

UDC 37

## **Dynamic certainty of the clarity of environmental structural properties in high school**

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**Abstract**

Creating the necessary pedagogical conditions in colleges is one of the main ways to improve the effectiveness of the formation of environmental culture of the future specialist to implement the goals and objectives of personal training. Therefore, the urgent need of today is the need for a qualitative update of professional training of future environmental technicians in universities. The pedagogical conditions considered us cause qualitative changes of personal properties of students in the unity. The authors analyze the principles of training. The use of these principles enables the assimilation of systems of scientific statements, the use in educational activities, environmental research methods, the disclosure of causal relationships in natural phenomena and processes, environmental events, systematic educational activity, creation of favorable conditions for mastering by students of the socio-environmental experiences embedded in learning content, mastering the chosen profession, for the development and expression of creative individuality, high moral and intellectual qualities which would ensure social security, a safe and comfortable existence. The content of professional training of future environmental technicians is based on the main normative document of the higher educational institution-the curriculum, is based on industry standards of higher education, in particular the educational and professional program.

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**Keywords**

Formalization, structural properties, development, definition, ecological culture.

**Introduction**

On the basis of the theoretical study of scientific literature and mathematical and statistical analysis of the results of expert evaluation, in the process of forming the ecological culture of future environmental technicians, we identify the following pedagogical conditions:

– development of the general culture of the person as a prerequisite for the formation of ecological culture of environmental technicians;

- purposeful design of information and ecological educational environment;
- ensuring positive motivation of future environmental technicians to the formation of environmental culture;
- education of the need for constant professional self-improvement in future environmental technicians;
- involvement of future environmental technicians in environmental activities.

The above-mentioned conditions are interrelated and mutually conditioned, that is why it is necessary to take them into account in the complex when designing the pedagogical technology of formation of ecological culture of future ecologists. The set of pedagogical conditions is revealed, is open and at the decision of concrete tasks it can be concretized.

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The solution of the problem of formation of ecological culture of future ecologists requires the development of a specific model that will increase the efficiency of this process, bring it into line with the requirements of modernity, theoretically justify the means of implementation in the educational process of agricultural universities. The need to develop this model and the relevance of implementation in the training of environmental technicians due to a number of processes in modern society. First, the awareness of ecology as the main component of sustainable development of society; secondly, the rapid aggravation of the environmental situation in the state and abroad; thirdly, the rapid development of nanotechnology; and fourthly, the formation of a new environmentally literate and environmentally cultural society.

The modeling method has recently become widespread in pedagogical research: modeling as a method of cognition (L. Zazulina, V. Krayevsky, P. Sikorsky, I. Frolov, V. Shtoff); modeling of advanced pedagogical experience (M. Krasovitsky); modeling of pedagogical situations (O. Berezyuk, Yu. Kulyutkin, G. Sukhobskaya); modeling of management activities (A. Gulimovsky, V. Pikel'naya); simulation-game modeling (Yu. Druz), etc. This suggests that the problem of modeling in pedagogical research, in particular in the study of the process of formation of ecological culture of future environmental technicians, is relevant for both theory and pedagogical practice.

Let us consider approaches to definition of essence of concept "model". For the first time this concept was introduced by G. Leibniz in the XVII century. considering the model as a convenient form of knowledge about the world, a kind of information equivalent of the object, which is designed in accordance with certain practical purposes. In General, the model (lat. modulus-measure, analog, sample) - a description of an object (object, phenomenon or process) of any formalized form, composed for the purpose of studying its properties. In addition, the model is considered to be an artificially created object in the form of schemes, sign forms or formulas, physical structures, similar to the object of study, which reflects and reproduces in the simplest form the structure, properties, relationships and relationships between the elements of the object under study.

The term model in a broad sense is considered in two aspects: as the image, scheme or description of any phenomenon or process in nature and society and as an analogue of a certain fragment of social or natural reality.

In the logic and methodology of science, the model is considered as an analogue of a certain fragment of natural and social reality, which serves to store and expand knowledge about the original, the construction of the original, transformation or management.

