



## Possibilities of using virtual educational technologies in the formation of natural science (SIENS) skills of elementary school students.

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### ABSTRACT

The article notes that one of the topical issues is the further improvement of the methods of using virtual educational technologies for the formation of natural science (SIENS) skills of primary school students today. Methods for solving this problem, designing and implementing virtual educational technologies in the educational process, taking into account individual educational characteristics in the design of virtual educational technologies, and the possibility of using virtual educational technologies will be highlighted.

### Keywords:

Natural (SCIENCES) sciences, methods and methods, virtual education, Internet mechanism, technology, differentiation, personality.

Today, one of the topical issues is the further improvement of the methods of using virtual educational technologies for the formation of natural science (SIENS) skills of primary school students.

One of the ways to solve this problem can be the development of virtual educational technologies hosted in the Internet natural science network (SIENS) and the improvement of the mechanism for introducing them into the educational process. A challenging aspect of developing Virtual Learning Technologies for Science (SIENS) is that it is important to focus on logic and consistency appropriate to the student's skill level. The advantage of virtual educational technologies in such an arrangement is that it is convenient to store and demonstrate complex processes and phenomena related to science in a virtual form, and create the possibility of conducting experimental work in a virtual form. Therefore, it is advisable to use virtual educational technologies in the formation of knowledge, skills and abilities of future biology teachers

from professional sciences, including natural sciences (SIENS).

Virtual educational technologies, which are a product of creativity, create an opportunity for teachers and students to significantly solve a number of problems in the educational process. It is also an important pedagogical tool for saving time and enhancing self-employment. At the same time, providing the interdependence of didactics and modern pedagogical innovations, it increases the student's sufficient curiosity, the desire for knowledge, and mental formation. [1]

According to the results of the study, it is believed that the goal can be achieved through the widespread use of pedagogical technologies in the formation of students' skills in natural science (SIENS), its specific rules, laws, systems of aspects. , means of consistency, factors and pedagogical conditions.

It is through such factors that it positively influences their behavior, behavior, worldview and technical thinking. Now a question arises. What should be paid attention to when

developing students' skills in the natural sciences (SIENS)? What methods does he have? Differentiated education consists in dividing each student into groups according to his personal characteristics, abilities, interests and needs and organizing classes according to different programs.

Therefore, the differentiation of learning requires the organization of individualized learning. Individual learning is a model for organizing the form and process of learning, which is characteristic of programs of all forms of individualized educational work. The main advantage of individual learning lies in the fact that when organizing the learning activities of students, choosing the content, means and methods of teaching, taking into account their personal characteristics and accelerating this process, it allows them to set the right goal when performing their learning tasks, as well as develop their knowledge and skills. at the level of their abilities. They can be implemented more effectively with the help of virtual educational technologies. The situation is as follows: The processes of informatization taking place in society—the spread of new information technologies, means of communication, the formation of a market economy, socio-political changes, and the commercialization of the cultural sphere—lead to a transformation in the system of spiritual and value orientations of almost all strata of society and, consequently, a change in the structure of their information and cultural needs. This is a general trend both for megacities and for the provinces, which requires reflection and the development of new guidelines, reasonable priorities for cultural policy, and the activities of libraries.

In this sense, according to Sh. Jumayeva the processes of informatization taking place in society—the spread of new information technologies, means of communication, the formation of a market economy, socio-political changes, and the commercialization of the cultural sphere—lead to a transformation in the system of spiritual and value orientations of almost all strata of society and, consequently, a change in the structure of their information and cultural needs. This is a general trend both for megacities and for the provinces, which

requires reflection and the development of new guidelines, reasonable priorities for cultural policy, and the activities of libraries. [2]

If individual educational features are taken into account when designing virtual educational technologies, it becomes possible to develop the student's skills. Since students have different interests in education, this can help to find the optimal benchmark and provide independent thinking in finding the necessary information and the result of their work. Educational information provided with the help of virtual educational technologies should be aimed at developing students' skills of independent work. Virtual educational technologies serve to improve the quality of education, if they are used not only as an additional support in learning, but also as the main educational tool.

Another way to develop students' skills in the sciences (SIENS) is through self-guided learning. The use of virtual educational sites on the Internet is effective in organizing self-study. To do this, you must complete the following didactic tasks:

- providing accurate and complete information on the subject being studied;
- increasing visibility (creating a virtual representation of complex biological processes);
- increase in the volume of independent work of students (increase in scientific knowledge in the performance of tasks);
- to ensure the optimal and rapid growth of scientific activity of students;
- maximum satisfaction of students' interest in learning;
- organization of feedback;
- monitor the activities of students (for example, by conducting online testing, determine their initial level of knowledge and knowledge gained after studying certain topics) and give them the necessary instructions;
- read additional literature on natural science and learn how to independently use virtual educational technologies posted on the Internet. [3]

To implement these didactic tasks, it is necessary to develop virtual 3D educational technologies related to science. In this regard, according to M.L. Kazaryan, M.A.

Shahramanyan, 3D modeling is the most relevant and promising technology, a modern tool for presenting educational resources in a 3D visual form. [4]. Therefore, it is necessary to further improve the forms and methods of using virtual 3D educational technologies in higher educational institutions. As a result, students will develop thinking and systematic analysis, creativity and independent active skills. Virtual educational technologies in 3D teach students to intuitively understand the rules for viewing various objects and processes, which has the following advantages:

- increasing the variety of didactic materials (animation, video, sound, graphic information, diagrams and drawings) in exchange for presenting educational information related to the subject in different forms;
- ease of immediately making the necessary changes to the content of the data;
- compact storage of educational information in electronic form;
- ease of sending training data to any distance;
- acceleration of independent work of students and strengthening of independent educational activity;
- distribution of tasks to students, taking into account their individual abilities.

Teaching natural sciences (SIENS) with the help of virtual 3D educational technologies is recognized as a new stage in the modern educational process, traditional and distance learning systems are used. This creates ample opportunities for independent study of science by students.

Virtual educational technologies take into account didactic, technical and organizational aspects, are designed to increase diversity and enhance the pedagogical effect, as they include information in various electronic forms (pictures, drawings, tables, diagrams, audio and video files, virtual presentations). This is an important pedagogical software tool in the formation of natural science (SIENS) skills of students.

The formation of natural science (SIENS) skills among students is the most important task of the teaching staff of higher educational institutions. In the implementation of this task, it is effective to use a virtual educational

platform created on the Internet. The resources that make up the virtual educational platform may consist of graphics, animations, images, sound effects, and textual information. That is, a virtual educational platform reflects the harmony of various means of presenting information, combined in one content (a combination of text, graphics, video and audio presentations provides information in a simple form). It also allows you to increase the motivation of students and the formation of new knowledge and skills.

To implement these didactic tasks, it is necessary to create a virtual educational platform on the Internet. It should include the following:

- methodical - normative (curriculum, program);
- information and educational (texts of lectures in electronic format, abstracts of short electronic lectures, electronic texts of textbooks, multimedia applications, electronic scientific manuals);
- information assistant (dictionaries, presentations);
- practice-oriented (tasks for independent work of students, virtual laboratory and practical work, guidelines, etc.);
- control and diagnostic (tasks for self-control);
- control function (questions and assignments of control work, term paper, topics of essays, control questions).

It is necessary to develop modern virtual educational technologies for the development of creative research activities of students in the field of natural sciences (SIENS).

According to the opinions of the researchers mentioned above and the results of the analysis of our study, it is necessary to be guided by the principles of education in the formation of natural science skills of students (SIENS).

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