Modern methodological approaches to environmental education at the university

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Abstract. The results of pedagogical experience on improvement of methodological approaches of environmental education at the university are presented. The formation of an environmental worldview among students is part of the practical and long-term work of the teacher. The application of a comprehensive original approach to environmental research can be carried out in one properly structured discipline with high-quality laboratory and practical exercises and coursework. The introduction of environmental disciplines into the curricula of the educational program will provide modern practical environmental knowledge that enhances the scientific professional training of students. One of the methods of improving the quality of environmental education in universities is the use of the research method of learning and the method of problem learning. The scientific level of discipline content is ensured by providing students with the opportunity to independently study and choose methods for ecological assessment of the state of ecosystems. Adaptability and interchangeability of discipline to different objects of research increases its scientific and practical status.

1. Introduction
Modern environmental education should be practical-oriented, aimed at developing the theoretical basis for studying ecosystems with maximum reinforcement of its practice. The increase of anthropogenic influence on the ecosystems of the planet requires a significant number of professionally trained specialists in the field of ecology, such a task is relevant not only in Russia, but also in other countries. An option to improve the quality of environmental education in universities is the use of the research method of study. This method is quite popular and occupies a leading position in the technology of teaching students studying in different directions. The main functions of applying the research method of study in universities are: integration of the cognitive process in students into a subject or practice; creating a positive research motivation for learning; obtaining practical knowledge; mastering the methods of scientific knowledge; development of activity and independence in the process of finding non-standard solutions to situations [1].

In general, the research role of a student is to find a solution to any scientific problem, to hypothesize and form a realistic picture of the world. In order to successfully implement and apply the research method of training in the course of teaching a particular discipline, it is necessary to know the main methods and approaches, the means of obtaining, storing, processing information on the studied object, be able to analyze objects and their components according to the specified methods; Be able to identify negative environmental factors and assess their impact on soil and plant cover. In addition, it is necessary to learn to justify and put into practice the acquired skills of work in the territory under study.
development of the research method of training should be practiced in all disciplines of the environmental profile. Undoubtedly, this method of training is the main one for the completion of graduation qualification work. This is the first methodological approach to environmental education [2].

2. Object and methods of research
As an experience, we can describe the use of this method in the study of objects of landscape architecture, as a modern topical direction, for teaching students. In this direction, students are trained in methods of conducting full-scale studies of given landscaping objects (eye survey, measurements, inventory of plantations, assessment of the state of improvement elements), which is necessary for the pre-design analysis of landscape planning organization of elements of the landscaping system of populated areas. This study is based on an analysis of the landscaping system of the planning area of the city, an assessment of the state of tree-shrub plantations, soil, flower beds is carried out[3].

Currently, the full creative potential of teachers is aimed at a comprehensive in-depth analysis of theoretical and practical material on topics related to environmental studies, while an integrated approach is used. The application of complex and systematic approaches to training, the introduction of modern methodological concepts with a high level of illustrative material, its own scientific developments, creates an environment for the qualitative absorption of practical material. Clearly, a proper understanding of the environmental situation in cities requires a simultaneous consideration of all factors interacting at a given place. In the study of communities, plants, animals and microorganisms living in various biotic units are studied [4].

3. Research results and discussion
The increasing anthropogenic impact on the environment leads to negative changes in the structure, productivity and functioning of ecosystems and the biosphere as a whole. Of particular importance is information on the levels and types of pollution, the nature and intensity of the response of biological objects to the effects of certain toxicants. Finding informative biological indicators and certain deviations in ecosystems are the main tasks for understanding the changes that arise in them. Bioindication and biotesting are used as intensively as the methods currently providing ecosystem information. The scientific level of discipline content is ensured by providing students with the opportunity to independently study and choose methods of ecological assessment of the state of ecosystems, the use of methods of bioindication and biotest of the environment, which, of course, contributes to the formation of reliable theoretical and practical skills necessary for further professional work. The availability of the presentation of theoretical material and its general structure, control questions at the end of each topic, questions and answers testify to the high methodological level and adaptability of any course to modern educational technologies.

The electronic teaching resources developed by teachers contribute to a significant improvement in the quality of theoretical training of students. Indeed, the intensive development of information technologies in modern society provokes the need to strengthen the informatization of education. For example, in the discipline «Methods of environmental research», which is part of the curriculum of agroecologist students, electronic textbooks have been created. electronic teaching complexes that allow qualified distance learning with students. The main requirements for the introduction of information and educational technologies are: the creation of a database of electronic teaching aids and qualified specialists who can quickly use it. The interchangeability of the discipline, its adaptation for the study of both ecosystems and objects of landscape architecture, increases its demand for students. For example, it is possible to adapt the Workshop on Environmental Research Methods to the research work of students studying landscape architecture[5, 6]. Objects of landscape architecture are very diverse. Their typology takes into account differentiation according to various features, for example, functional purpose (recreation center or historical and cultural reserve), landscape-genetic origin (natural park or water-green diameter of the city), urban planning parameters (suburban forest park or residential area), etc., therefore, their ecological-biological assessment is quite accessible. Research activities are quite
justified at these sites, as they allow you to understand the degree of their degradation and take measures to restore them. Applying the principles of environmental assessment in the study of objects of landscape architecture, we come to the study of landscape ecology. The first direction in this field is related to the study of the external factor space of landscape complexes. The second concentrates on the distribution of the values of landscape factors in it, that is, the interior of the landscape. Both approaches are combined into a single concept of ecological niche. However, if in the first case a niche is built for the landscape itself, and its measurements are signs of its external environment, then in another case the landscape is considered as a habitat with a certain set of niches for different biological populations and economic activities [7].