We join the opinion of A. Gurenkova that the model consists of a complex of interrelated and interdependent components: goals, approaches, content, pedagogical conditions, the totality of which

is aimed at obtaining a result.

If we consider the model as an ideal reflection of the most important qualities and elements, real processes occurring in the system, it reveals in a General way the structure and content, predicts the development, significant relationships, identical to the original, reflects the object that is studied. Therefore, the development of the model will allow us to explain how some aspects of the studied object (professional training of future environmental technicians), affect the learning process.

The model will be considered as an analytical or graphical description of what is being investigated, in our case-the process of forming the ecological culture of future environmental technicians. Take into account that the components of the model are determined by the purpose of the study and must trace certain characteristics of the object of study.

The method of modeling in pedagogy of higher education allows to allocate at least three most important aspects of its application: epistemological, in which the model acts as an intermediate object in the process of cognition of the pedagogical phenomenon; psychological, with which you can describe the various aspects of educational. The use of the modeling method in pedagogical research determines the study of pedagogical phenomena and processes on a special object-model.

In general, the modeling process is a logic of simplification. However, the process of simplification is quite complex and has many contradictions, because it is associated with such research procedures, with the help of which determine the subject, goals and objectives of the study, formulate a working hypothesis, make a choice of means and methods of description and evaluation of the subject of research and its properties.

The model of formation of ecological culture at technicians-ecologists was constructed on the principles of culturological, system, activity, interdisciplinary, personal and technological approaches. When constructing the model, the direct interaction of the teacher and the student in the educational process was taken into account, since the individuality of the teacher significantly affects the development of the student's personality.

Modern society is in the midst of an ecological crisis, the overcoming of which depends on the moral improvement of man, his culture and relations with nature. Therefore, our first task (social order) is to train environmental technicians with a fundamentally new ecological Outlook, with value orientations, responsible attitude to nature and their health.

The purpose of the developed model is the purposeful effective formation of ecological culture in the techniques of ecologists in agrotechnological training. The implementation of this model in the educational process involves the following tasks: to teach the student to apply the acquired environmental knowledge, skills and environmental activities for nature protection; to create conditions for the formation of environmental culture; to prepare the future technician-ecologist for further professional activity. The purpose and objectives of the formation of environmental culture form the main component of the model, the implementation of which is possible only if the assimilation of the content of professional training, which is a complex integrated system.

The formed ecological culture is the final result of the proposed model functioning, which characterizes it as purposeful.

Diagnostics, evaluation of the process of formation of ecological culture in future environmental technicians is designed to compare the predetermined and actual results and correction of the process, which generally reflects its manageability and dynamism.

The formation of the ecological culture of future environmental technicians provides:

- formation of holistic ideas about nature, provided by the study of the cycle of disciplines of natural science, professional and practical training;
- in-depth study of the scientific basis and technology of the chosen type of work, which makes it

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possible to solve a wide range of issues of environmental protection and rational use of natural resources in various industries and other areas of economic activity;

- formation of environmental competence;
- acquisition of professional environmental knowledge and skills;
- further development of ecological culture of the person proceeds at studying of an educational discipline of a basis of ecological education and culture;
- education of moral, moral, psychological qualities of the future competent specialist of the agro-industrial complex.

L. Fenchak distinguishes such components of formation of ecological culture at students:

- the purpose, objectives, principles (interdisciplinarity and greening of knowledge), content, methods and forms of environmental training, the implementation of which is comprehensively justified by the conceptual provisions of the study;
- pedagogical components and conditions of formation of ecological culture of future Junior specialists-agrarians;
- diagnostics and management of the process of formation of ecological culture of students of higher agricultural educational institutions of I-II levels of accreditation;
- the result, which is to achieve a certain level of environmental culture among students of higher agricultural educational institutions of I-II levels of accreditation.

