On the formation of environmental consciousness among students of an agricultural university

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Abstract. The paper analyzes the phenomenon of environmental awareness and educational technology of its formation among the students of an agricultural university. The definition of ecological consciousness is used as the ability to build a relationship with the surrounding natural world in accordance with the law of harmonious and sustainable development of a modern technogenic society. At the same time, the work puts forward an understanding of environmental consciousness as a factor that builds a person's relationship with the social world, which determines the worldview maturity of a person himself as a person. The latter makes environmental awareness not only an important component of environmental safety, but a guarantor of the existence of culture as a whole, in connection with which there is an urgent need to develop a strategy for the formation of environmental awareness among young people. The special role of educational institutions in the formation of environmental awareness as an important component of the educational process is indicated. The experience of research and teaching and educational work of teachers of the Department of Botany and Meadow Ecosystems and the Department of Humanities of the Tver State Agricultural Academy on the formation of environmental awareness among students is presented. One of the effective forms of extracurricular and research work is analyzed - project activity, an innovative method that contributes to the development of ecological consciousness and ecological lifestyle of students. Reconstructed the main stages of a pilot project demonstrating the benefits of growing environmentally friendly vegetable products. An educational project - "The World of a Russian Estate", which forms the basic values necessary to preserve the ecological consciousness of young people, is presented.

1. Introduction
Among the most pressing global problems that challenge modern society, the leading place is given to the environmental problem. Some scientists are inclined to identify the very essence of the global crisis, which has engulfed all spheres of human life, with an ecological catastrophe, thereby expanding the original meaning of the concept of "ecological", including in its content not only the attitude to the natural environment, but also the socio-cultural one. The emergence of an ecological consciousness capable of harmonizing a person's relationship with his biosocial environment is now becoming a condition for both natural and social survival of society, and its formation is one of the priority goals of the modern education system. An urgent task of a modern teacher should be the search for methods and ways of forming environmental awareness among young people, ensuring the environmental safety of the country as a whole.
2. Materials and methods
The material for writing the article was the pedagogical experience of the teachers of the Tver State Agricultural Academy in the formation of environmental consciousness among students of the Faculty of Technology. Traditionally, a similar problem is designed to solve "Ecology", a subject related to transdisciplinary areas of knowledge [1], as well as other academic disciplines related to environmental issues ("Agricultural ecology", "Vegetable growing", "Floriculture", etc.). At the same time, the experience of the pedagogical work of the teachers of the Tver State Agricultural Academy has shown that the formation of ecological consciousness becomes most effective precisely when it goes beyond the classroom [2]. In this case, we mean extracurricular work, including various forms, among which a special place is given to the project activities of students.

Organization, holding, summing up the results of educational and scientific (experimental project for growing ecologically clean vegetable products) and educational (project "The World of a Russian Estate") activities served as the material for this study, in which teachers of specialized (Department of Botany and Meadow Ecosystems) and the general humanitarian department of the Tver State Agricultural Academy.

Research methods are defined by the stated topic. So, when conducting an experiment to identify the factors for obtaining environmentally friendly products of vegetable crops, special methods of biological sciences (laboratory and experimental) were used. The study of the phenomenon of environmental consciousness and its place in the system of modern education involved the use of general scientific methods of the humanities (comparative-historical, systemic). The project activity was declared as an effective teaching and educational method for the formation and preservation of ecological consciousness.

3. Results
In the modern education system, a stable attitude has developed towards the project method as one of the innovative technologies, which is based on the idea of developing students' cognitive skills, creative initiative, the ability to think independently, find and solve problems, navigate the information space, the ability to predict and evaluate the results of their own activities [3]. The advantage of the project method over other pedagogical technologies is its focus, first of all, on the independent activity of students, which creates the conditions for the natural and organic course of the educational process, and with it the personal maturation of young people. In connection with the popularity of the project method in the modern education system, they started talking about the need to form project thinking, a special ability to think creatively and organize effective work to achieve the goal [4]. We believe that the phenomenon of design thinking will inevitably correlate with environmental consciousness, which acts as a kind of censor in relation to it, neglect of which will not allow achieving the desired result.

An example demonstrating the combination of design thinking and environmental awareness is an experimental project to identify the factors for obtaining environmentally friendly vegetable products [5]. The main stages of the project were:

- Analysis of scientific and practical literature on the latest technologies for growing root crops [6];
- Development of a scheme for a pilot project, study of research methods;
- Preparation of the experimental site, its marking, laying of field experience, carrying out the planned activities;
- Selection of prototypes for analysis in accordance with the research methodology; processing, systematization and analysis of the information received.

