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METHODOLOGY OF CREATION AND USE OF E-LEARNING RESOURCES

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Abstract. The article describes the creation of modern e-learning resources for educational process, their purpose, content, structure and stages of creation. The article also gives recommendations on how to create e-learning resources, and how to use properly Web technologies, which are used in the process of creation of e-learning resources.

Key words: education system, educational literature, information and communication technologies, e-learning, educational resources, e-learning resources, automation.

INTRODUCTION.

Rapid development in the sphere of information and communication technologies indicates the need to create electronic information educational resources based on modern computer technologies and the use of them in the organization of educational, methodological, research and training processes in the educational system.

Reforms in continuing education in our Republic pay special attention to improving the quality of the educational process, focusing on the preparation of highly qualified competitive specialists and continuous improvement, taking into account the trends of modern progress.

OBJECT OF THE RESEARCH AND METHODS.

The introduction of modern information technologies in the educational system requires the creation of educational and methodological base (textbooks, teaching manuals, methodological manuals, electronic teaching aids) in educational institutions in accordance with modern requirements and constant updating of content, taking into account achievements in science, technology and economics. In this regard, the creation of e-learning resources and their effective use in the educational process is of particular importance. Methods of observation, comparison, experimentation and generalization were used in the process of this research.

RESULTS AND ANALYSIS.

The use of electronic textbooks in the educational process, along with printed textbooks, is one of the important requirements of the modern education system. When using e-learning resources, the learning process is enriched with highly visual materials [1]. Creation of e-learning resources for educational institutions, joint use of created educational resources, rapid updating of educational resources and their use in education, training, promotion of national independence among students and various segments of the population, the implementation of ongoing reforms at the national level is one of the current problems.

Through the creation of e-learning resources, there will be an opportunity to share the volumes of information among the resource centers of various educational institutions, to improve the quality of education among pupils and students as well as the quality of spiritual and educational work among young people.

The main purpose of the creation of e-learning resources is to create a single information and educational environment in continuing education, taking into account the capabilities and requirements of the system of continuing education, to develop a system of effective use of educational, methodological, information resource centers, to implement targeted activities among students, to develop a mechanism for the implementation of professional qualifications of teachers on the basis of distance learning methods.

In network technologies, e-learning resources created for the educational and training systems are required to consist of at least three parts. They are the part for giving knowledge, part of training and part of control [1].

Hypertext is used to introduce the textual materials of e-learning resources. Among the textual materials, the basic concepts and phrases are described on separate pages. Relevant visual aids, presentation materials, and test options for control are recommended.

In e-learning resources, as in the creation of other information educational resources, special attention is paid to the didactic rules, that is – the substantiating and broad coverage of the content of the recommended educational material, as well as organizational forms and methods of teaching. Didactic requirements in the learning process can include indicators such as the structure of educational materials, demonstration, comprehensibility, sequence and coherence of knowledge. Each created information resource material must be created in accordance with the above requirements [2].

The issue of creating e-learning resources is exemplified by the subject "Informatics and Information Technology" taught in secondary schools. This process is carried out in the following stages:

The first stage. In the first stage, the materials for teaching the subject of Informatics and Information Technology are studied and the necessary information on the topics is collected. The created e-learning resources are intended for the effective organization of training in the subject of informatics and information technology, independent learning, control over the acquired knowledge. Teachers of computer science and information technology will be able to use it as a methodological guide in each theoretical and practical lesson. The content of e-learning resources will ensure that educational institutions meet the requirements of the STS, the content and purpose of curricula.

The second stage. At this stage, the main objectives for the recommendation and use of e-learning resources are identified. The main objectives are:

- the delivery of educational materials on the subject of informatics and information technology in full electronic versions, with the help of visual and animation tools;

- recommending individual educational materials to students and assessing their knowledge;

- to organize the study of theoretical materials, basic phrases and concepts for each topic using explanatory dictionaries;

- to recommend guidelines for teachers on each theme of the subject of Informatics and Information Technology;

- development of recommendations for the organization of each lesson in an interactive way;

- organization of individual assignments for students and determination of their level of mastery;

- to recommend practical and laboratory assignments in accordance with the results of mastering.

The third stage. At this stage, the content of the proposed database is planned by compiling the content to determine the content of e-learning resources.

The fourth stage. At this stage, the content of the software used in the creation of e-learning resources is revealed. The following software tools are used to create e-learning resources:

- Text materials are transferred to HTML (Hyper Text Markup Language) and hyperlinks are established through hypertext;

- Establish a test-based control work at the end of each key question in the presentation of lecture materials (using HTML capabilities);

- Create unique visual materials and animated objects on each topic (using PowerPoint, Macromedia Flash, Dreamweaver).

The structure of e-learning resources in the field of computer science and information technology is illustrated in Figure 1 [3].

E-learning resources play a special role in the effective organization of independent learning in the learning process. The main purpose of the use of teaching materials and electronic textbooks created on the basis of computer software in e-learning resources is to form a modern information-educational method, increase the efficiency, quality and productivity of the educational process through the use of modern information-pedagogical, information and computer technologies. The sources are the widespread use of e-textbooks, the organization of their libraries in a sense, the introduction of distance learning methods in education and access to the global e-learning system.

Educational-methodical materials created for independent learning in e-learning resources should be used with the help of automated software. Automated teaching materials provide students with information on relevant topics and monitor their

knowledge. Different levels of assignments are recommended to learners depending on the outcome of the knowledge control. With the help of automated teaching aids, learners can increase and improve their knowledge without the help of a teacher [3].

