

CREATION OF PEDAGOGICAL SOFTWARE FOR PRACTICAL TRAINING IN COMPUTER SCIENCE

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ABSTRACT

The article discusses pedagogical software tools, the concept of electronic textbooks, simulator programs, online courses, methods and possibilities of their creation.

Keywords: iSpring Suite, CourseLab, eBook Maestro, Adobe Flash technology, electronic textbook, pedagogical software.

INTRODUCTION

Today's one of the most pressing issue is the provision of the educational process in educational institutions with modern technical means. Everyone receives information based on their individual physical characteristics, but there is no doubt that visual information is more effective than information received through listening. Via using e-learning resources, regardless of the influence of external motivational factors, students begin to learn actively in the learning process. The development of active, effective means of education can be created from the creative competence of each teacher and through a convenient and easy description of information quality and scientific data used in it. E-learning resources can be used not only as information, but also to acquire new knowledge.[1]

Today's one of the increasing factors in the effectiveness of education of our country is the use of electronic textbooks. Many authors have tried to formulate a general definition for an e-textbook.

The scientist A.S Demushkin defines the concept of "electronic textbooks" as follows: "It is a software-methodological complex that allows you to independently master the course or a large part of it." [2]

L.H Zaynutdinova "e-textbooks" - a comprehensive educational software system that ensures the continuity and completeness of the didactic cycle of the educational process: provides theoretical materials, monitors the level of training and knowledge, as well as information retrieval, mathematical and simulation modeling, a software-methodological complex that provides interactive feedback with computer visualization and service functions.[3]

V.L. Ivanov's view of the concept of "electronic textbooks" as a programmatic and methodological complex that allows you to independently master a course or a large part of. It

is believed that this is not an alternate, however it can be an addition to traditional forms of learning, but cannot be replaced by reading a book, tasks and exercises like a student's daily activities.[4]

Based on these definitions, if we compare the features of e-textbooks with traditional textbooks, we will have more detailed information based on the following table:

Table 1: The differences between electronic textbooks and traditional textbooks are shown

Electronic textbooks	Printed textbooks
All assignments and tests are given on an interactive and learning basis. If the answer is incorrect, you can give the correct answer with explanations and comments	All tasks are given in text or graphical form
Views are presented in multimedia technologies: animation, sound, hypertext, videos and other forms	Views are represented by pictures, drawings, tables, and diagrams
It offers multiple options, multi-level, and a variety of verification tasks, queries, and tests	There are restrictions on the number of practical and final tasks
E-textbooks are open systems, so the textbook can be supplemented, corrected and modified during processing. Additional features: Test Survey Questionnaire Homework notebook Encyclopedia Creative environment	Printed textbooks are not subject to change, it is in a closed system

Electronic textbooks can be prepared by experts or by the teachers themselves. [5]

Besides to the concept of e-textbooks, there is another concept in modern education - the concept of pedagogical software.

Pedagogical software is a didactic tool designed to partially or completely automate the learning process using computer technology. They are one of the promising forms of increasing the efficiency of the educational process and are used as a teaching tool of modern technologies. The structure of pedagogical software includes: software product (set of programs), technical and methodological support, additional aids aimed at achieving specific didactic goals in the subject.

Pedagogical software can be divided into:

-**teaching programs**- focus on the acquisition of new knowledge based on the level of knowledge and interests of students;

-**test programs** are used to check or evaluate the acquired knowledge, skills and abilities;

-**trainers**- serve to repeat and reinforce previously learned training material

-**Programs that create a virtual learning environment with the participation of teachers** (Virtual Being Systems).

Based on the ideas presented, we will look at technologies for creating e-textbooks, pedagogical software, and online courses.

Nowadays, e-textbooks, pedagogical software and online courses are becoming an increasingly popular format - it is more convenient for schoolchildren, students and adults to learn at any time and anywhere and use teaching materials on any device.