During the experiment on the cultivation of table root crops, students were asked to use various types of complex mineral fertilizers for root crops ("Sudarushka", "Agricola", "Omu"), gradually tracking the rate and quality of the accumulation of nutrients in root crops, comparing the results of the harvest [7]. The experiment showed that not using the declared fertilizers gives a lower weight result,
but at the same time preserves the ecological purity of the final product. Whereas the use of mineral fertilizers that do not affect the final mass of the product can significantly reduce its environmental safety. The students were asked to make a choice between using and not using the declared fertilizers, arguing it during the subsequent discussion. The result of the pilot project was the refusal of 7 out of 10 project participants from the use of mineral fertilizers in the cultivation of root crops. Such a choice in favor of a smaller volume of environmentally friendly final product, which does not fit into the usual parameters of a market economy, at the same time, indicates the ecological maturity of students who rely on an environmentally healthy lifestyle.

The method of project activity was also the basis for educational activities, also involved in the formation of environmental consciousness. One of them was the project "The World of a Russian Estate (Based on the Material of the Sakharovo Estate in Tver)". The study of estate culture by students of an agricultural university was not only of purely cultural and historical interest. Reconstruction of the economic side of the Tver estate, first of all - the organization of the agrarian economy, an important component of which was the cultivation of vegetable plants, including root crops, - is a useful experience necessary for students of an agricultural university to understand modern agriculture. A special place in the organization and implementation of the project was given to environmental issues, in particular, obtaining environmentally friendly products of agricultural crops.

The main material for the study of the regional estate was the territory of the former estate of Field Marshal Iosif Vladimirovich Gurko, today it is the village of Sakharovo, the location of the Tver State Agricultural Academy, which belongs to the ecologically safe zone of the city of Tver. In the course of their project activities, students, using archival materials, reconstructed the ecological environment of the estate of the late 19th - early 20th centuries and compared it with the current state of the former estate territory, in particular, its park area. A comparative analysis showed a significant loss not only of the external aesthetic appearance of the park, created in the style of an "English landscape park", but also of the loss of valuable species of plants and trees that ensured the ecological purity of the estate. Among the latter: single specimens of Siberian fir, common ash. On the verge of extinction are perennial planting of trees (ages from 140 to 160 years): pedunculate oak, smooth elm, common spruce, small-leaved linden, Norway maple, warty birch. The results of students' project activities were tested at the regional scientific student conference and during the final round table "The World of the Russian Estate". In the future, it is planned to continue work within the framework of this project in the direction of returning the lost appearance of the Tver estate, including the restoration of Sakharovsky Park.

4. Discussion

Despite the fact that the term "ecological" has a long tradition, its content remains open and the practice of recent years has shown that it is capable of replenishing with new meanings. In modern science, this term is used in relation to culture, society, man ("ecological culture", "ecological society", "ecological man") [8]. It seems that all these interrelated terms can in essence be regarded as derivatives of ecological consciousness. We share the position of scientists who consider ecological consciousness as a person's ability to build relationships with the natural world, his understanding of an inextricable connection with nature. At the same time, we share the opinion of scientists that in the conditions of the modern ecological crisis there is a need to define ecological consciousness as an important factor that ensures human relations, including with the social world, a guarantor of ecological safety, human survival both as a biological and as a social being [9]. The basic values that determine the worldview maturity of a person as a person serve as a condition for the emergence and preservation of the very ecological consciousness.

Such an understanding of ecological consciousness puts forward the task of its formation as a priority, uniting all teachers - both biologists and humanities. Moreover, the work on the formation of environmental consciousness should not take the form of moralizing or exclusively popularizing a healthy lifestyle. It should become organic and natural, present in the classroom and extracurricular life of students as an important component of the educational space of the university. We believe that
such work can effectively manifest itself in the conditions of a personality-oriented model of education [10]. A student focused on personal development, and in a practical situation related to his professional and agricultural sphere, the choice in the means of achieving the result will be made taking into account an ecologically healthy lifestyle and the ecological safety of the country.

5. Conclusion
Thus, the strategic goal of education is the formation of the spiritual and moral culture of students, an important component of which should be environmental awareness. In solving such a problem, the efforts of teachers alone are not enough. Undoubtedly, it should be solved with the active participation of the state and institutions that implement a single strategy for the development of the ecological consciousness of young people. If we define the process of the formation of ecological consciousness as building a person's relationship with the surrounding world, including both natural and social, according to the laws of harmonious and sustainable development of society, then we have to state that this process is quite long and its results are distant. However, the performance indicator in any case will depend, among other things, on the choice of educational technologies for the formation and preservation of the ecological consciousness of young people, which guarantees the ecological safety of the country.

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