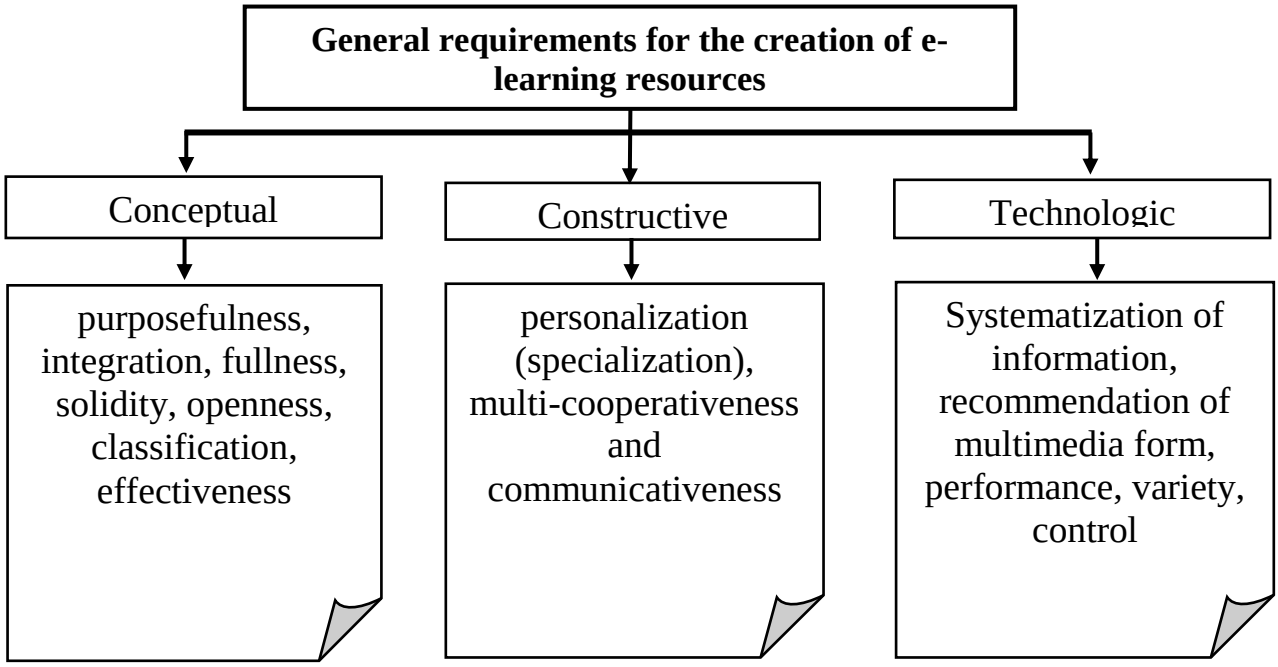

Figure 1. General requirements for the creation of e-learning resources

One of the important directions in the application of information technology in the educational process is the creation of electronic textbooks, manuals and courses. In particular, the basis of e-learning resources is undoubtedly computer, information and pedagogical technologies. When we talk about informatics and information technology in education, we first need to consider didactic systems in the form of online learning, distance learning, interactive pedagogy and various forms of learning.

The use of e-learning resources in the classroom gives great results in the deep study of any subject. In the process of creating electronic resources, it is necessary to follow the general principles that are an integral part of the studied technology of resource construction. Such principles should be part of the methodological system for training teachers to create and use e-learning resources.

It should be noted that the use of information and communication technologies in the teaching process requires the creation of an electronic database of knowledge, skills and abilities and the development of automated systems that control the knowledge acquired on the basis of this database. Teaching through e-learning resources should be tailored primarily to the level of computer readiness and intellectual capacity of learners [4].

Figure 2. Components and essential parts of Web technologies that create e-learning resources

In order to improve teaching through e-learning resources, it is necessary to pay attention to the following principles [5]:

- creation of additional electronic resources, data and libraries, development of special software for searching for information on the network;

- improving the teaching methods of teachers, the use of the Internet, cooperation with specialists in the field of information technology and psychology;

- regular replenishment of e-learning resources with information on the latest achievements of science and technology;

- the use of advanced pedagogical technologies and active methods in teaching through e-learning resources;

- criteria for assessing knowledge in teaching methods through e-learning resources is an important problem. Since this methodology is mainly focused on independent learning, the active and responsible participation of teachers in the organization of assessment is required. Because the assessment process should take into account not only the results of tests, but also the activity of students and their ability to work independently.

- the curriculum of the special subject should be adapted to the methodology of teaching through e-learning resources.

E-learning materials created for independent study operate using automated software within e-learning resources. Automated teaching materials recommend information to learners on relevant topics and monitor knowledge. Different levels of assignments are recommended to learners depending on the outcome of the knowledge control. With the help of automated teaching aids, students can increase and improve their knowledge without the help of a teacher.

The advantages of using e-learning resources in the learning process are:

• deeper and more complete mastery of the materials provided in the educational process;

• introduction of new forms of education;

• the ability to save time as a result of reduced learning time in the classroom;

• The acquired knowledge can be stored in a person's memory for a long time and can be applied in practice.

• short time for students to develop certain skills;

• increase in the number of assignments in the classroom;

• the student becomes a subject of education as a result of the need for active computer control;

• The ability for students to model and directly demonstrate processes that are difficult to observe, observe, and so on.

CONCLUSION.

E-learning resources provide students with the main volume of learning material in distance learning, interactive communication between student and teacher in the learning process, independent work on the acquisition of learning materials, as well as opportunities to assess their knowledge and skills.

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