation of:

- ecological consciousness, represented by relevant knowledge, value orientations for the preservation and improvement of the ecological situation;
- motivation to perform professional activities in the conditions of lean production;
- ecological thinking, which allows the future specialist to establish cause-and-effect relations, predict environmental risks and find ways of their avoidance.

The methodological basis of this process, in our opinion, should be axiological (S.Z. Goncharov, M.S. Kogan, D.A. Leontiev, N.S. Rozov, M.S. Yanitsky, etc.) systemic (I.V. Blauberg, V.N. Sadovsky, E.G. Yudin), and activity-based (A.G. Asmolov, E.V. Bondarevskaya, L.S. Vygotsky, A. Disterverg, A.N. Leontiev, I.Y. Lerner, etc.) approaches.

The axiological approach contributes to the formation of future specialists' value attitude to nature and value experience as a component of subjective ecological experience. The latter, in turn, forms the basis of ecological culture.

Using the principles of the axiological approach, there is an opportunity to integrate ecological knowledge with practice. As a consequence, students develop emotional responsiveness through their immersion in the conditions of professional activity and living the event series, accompanied by the demonstration of highly moral deeds and actions.

In addition, it is assumed that the principles of the axiological approach are realized in the empathic interaction between teachers and students, which, in turn, ensures sincerity and trust.

The system approach will allow students to form a holistic vision of the surrounding world, the ability to establish the existing patterns of development in nature and production, the relationship between their individual components; to find cause-and-effect relationships between the actions performed in the course of professional activity and their consequences, that is, it will contribute to the formation of ecological thinking. Let us consider this process in more detail.

The system approach, as it is known, is represented by the following basic principles: integrity, hierarchy, structurization, multiplicity and systematicity.

The implementation of the principles of integrity, multiplicity and systematicity allows to demonstrate ecocentrism; to form a human view of himself as a part of nature; contributes to the formation of ecological consciousness.

Observance of the principles of hierarchy and structurization in the process of higher education allows to show the interrelation of future professional activity with the environment; forms the ability to establish natural regularities and interrelations between professional activity and the state of the environment; develops ecological thinking in future specialists.

No less important approach to the organization of environmental education is the activity approach, the implementation of the principles of which allows to form environmental consciousness and motivation to perform activities in the conditions of lean production. It happens:

through the formation of knowledge in students in the course of the performance of learning activities, rather than their mechanical transfer (the principle of activity);

through observance of continuity between all educational levels in the process of ecological education, building professional ecological education on the basis of subjective ecological experience of entrants (principle of continuity);

in the process of forming a holistic view of the world and the system of sciences (principle of integrity);

in the process of formation of abilities to make decisions adequate to the situation (principle of variability).

This leads not only to the formation of ecological consciousness and motivation to perform activities in the conditions of lean production, but also contributes to the formation of ways of activity within the framework of green production, and at the same time the formation of subjective ecological experience.

The question arises about the means of realization of these principles, namely the definition of forms and methods of environmental education.

Based on the literature analysis, the results of which were presented by us in the description of materials and methods, we came to the conclusion that the most appropriate forms of environmental education in the university are participation in conferences and forums. This is explained by the fact that:

firstly, in preparation for speeches at such events, students supplement their knowledge in the field of ecology with new meanings, projecting them onto their future profession and comparing them with the specifics of professional activity;

secondly, in the process of conferences and forums, students study the experience of other universities and organizations affiliated with the professional activity they are studying; as a result, they rethink their subjective experience and form it in the logic of the subject of environmental activity;

thirdly, interactive communication with students of related universities and future colleagues contributes to the formation of ecological thinking and consciousness.

Conferences and forums, chosen by us as effective forms of environmental education in higher education, imply the use of the following methods in the educational process:

project method, realized through role-playing (business) games, during which students are given the opportunity to test their experience in creating and implementing projects;

problem and search methods as ways of identifying environmental problems and ways to solve them allow students to learn to identify problems and find alternative ways of solving them;

research method promotes projecting and approbation of the obtained ecological knowledge in different professional situations;

methods of solving practical problems and collective creative activity allow students to form their own ways of professional activity;

Finally, discussion and communicative methods are aimed at the realization of environmental education in higher education in cooperation.

At the same time, we give preference to the project method, as it, including all kinds of activities, contributes to the all-round development of the student. When carrying out projects, ecological knowledge is activated and integrated with knowledge in the field of profession. In addition, the cognitive component of professional activity is filled with new meanings and values, as the student carries out a creative search for ideas to achieve the set goal and objectives. It is necessary to note the importance of reflexion in the process of evaluation and comparison of the goal and the obtained result of the project by students. Their comparative analysis forms new ways of performing professional activity with a focus on its ecological component, while developing the creativity of ecological thinking.

4 Discussion

The above has demonstrated that environmental education in higher education institutions should prepare for professional activity in the conditions of lean production, acting as a factor in the development of ecological thinking and consciousness, allowing, in turn, to establish relationships between the subject of professional activity and the environment. Environmental education in higher education institutions should be based on the principle of continuity.

The normative-legal base of environmental education at the university should be the Constitution of the Russian Federation, the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention), the Federal Law of January 10, 2002 № 7-FZ "On Environmental Protection" and others.

Thus, the rights defined in the Constitution of the Russian Federation (Article 42) set the vector of students' preparation for the realization of professional activity in the conditions of lean production. The Aarhus Convention imposes restrictions on access to environmental information, the Federal Law "On Environmental Protection" (part 2, article 79) demonstrates the responsibility and types of punishments for environmental damage in the course of economic activity.

The axiological, systemic and activity-based approaches should form the methodological basis of environmental education in higher education institutions. At the same time, the axiological approach is designed to form ecological culture; the systemic approach allows demonstrating the integrity of professional and ecological activities with an emphasis on ecocentrism; the activity approach forms ecological thinking and consciousness.

The most appropriate form of environmental education are conferences and forums that allow to form subjective environmental experience in future specialists, as well as in joint activities to create conditions for the organization of lean production.

The priority among the methods of environmental education in higher education should be given to the project method, which, having a flexible nature, allows creating conditions for creative self-realization of students, develops their creative abilities. On this basis, students develop creative ecological thinking.

In conclusion, it is necessary, first of all, to form the motivation for the implementation of interdisciplinary environmental education directly among university teachers and to conduct their methodological training for the implementation of environmental education in higher education institutions.

5 Conclusions

Thus, the results of the conducted research allowed us to identify the following organizational and legal bases for establishing the relationship of the subject of professional activity with the environment.

First, there should be an appropriate professional training of students, focused on ecocentrism, in which the value of natural nature takes priority. The indicator of high appreciation of nature by a person is the environmental culture formed in the course of training, which includes cognitive, emotional-sensual, action, and value-sense components.

Second, a prerequisite for the establishment of effective human relationships with nature is the environmental consciousness and ecological thinking formed in a specialist, which help a person to realize that he is a part of nature and the well-being of his life depends on it; to understand environmental problems, to find ways to solve them.

Third, in the process of professional training, students should "live" the event series, in which they would be given the opportunity to take responsibility for the environment, make decisions to improve the environmental situation, reduce production costs; predict the results of professional activity in the aspect of solving environmental problems.

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