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GENERAL SECONDARY SCHOOLS REQUIREMENTS FOR THE INTRODUCTION OF INFORMED EDUCATIONAL RESOURCES FOR THE DEVELOPMENT OF NATURAL SCIENCES

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ABSTRACT

Communicativeness in the learning process is also required to focus on the ability of the student to communicate effectively in the learning process, to easily master the skills of using and using electronic resource products. In other words, as a result of the student's ability to use the electronic learning process in the classroom, in the classroom and in extracurricular activities, the competence to acquire communicative skills also develops. As mentioned above, in addition to extracurricular activities, there will be an improvement in the effective organization of club activities. The use of e-learning resources in biology clubs allows students to learn science more thoroughly.

KEYWORDS: *Natural Sciences, Natural Science Effectiveness, E-Learning Resources, Open Educational Portals, Students, Education System, Biology Lessons, Educational Technologies, Teaching Methods, Modern Teaching Aids, Continuous Learning Stages.*

INTRODUCTION

The Law of the Republic of Uzbekistan "On Education", the "National Program of Personnel Training" and the legal and regulatory documents that ensure their implementation provide for the use of modern information and pedagogical technologies of teaching and thus increase the effectiveness of continuing education. Therefore, all science teachers of general secondary schools are required to be equipped with new pedagogical technologies and interactive methods and to continuously improve their skills in applying their knowledge in educational activities. Indeed, as noted in the National Program of Personnel Training, "... advanced pedagogical technologies of education, the creation of modern teaching materials and didactic support of the educational process."

In the direct natural sciences, including biology, as noted above, the use of modern educational technology tools is characterized by the need to use it in comparison with other sciences in the study of the natural object under study in a new topic, understanding its place and importance in nature. The transfer of knowledge about animal morphology, ecology and its importance in human life is ensured not only through textbooks and manuals, but also with the participation of presentation resources of modern information technology.

Purpose of work: Information systems, data banks, institutions, organizations, teachers 'and students' websites, information resource centers, electronic information-educational resources, virtual laboratories, media and video lessons, electronic document exchange system, which are separate components of the current information educational environment in the public education system , video conferencing, intranet online competitions serve to make all participants in the system active users, the widespread introduction of information and communication technologies in the educational process.

Modern e-learning resources, special programs for learning, independent learning and testing of acquired knowledge together form the "E-learning resources". E-learning resources are a system of transmission of educational materials, combined with an automatic control system of acquired knowledge, which allows automatic adjustment, taking into account the individual characteristics of the user, ie the learner.

The classification of electronic resources according to the indicators of their use in the educational stages is typical. E-learning resources (ETR) differ from traditional print publications in terms of classification stages. It is expedient to classify them as follows:

The first group - e-learning resources - is a text method, in contrast to the main text - the prepared text or illustration is displayed not on paper, but on a computer screen, and the material can be easily printed. In biological process demonstration programs, a picture of the external morphological features of simple animals, multicellular or mollusks, animation can be displayed on a computer screen and display footage can be printed if necessary **[5]**.

The second group is also text-based material and is called e-learning resources based on an indicator. Using references to literature to make the text text-based and meaningful in this way does not always make it easy to use. However, in teaching the subject of Biology, it is important to study the origin of animals, their systematic characteristics, diversity, families, genera and morphological features of species in ETRs. The e-learning resource, enriched with links from scientific sources, textbooks, manuals, helps students to master the BKM in the content of biological science and educational material on the subject under study, to acquire basic and scientific competencies.

The third group of e-learning resources - the resource consists of complete visual and audio fragments. It differs radically from the above-mentioned text resources in the presence of image effects. In this case, one can imagine images for biology lessons, a collection of pictures depicting the animal world, visual resources in the form of fossils related to their lifestyle. Also, animation and sound capabilities are not observed in previous group resources used in the learning process. In this process, the integration of audio and video materials with the text allowed to create multimedia resources. With the help of ETRi belonging to this group, it is possible to convey to the minds of students a multimedia version of the physiological processes that take place in biological objects, that is, a sound, movement, image. In it, on the subject, for example, during the study of the external structure of the class of insects, images, a set of images, small video fragments create a complex software. It is a set of educational resources that is meaningful, interesting and informative.

Research tasks: The teacher should organize biology lessons based on the requirements of the educational process, professional and pedagogical competence. The effective use of modern

educational technologies in the development of lessons designed in accordance with the didactic purpose of the subject is guaranteed to give the expected positive results.

Pedagogical scientist R. Ishmuhamedov stressed that all pedagogical technologies, regardless of how they are organized in the educational process, should include the following:

- pedagogical activity;

- classroom interaction;

- to ensure that the student has sufficient knowledge of the existing subject;

- formation of independent, free and creative thinking skills in the student;

- to help create adequate conditions for students to realize their potential;

- Yes, to ensure that the pedagogical process is focused on democratic, humane ideas. In this regard, it is appropriate to cite the goals and objectives of the 7th grade Biology curriculum of general secondary schools.

The purpose of teaching biology in general secondary education is to provide students with knowledge about the structure, reproduction, origin, diversity, interrelation, protection, importance of living organisms in nature and human life, to expand students' scientific worldview, to form logical and creative thinking.

Tasks of teaching biology:

- Introduction to basic biological concepts, theories and laws;

- provide information on the mechanisms of adaptation of living organisms to the environment;

- Introduction to the main stages of individual and historical development of organisms;

- Orientation of students to their own health and the health of others, to a healthy lifestyle;

- Orientation of students to a conscious choice of profession on the basis of ensuring that the content of biology education is connected with modern social life and scientific and technical achievements;

- inculcate in the minds of the younger generation the qualities of rational attitude to nature and all its riches;

- Educate students in the spirit of national independence and patriotism, the formation of competencies to apply knowledge of biology through acquaintance with the biological work of local plant and animal species, selection achievements, great scientists of ancient times and modern scientists on the basis of biological knowledge **[2]**.

