REQUIREMENTS FOR THE CREATION OF ELECTRONIC EDUCATIONAL AND METHODOLOGICAL COMPLEXES FOR COLLEGES

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ABSTRACT

The purpose of this article is the exchange of experience on the creation of electronic educational-methodical complexes (EEMC), intended for independent study by students of distance learning.

Keywords: Electronic educational and methodical complex, secondary special education, requirements for a software product, software package.

INTRODUCTION, LITERATURE REVIEW, METHODOLOGY

Currently, an experiment is being conducted in various regions of Uzbekistan to improve the content of secondary special education.

The Decree of the President of the Republic of Uzbekistan dated February 7, 2017 No. UP-4947 “On the Strategy for the Further Development of the Republic of Uzbekistan” defines the priorities for further accelerating the country's development for 2017–2021. The fourth of the five priority areas in the Strategy of Action is devoted to the development of the social sphere. In his fourth “Development of the sphere of education and science” paragraph the following urgent problems are indicated: “continuing the course of further improving the system of continuing education, increasing the availability of high-quality educational services, training highly qualified personnel in accordance with the modern needs of the labor market; the implementation of targeted measures to strengthen the material and technical base of educational institutions by carrying out work on their construction, reconstruction and overhaul, equipping with modern educational and laboratory equipment, computer equipment, teaching aids; cardinal improvement of the quality of general secondary education, in-depth study of foreign languages, computer science, other important and sought-after subjects, including mathematics, physics, chemistry, biology; ”[11].

An analysis of the materials of the experiment shows that the teaching aids and the organization of the educational process in the college should allow students, on their own initiative, to choose the level of complexity and the way of studying the material; to master the skills of self-education; get involved in creativity in accordance with their interests and capabilities; Get help with exercises and homework Reflect your ability to learn and solve problems; check your capabilities and timely adjust your training, etc.

The study of only this part of the requirements shows that not only well-known textbooks on paper do not satisfy these requirements, but, in principle, textbooks on paper cannot fundamentally satisfy such requirements [1-5]. Hence the relevance of the development of

electronic educational-methodical complex. Particularly relevant was the problem of developing EEMC for specialized colleges.

RESULTS, DISCUSSION

Since 2012, studies on the use of computers in the educational process of colleges have been conducted at the Jizzakh Polytechnic Institute. Research has allowed:
1. Based on the ideas of developing education, justify the approach to the presentation of the theoretical part of EEMC. The basis of this approach is the methodological development of the curriculum topic.
2. Using the method of successive approximations and analysis of the results of special model experiments, develop a chapter model for a specialized textbook.
3. To determine the requirements for a software product with which teachers of educational institutions can create EEMC for specialized colleges, taking into account the level of preparation of teachers for using a computer.
4. To develop the "MARK" software package (monitoring and analysis of the development of colleges), intended for the development of educational electronic tools: information and expert systems, EEMC special tools for studying students.
5. To propose a technology for the development of electronic textbooks for specialized education using the "MARK" package.
6. Develop a number of textbooks and conduct experiments to test them with students and teachers.
7. To study the theoretical issues of creating EEMC, the issues of using different software packages, performing special exercises, developing fragments of electronic textbooks.
8. Conduct and analyze the results of courses with teachers.
9. Based on the analysis of electronic tools created by educators and special studies, develop a new software project for creating electronic textbooks.
EOR (COR) - specially formed blocks of various information resources intended for use in the educational (educational) process, presented in electronic (digital) form and operating on the basis of information and communication technology (ICT).
It is legitimate to consider digital educational resources as one of the types of new generation ESMs currently being developed:
• a single collection of the COR,
• FCIOR.
Possibilities of using ESM in the educational process, depending on the type of educational activity: using ESM when studying new material or consolidating the past (it helps to clearly and easily present the material, can be used both in the lesson and in preparation for it); the use of ESM in conducting ongoing monitoring of students' knowledge and the level of their assimilation of material (testing student knowledge); the use of interactive ESM as simulators.

The main types of ESM in the process of teaching natural sciences:
- informational (interactive lecture, text with hyperlinks, illustrations, animated inserts, interactive models; story and game);
- practical (step-by-step explanation, simulator, various types of workshops, research tasks, virtual laboratories);
- control.
Innovative training materials are available on the FCIOR websites http://www.fcior.edu.ru and EC COR http://school-collection.edu.ru: dynamic cartoons and interactive models; didactic interactive games, virtual laboratories, demonstration experiment.

Currently, a large number of electronic textbooks are being published, which are constantly being improved. A typical textbook created using a computer is not interactive. The main difference between the text of an electronic textbook is interactivity. Consider the structure of a modern electronic textbook [8]: basic textbook; teacher's textbook (the teacher posts his materials); student's textbook (the student can take notes, set up a convenient reading mode, send completed tasks to the teacher); dictionaries; regional content; applications where educational online resources are indicated.

In work we use electronic textbooks. This allows you to strengthen the relationship of the teacher with the student, and not replace them. The student moves from passive perception to active learning. Electronic textbooks are a motivating learning tool for children of the digital age who live in the era of a new educational reality [7].