I would like to point out that online courses, e-learning materials, presentations, surveys and automated bibliography and quotes can be done quickly and easily through using multiple learning tools

Table 2: Programs designed to create pedagogical software tools

Site name	Information about software
iSpring Suite https:// www. ispring.ru/	Innovative technology for creating learning materials with the ability to test knowledge and record results. Supports SCROM model
CourseLab https://www.courselab.ru	CourseLab is a powerful but easy-to-use tool for creating interactive learning materials (e-courses) for use on the Internet, distance learning systems, or other tools
eBook Maestro http://www.ebookmaestro.com/	Software for creating e-books, presentations, magazines, albums, galleries, guides, offline websites, reports, training courses, tests, surveys and more
NVU http://www.nvu.com/	Visual HTML editor
http://jetdraft.com /rus/index	Innovative technology for creating learning materials with the ability to test knowledge and record results. Supports SCROM model
http://www.adobe.com/ru/products/flashruntimes.html	Adobe Flash is a multimedia platform for Adobe Systems to create web applications or multimedia presentations. Used for animation, game creation and listening to video and audio on web pages
Smart Builder https://www.smartbuilder.com/	Smart Builder is a service that allows you to create your own e-learning courses without programming skills. You can use a variety of media, game elements, and more
https://www.easygenerator.com/	Easygenerator - This allows you to create various projects and publish them on a website or import them into Power Point

These programs are the most modern programs that can be used in the creation of pedagogical software tools. For example, in iSpring Suite you can create electronic tests, interactive simulators, dialogue simulators, slide recordings, screen recordings, video editing or educational games, CourseLab: CourseLab is a powerful and easy-to-use software tool for preparing interactive learning materials (electronic textbooks) for use in systems, CDs, or any other storage device. Main features of CourseLab: Create and edit training materials that can be viewed and results obtained in the WYSIWYG system. It does not require the programmer to know HTML or other programming languages. You can also use eBook Maestro, NVU, Document Suite, Smart Builder, Easygenerator and Adobe Flash.

Adobe Flash is a multimedia platform designed by Adobe Systems to create web applications or multimedia presentations. Flash is used for animation, game creation and listening to video

and audio on web pages. Adobe Flash uses the ECMAScript-based ActionScript programming language.

The process is similar to Java, but a special Action Script programming language is included which is easier to learn. Software modules written in this language are imported as applications and included in the animation frame where the image needs to be changed dynamically.

The proliferation of Adobe Flash technology and their great potential are related to the development of pedagogical software tools. Adobe Flash technology is a powerful, easy-to-use tool for creating animated projects based on vector graphics that support internal interactivity. It is an ideal work tool for artists and designers, allowing you to fill web projects created by Adobe Flash with animation and sound.

Here are the best examples of creating pedagogical software based on the use of **Adobe Flash** technology.

Our e-learning manual is exported to the **.exe** file type as software modules created in Adobe Flash on the example of 7th grade computer science and information technology science of secondary schools.

The program is very easy and convenient to use. After launching the program, the main page will appear - on this page, users will enter their first and last name and go to the next page by clicking the start button. The next page is a sequence of topics. Students select topics based on the given content and receive information on the selected topic. The information provided is presented in text, audio, image and other formats. Once students have information on a given topic, they perform a variety of didactic exercises to reinforce them using a variety of methods. Exercises are given in several ways - it helps not only to master the subject but also to learn effectively.

For example, topic 1 is given in the contents of our e-textbook. When it comes to the concept of information and knowledge, students use a variety of playful technologies to reinforce them once they have all the concepts on the topic. Students will need to play several didactic games to reinforce a given topic.

Example1. Game "Finding compatibility"

In this game , you are told to find a logical match that matches the vocabulary in the table. Users match the given words and complete the game. The game will not end if no matches are found. To create this game we will need to create two scenes in Flash. In our first scene, a game form is created and in our second scene the correct answer to the logical action is given. We name each scene separately. For our first scene, we create the desired forms from the Rectangle tool (R) and Text tool (T) and convert each of them into a Movie clip symbol. An action Script code is written for each of the rotated characters.



Figure 1. Scene form

If every match in the scene is placed correctly, the game will stop and our scene with the correct answers will open. If students fail to complete this stage, they will be able to try again, and this will be a very effective way of mastering the topic. This type of learning content can also be created using a constructor program, but these programs use standard homogeneous templates. In the Flash program, we will be able to create forms that match the content of the exercise and the form of execution. This will be the basis for using the methods we like and creating an exercise model.

CONCLUSION

In summary, the use of **iSpring Suite**, **CourseLab**, as well as **Adobe Flash technology** in the creation of pedagogical software allows for the creation of interactive exercise tools, and the use of such pedagogical software makes learning more interesting and meaningful. Therefore, this technology is one of the leading companies in the field of creating learning resources in the e-learning system.

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