The main teaching function in obtaining environmental education at universities is the interest of teachers and students in improving the quality of the environment. To do this, various natural environments are monitored, which is necessary to understand the holistic picture of the state of the environment in the environmental aspect. It is important that students possess a significant range of environmental analysis methods. In particular, methods of ecological-biochemical analysis of plants allow for a more detailed study of the state of plants in the studied area, which plays a significant role in assessing the quality of plant biomass and the possibility of its use for nutrition and as a medicinal raw material. Methods of determination of enzymatic activity of soil, which include methods of analysis of oxidative, hydrolytic and reducing enzymes, make the course «Methods of ecological research» adaptive for investigation of anthropogenic load on different types of soil [7].

It is known that field and laboratory (experimental) research methods are used in environmental research methods. An example of the most extensive environmental experiments is that carried out within the framework of scientific topics to reduce anthropogenic air pollution. In a general aspect, monitoring qualitatively and quantitatively describes the state of air, surface waters, climatic changes, soil cover properties, and the state of the plant and animal world.

One of the urgent tasks both in psychological, pedagogical and educational practice today is the development of personal activity in training. A long training process, an uninteresting presentation of the material, the use of additional material does not lead to a decrease in student activity already in the first classes. In the future, it will be quite problematic to interest him and force him to participate in the course of, for example, a practical lesson. Methods that encourage students to actively think and practice are called active. This is important for shaping the future professional in his/her direction or specialization.

The second of the range of methods discussed that contribute to enhancing environmental education at the university is a seminar-discussion or a panel discussion. The success of the seminar-discussion, of course, depends on the ability of the teacher to organize it correctly. In advance, it is necessary to think through the scenario of this practical lesson, first distribute topics for discussion, create an appropriate environment, all this contributes to a minimum loss of time and successful implementation of tasks. Having a wide range of topical issues in stock, the seminar-discussion will always be held at a high intellectual and developing level. This type of classes contributes to the more successful preparation of students for the test or examination, directs it to finalize certain issues that manifested themselves during the course of the session the weakest training.

The implementation of environmental education at a university can also go through problematic training, the design of problem situations and the search for their solutions. Problem training today is one of the effective methods of training, in particular, problem lecture is included in the set of methods of active training. This can be described as the third methodological approach to environmental education. As a rule, classes on problem learning complete the course, contributing to the mobilization of accumulated knowledge, the formation of logical-theoretical, intuitive thinking among students during the search for solutions to the problem under discussion. Creative approach contributes to the development of creative and dialectical thinking among students. The main task of the teacher to announce the topic of the problem lecture in advance and give students questions that will be discussed and resolved during the class, recommend scientific literature on this topic. This approach makes it
possible to transfer a student from a passive position to an active one. In the course «Methods of environmental research» such a lecture is of the nature of practical creativity, that is, practical problems are posed and solved [5, 6]. The personal experience of the student on the posed and apparently not always solvable problem provokes independent mental activity and emotional activity. The awakening of all these forms of activity provides the long-term effect of the «good luck» of the lecture, that is, in fact, the result that each teacher ultimately expects.

Another training and practical recommendation when mastering the course «Methods of environmental research» is the possibility of obtaining experimental data on graduation qualification work using its research objects in laboratory classes. Simultaneous laboratory works and thesis tasks are performed [7].

4. Conclusion

Modern environmental education should be based on the application of new teaching techniques and methods that are as adapted as possible to the needs of the development of society and are close to solving environmental problems. The concept of unified eco-education should lie in the plane of the educational process. Postgraduate environmental students can make practical recommendations for improving the quality of the environment. The use of the research method of training contributes to the formation of professional research thinking of students, forms a clear idea of their main professional tasks, how to solve them; sharpens the ability to use modern technologies for collecting information, processing, analysis and systematization of the obtained experimental data, introduces modern research methods; develops the ability to develop research programmes in the field of landscape architecture; summarizes the essence of bibliographic work with the involvement of modern information technologies. The essence of the research method of training is to teach students to apply a scientific approach to performing laboratory or coursework, and then to perform graduation qualification work. An effective way to increase the level of environmental education is the research activities of students in universities, which can be carried out as an integral element of the educational process, as well as carried out outside the educational process in circles, scientific societies, creative laboratories and through scientific and organizational events: conferences, competitions, round tables. The problem learning method significantly improves the effectiveness of the material presented by the teacher. Strengthens the teaching function of a discipline or module and provokes students to find new, non-standard solutions to environmental situations.

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