An important component of a substantial component of the content selection are principles of training, namely, the general:scientific one (combination of learning content of a particular discipline with modern and innovative methods of scientific research, research that contributes to the comprehensive formation of scientific outlook of students), availability (the essence lies in the reflection of the complexity of the content of educational material due to the skill of teaching of the teacher that promotes mastering of general scientific and professional knowledge and skills), clarity (reflects training material in the form of unlocking, that allows to involve actively students to work with means of visibility, to show means of visibility (in process of representation of a training material), communications of the theory with practice (defines a number of requirements to the contents, methods, means, organizational forms of training and the process of training, allows students to form the ability to apply knowledge in practice, in production, life, social activities); humanism (represents the construction of the educational process on the basis of humanistic pedagogy and humanistic education, which forms a humanistic worldview that recognizes the value of the student's personality, respect for its uniqueness, acceptance of his personal interests, based on the constructive work of the student and the teacher, in which the teacher tries to create all conditions for their personal variability and alternativeness expand possibilities of choice of forms and methods of training, depending on interests and personal preferences of students).

Special principles include viability (ensuring the use of existing learning technologies in the structure of innovative education, the combination of reliability, stability, accessibility of general scientific and professional development of students ' skills), focus on personal development of the student (focus on the formation of a comprehensive, harmoniously developed personality of the student, that is individuality, which is enriched with universal, national and professional values and morality; unity of educational, educational-cognitive and other activities of the student as a condition for the formation of the main personality traits; unity of training, education, development and self-improvement, which requires to consider education as the main factor in the formation of the student's personality and provide the educational process of developing character; optimization of the content, methods and forms of education of students; complexity (mutually agreed combination of systems learning content, which involves the system of the pedagogical process which includes several

subsystems, each of which use different types of activities (not just cognitive), there is an organic relationship, the set of all possible activities of the student at the high school and beyond: educational, socio-political, labor, sports, free communication, art, domestic activities).

## Conclusion

The use of these principles enables the assimilation of systems of scientific statements, the use in educational activities, environmental research methods, the disclosure of causal relationships in natural phenomena and processes, environmental events, systematic educational activity, creation of favorable conditions for mastering by students of the socio-environmental experiences embedded in learning content, mastering the chosen profession, for the development and expression of creative individuality, high moral and intellectual qualities which would ensure social security, a safe and comfortable existence.

The content of professional training of environmental engineers is a clearly defined set of knowledge, skills and competencies that should be taught to future tech-the ecologist while training at higher agricultural school or independently, contributing to the formation of professional and General culture, the harmonious, comprehensively developed personality; determined for each semester in accordance with the qualification requirements, as reflected in education plans and programs in the specialty "Applied ecology". During the last years of training of junior specialists of environmental technicians, considerable attention is paid to the adjustment and harmonization of standard training programs.

The content of professional training of future environmental technicians is based on the main normative document of the higher educational institution-the curriculum, is based on industry standards of higher education, in particular the educational and professional program.

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## **Динамическая определенность выраженности экологической структурности в старшей школе**

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**Аннотация**

Создание необходимых педагогических условий в колледжах является одним из основных способов повышения эффективности формирования экологической культуры будущего специалиста для реализации целей и задач персонального обучения. Таким образом, насущной необходимостью на сегодняшний день является качественное обновление профессиональной подготовки будущих техников-экологов в университетах. Рассматриваемые авторами педагогические условия вызывают качественные изменения личностных свойств учащихся. В статье проанализированы основные принципы обучения. Использование этих принципов способствует усвоению научных высказываний, методов исследования окружающей среды, раскрытию причинно-следственных связей природных явлений и процессов, пониманию экологических событий, созданию благоприятных условий для усвоения учащимися социально-экологического опыта, заложенного в учебный контент, овладения выбранной профессией, развития и выражения творческой индивидуальности, высоких моральных и интеллектуальных качеств, которые обеспечат социальную безопасность, безопасное и комфортное существование. Содержание профессиональной подготовки будущих техников-экологов основывается на основном нормативном документе вуза – учебном плане, составленном с опорой на отраслевые стандарты высшего образования, в частности образовательной и профессиональной программы.

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**Ключевые слова**

Формализация, структурность, развитие, определение, экологическая культура.

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