

# Technologies for creating electronic information-educational resources

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O. D. Rakhimov on the requirements and technology of creating electronic educational resources - the issue of informatization of education in the information society, the role of ICT and educational resources in the modern education system, the nature and classification of electronic educational resources, the sample composition of electronic educational resources, the requirements for their creation, the principles of creation and the sequence is discussed. Regarding the process of introducing electronic information resources into the educational process, D.T. Pulatov gave scientific conclusions about the pedagogical conditions of introducing information and educational resources into the educational process. At a time when all spheres of society are informed, one of the main directions of implementation of educational reforms is the effective use of the possibilities of information and communication technologies. In such a situation, the organization of the educational process, the organization of its content, the pedagogical activity of the teacher in an automated environment and the organization of the learning process of the students are defined as the main tasks.

The introduction of an automated environment into the educational process is considered the most important task, because the solution to this problem is the creation of a single information space by combining the electronic information resources of every educational institution in our Republic. In order to create such unified information spaces, first of all, it is necessary to integrate information in educational institutions, that is, all educational, administrative, economic services, library and management departments into a single network. It is possible to solve the issues of organizing the important activities of students such as independent education by creating opportunities to access the international network of the Internet and controlling the educational process in the educational institution, electronic exchange of documents and electronic educational-methodical complexes based on information and communication technologies. It is these issues that remain relevant today.

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Nowadays, in order to solve such urgent tasks, it is necessary to create a single electronic information-educational environment in higher education institutions and to establish a wide use of its information-educational resources. As an important direction for the development of a unified information-educational environment of universities and institutes, it should be said that it is necessary to improve the use of information and telecommunication technologies in the educational process.

Placing the information intended for the educational system in a certain system facilitates the process of using the information-educational resources of the electronic information-educational environment and regulates the work process. E.M. Komarevtsev [1], A.N. Tikhonov [108] conducted research on the scientific-methodical foundations of creating an electronic information-educational environment. Taking into account the development of information and communication technologies, it is appropriate to conduct new research in this field.

In pedagogical activity, the goal of education performs a systematic task. It is the determined goal that serves as the basis for choosing the content, purpose and organizational forms of the scientist. The goal of modern education is the formation of a system of knowledge, skills and abilities that is formed in accordance with the requirements of the specialist model, and it is expressed in the relevant educational standards. In addition, according to the requirements of the national model of personnel training in our Republic, the student is becoming not only the object of the pedagogical process, but also its subject. Based on this, the importance of the student's independent education, including the following skills and qualifications, is increasing. [1]

The high level of preparation for the creation of the electronic information-educational environment and its information-educational resources, the appropriateness of the content of the information-educational resources, the systematization of information, and the attention paid to organization based on a systematic approach to the creation of the information-educational environment. The issue of informatization of the educational process involves introducing information and communication technologies into the process, increasing students' independent research and educational opportunities, mastering modern information and communication technologies, and organizing the use of additional educational resources.

The electronic information-educational environment of educational institutions is a system that provides information to users through a convenient interface, which has the following capabilities:

- serving a large number of users at the same time;
- variety of information;
- availability of fast, easy and effective search system;
- integration of information and educational resources;
- ensuring information security;
- classification of information;
- management and analysis of the educational process;
- control and assessment of students' knowledge levels.

The indicators of the electronic information-educational environment of each educational institution are determined by the scope and size of the information-educational resources available in it. The purpose of any electronic information-educational environment is to provide the necessary information to learners and a wide range of users in a short time and through various interfaces. In order to organize the entire electronic information-educational environment and recommend it to the educational process, this environment must meet several requirements, in particular, pedagogical and psychological requirements. These pedagogical and psychological requirements include:

- the information resources of the electronic information-educational environment should be reliable, consistent with the current state of the relevant science, systematic and sequential, should be demonstrative and connected with practice;
- educational materials should be provided in a mutually optimal option of scientificity and ease of acceptance;
- the description of teaching and methodical materials should be person-oriented, as well as intended for people with different abilities.

The available resources of the electronic information-educational environment should be compatible with the content of individual educational science programs, should be composed of assignments and tasks that ensure the formation of necessary skills and qualifications in learners, should determine the amount of knowledge that learners should master, should be presented in a certain logical system, should be consistent with the principles of coherence and continuity. should come and meet the principles of systematization.