The use of distance learning allows home-based education, the education of those children who, due to illness, cannot attend school. This form of training involves the exchange of text messages via e-mail, the search for information on the Internet, blogging and sites with updated content, training conversations on Skype. The features of the organization of the educational process for each student, including the volume of his training load, the volume of classes using distance educational technologies, are determined individually [9].

EEMC are created for industrial, economic, pedagogical directions. When developing each of them, the following was taken into account: the interests of students, their psychological characteristics, their attitude to the subject and the teacher, students 'ability to perform creative tasks and orientation to them, students' difficulties in studying the subject and the types of help that they prefer, competencies that should be formed in the result of training in a specialized class, etc.

Discussion of EEMC with teachers from different regions of Uzbekistan, college teachers allowed to draw conclusions:
1. At EEMC, special attention is required to motivate students to study each topic.
2. EEMC should provide an opportunity for a student to choose not only the level at which he will study the educational material of the topic, but also a different way of studying the topic (at least two ways). In this case, the student must realize that he and only he is responsible for his choice of the level of study of the topic.
3. EEMC is designed to protect students from overload. In particular, this is the homework section of the new material (it presents the minimum number of tasks that will be offered at home and during which the student will again have to choose the level of difficulty).
4. There should be a special simulator in the EUMC, turning to which, on its own initiative, the student can not only work out algorithms for solving the main types of problems, but also learn: abandon the well-known method of solving problems and find other methods, compose tasks, look for and correct errors in the solution tasks, analyze situations in different ways, etc.
5. The EEMC should have a personal monitoring section intended for students who, prior to the test, want to evaluate the results of their work on the topic and make the necessary adjustments in a timely manner, want to know the forecast of the test result and receive instructions from the computer how to improve it.
6. There are various types of student assistance. Particularly important (according to the unanimous recognition of students and teachers) is the inclusion of a special expert system, which is designed not only to assist students in solving specific problems in the lesson or at home, but also focused on the transfer of the experience of the author of the textbook with various elements of EEMC.

7. Section of creative assignments, which proposes possible projects for the needs of the educational institution and for participation in conferences and competitions held both at the school and outside it.
8. It is important that EEMC can be significantly changed and supplemented based not only on the development of the author of the textbook, the teacher who uses it, but also by the students and the teacher on the basis of projects completed by students and taking into account the characteristics of the educational institution and the profile of the class. Here is just one illustration: the textbook on mathematics for the humanities classes can be translated by students not in those foreign languages that students learn. In this case, new students using the supplemented version of the electronic textbook receive a new possible option for studying the topic - to study the topic in a foreign language.
9. It is essential that students become familiar with the experience of performing some work that is important for the profile of the class, which cause known difficulties for students and that are performed by their peers. This is achieved through the inclusion in the textbook of sections in which different versions of the same tasks are presented by students who studied the material using an electronic textbook (for example, on reflection or systematization, on compiling tasks, etc.) and analysis of the performance performed by students and the author of an electronic textbook.

Special materials on preparing students for the unified state exam should be presented in the EUMC, taking into account the rules and specifics of this exam, an analysis of the results of its conduct and the training material for each topic of the curriculum. It is important at the same time that the textbook taught students to save time, conduct self-control, reformulate assignments and find ways to facilitate the implementation of assignments.

The Jizzakh State Pedagogical Institute has developed an instrumental system for creating EEMC. The development of the system aims to give humanities specialists a tool that allows them to create EEMCs without special expenses that can operate quite efficiently on personal computers in the Windows environment, as on the most affordable platform.
EEMC created by means of the system is developed interactively in two stages:
- selection of configuration and generation of EEMC shell,
- subject content.

The system provides an opportunity for the user, having made a choice of occupation types, to build his EEMC configuration. Among the possible occupation types are: study of a lecture course; work with the dictionary; laboratory work; testing.

CONCLUSIONS

In addition to classes, the shell may include the ability to view the list of literature and the journal of performance. After generating the EUMC, the author can start filling out the lecture course, vocabulary, questions and answers for testing, and a bibliography using the tools built into the instrumental system. In addition to these tools, the system contains a certain set of built-in mechanisms for conducting practical exercises, for example, creating a database on some subject, writing an abstract or report, and also for performing calculations using statistical methods in any applied field. The set of built-in tools for conducting the practice can be expanded by adding new tools, but this is not the task of the author of the EUMC, but a system programmer.

The instrumental system includes:

- designer of the shell EEMC,
- hypertext constructor that allows the connection of graphic and animated illustrations,
- pseudo-graphic editor,
- text editor,
- a subsystem for the development of tests,
- a subsystem for filling out the list of references,
- a subsystem for filling in questions and answers on the topic,
- a subsystem for connecting existing practices and adding new ones.

At present, it has been used to create EEMC for the course "Informatics and Information Technology", an electronic textbook "Informatics" for colleges, "Numerical Methods", etc.
The creation of the EUMC shell and its filling is carried out completely within the framework of the instrumental system, which allows filling the lecture course and glossary of terms, developing control questions and laboratory tasks, the only exception is the preparation of illustrations for lecture material, dictionary articles and visual testing in graphic (PCX format) and animation (FLI format) editors.

The system continues to improve, in particular, it is planned to connect sound fragments (wav- and mid-files).

User-friendly interface, visual development tools, the presence of built-in mechanisms enables the authors of EEMC to quickly implement their plan.

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