Therefore, based on the above goals and objectives, in the current information environment, along with educational and methodological complexes in the development of basic and scientific competencies in biology among students, modern information technology tools, the ability to target, nurture and use electronic resources. not only knowledge but also information processing competencies are required.

In the disciplines taught in almost all educational institutions of the system of continuing education, including biology, the preparation and introduction of presentation materials for

almost every topic is now considered one of the most appropriate tools. That is, today it is very difficult to imagine the learning process without electronic means.

The general requirements for the development of a new generation of educational and methodological complexes in general education for general secondary and secondary special, vocational education institutions of the state educational standard are as follows: "Multimedia applications of textbooks - state educational standard and have additional material that enriches the main content of the subject, including video, audio, animation, tables, text and dictionaries, aimed at monitoring and strengthening knowledge, which can illuminate in accordance with the curriculum, help students to master the subject effectively, independent learning or an interactive e-learning resource containing references to similar sources, and it is emphasized that each general education subject should have an e-learning resource based on this requirement**[4]**.

Demonstration tools that serve to increase the effectiveness of academic subjects are also created on the basis of the same applications. The teacher is required to have the competence to develop and implement such practical software. Or the need for the work of direct programmers is felt. However, in many cases, based on the mutually integrative approach of the two disciplines, the creation of electronic means that reflect many scientific sources is achieved.

Today, the Republican Multimedia Center has created a large number of electronic multimedia resources within the subjects of general secondary education. These include electronic textbooks, electronic manuals, video tutorials, videos, presentations, electronic developments, virtual laboratory products. Most of these materials are developed by teachers of general secondary schools, prepared in the central studio, ready for implementation in the educational process. The software products are posted on educational portals and websites and are intended for teachers and students of general secondary schools of the republic, and their use is much more convenient.

The new generation of ETR includes an open educational module multimedia system. To have such a perfect system, you need to solve 3 important problems:

First, it is known that many ETRs are located on special Internet sites, students are not interested in the active use of electronic text resources, do not feel the need to search for electronic literature, often limited to the introduction of short e-learning resources in the learning process. Interactive multimedia content is required for the reader to engage in active activities, but unfortunately the technical difficulties of the global network also prevent these problems from being addressed.

Second, until recently, e-learning resources were recommended to users on compact discs, which, depending on the capabilities of each computer, would allow the student or learner in general to use them after downloading the necessary software tools. Now the deployment and introduction of new generations of e-learning resources directly on the global Internet will effectively help the user in the future.

Third is the issue that is directly related to the teaching process. For many years, the computer is believed to ensure that the learner is person-centered. During pedagogical practice, however, it would lead to the formation of the notion that computerized learning is effective in the independent learning of the student.

The research recommends the use of electronic tools in biology not only in the classroom, but also in the organization of extracurricular activities. For example, in the formation of students' research skills on the topic "Poisonous snakes in Uzbekistan" there is a reaction to the exchange of information, the development of information retrieval competencies. For example, the electronic resources used by the student to prepare for independent work, that is, materials belonging to the group of coins, are used. It also includes photos, video clips, text information, and websites related to snakes. The student is searched on the basis of visual aids, collects information, the student's personality is directed to the preparation of independent work on the basis of the teacher's targeted orientation. In this process, as a result of abstract feedback from the student's personality, students develop research skills, their creativity, creativity and easy access to independent activities serve to perform educational and pedagogical tasks**[3]**.

Communicativeness in the learning process is also required to focus on the ability of the student to communicate effectively in the learning process, to easily master the skills of using and using electronic resource products. In other words, as a result of the student's ability to use the electronic learning process in the classroom, in the classroom and in extracurricular activities, the competence to acquire communicative skills also develops. As mentioned above, in addition to extracurricular activities, there will be an improvement in the effective organization of club activities. The use of e-learning resources in biology clubs allows students to learn science more thoroughly. At the same time, the virtual organization of laboratory classes in biology is one of the activities of this group **[6]**.

When it comes to the use of electronic resources, first of all, its development and implementation in the educational process is often the result of a lot of work of the teacher. That is, the production or creation of e-learning resources - that is, if we come to the field, the software development necessary for the direct educational process is developed by teachers or research educators. Of course, an e-learning resource will be created based on the creative and technical collaboration of programmers.

CONCLUSIONS: The creation of an information environment in biology lessons is achieved through the methodological ideas of teachers to increase the effectiveness of biology lessons, the joint work of members of the Methodological Association and the mutual support of specialists of the information resource center in secondary schools. By improving the introduction of electronic resources in biology lessons, not only the quality of demonstrations will increase, but also the use of non-traditional methods in the learning process (problem situation, group work, brainstorming, individual work) will have a positive impact on students' active movement. The required teaching aids, electronic tools, suggestions and recommendations will be analyzed to ensure the effectiveness of biology lessons.

The importance of this stage is that it takes an active, consistent and systematic approach to the use of ICT by teachers. Teachers will actively use e-textbooks, e-manuals and multimedia tools in the classroom, in the classroom and in extracurricular activities. In the educational process, methodological aspects of the systematic implementation of the planned use of ERV on the basis of the technological map will be developed. That is, the stages of the learning process, such as introduction, recall of past topics, description of a new topic, interconnection of topics, general summarization, assessment and control of students, are systematically organized through electronic resources.

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