The user interface of the electronic information-educational environment should be the first task to visually display the content of the information-educational resources placed in the system, to have the ability to quickly move from one section to another page. It is also important that the provided informational and educational resources include tasks for independent learning and test systems for checking acquired knowledge, interesting exercises aimed at strengthening knowledge.

When choosing multimedia materials for the electronic information-educational environment, special attention should be paid to the content, structure, coherence and forms of information presentation. Because the multimedia materials in the system serve as an independent source of information-educational resources for students to learn easily.

The following principles should be observed when creating informational and educational resources of the electronic informational and educational environment:

- the principle of goal-orientation - means that information-educational resources are suitable for the purpose of education of students studying in an educational institution, as well as serving as an information-educational source for educational institutions, educational service customers, educational management bodies;

- the principle of integration - in the electronic information-educational environment, the integrated information-educational resources of educational institutions are placed in a single address, as well as a separate access to the resources of educational institutions is organized;

- the principle of completeness - ensures the availability of teaching-normative, methodical documents, scientific activity, educational activity, presentation of the graduate base and others in the field of education;

- the principle of integrity - the information-educational environment provides information-educational resources through a single centralized management, and the development, editing and placement of these resources is carried out on the basis of a single system.

- the principle of openness - creates a system of open presentation of information on educational fields based on the electronic information-educational environment of educational institutions, in addition, ensures that information-educational resources are open for all persons to use.

The stage of electronic information-educational environment resources of educational institutions and principles of information-educational environment are created.

The unified information environment of education is oriented to the goal of providing students with technical, software and methodical tools aimed at organizing their independent work, in addition, it also consists of conceptual principles such as integration, completeness, integrity, and openness. The stages of implementation of these principles require the creation of an informational educational environment, the development of educational-methodical complexes in subjects with special attention to the content according to the levels of formation.

Technical, software and methodological tools aimed at organizing independent work of students in the organization of a unified information and communication environment create the possibility of effective use of educational and methodological complexes in the informational environment of education. In this case, the object of the educational-methodical complex includes a complex of scientifically based cases, laws, technological approaches, as well as the content of laboratory exercises, seminars and practical exercises in a certain educational subject. Students' activities are organized with the help of information and educational resources, teachers' and students' interactions with computers and telecommunication tools.

The creation of an electronic information and communication environment and the formation of educational-methodical complexes in educational subjects are carried out step by step.

The first stage is the development of educational programs, lecture texts, questions intended for control, final control assignments for the full scope of the subject, a list of mandatory laboratory exercises, their description and control questions, course projects for the subject, and methodical recommendations aimed at completing assignments for independent education. will be released.

The second stage - electronic versions of some parts of the educational materials are prepared.

The third stage is the creation of a teaching-methodological complex of educational subjects, and the possibility of using them in distance or mixed-traditional forms of teaching.

The fourth stage - control elements suitable for the student's cognitive activity and a complete monitoring system of the student's activity at the end of the educational process will be formed.

By V.M.Monakhov [68], A.V.Petrov [83], E.S.Polat [85], [86], A.A.Polyakov [88] on issues of using the unified information and communication environment of education studies have been conducted. In these scientific conclusions, the general problems of using the Internet system in the educational system, its purpose, methods and principles aimed at solving the problem, and the introduction of computer and telecommunication technologies are described.

In the environment of information and communication technologies, the activity of students, their activity in the educational process and the level of mastering of educational materials, is of great importance.

The creation of the information and communication environment of the educational institution opens up the possibilities of developing new methods of informatization of pedagogical processes and presentation of educational materials, and provides freedom of cognitive activity for the participants of the educational process.

Today, the mechanism of mastering modern information and communication technologies by students requires advance training of pedagogues in this field. For this reason, tasks such as informatization of education, training of teachers in new directions, and training of teachers in modern technologies are considered the priority, main direction of education informatization.

On the basis of the above, it is concluded that the placement of information-educational and management resources on the central server of the university is the most important task. From this point of view, it is possible to define user tasks in the environment of information and communication technologies.

Computer networks can be local and wide-ranging (corporate). A local network is a network that connects computers located in the same building or adjacent buildings, that is, not far from each other. A corporate network consists of a number of interconnected computer groups, and its creation requires network equipment and corresponding software.

In short, the information and communication environment of all educational institutions increases the quality of professional training and increases work efficiency, in addition, it creates the necessary conditions for the development and wide implementation of modern teaching technologies, and brings the activities of pedagogues and students to a new level. This creates a new innovative environment in education and brings education to higher levels.

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