

## Direct and Distance Control of the Knowledge and Skills of Students of Pedagogical Institute with the Use of a Modern Electronic Textbook

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**Abstract:** The topic of the teacher's interactive process in an informed society is discussed in the article, as well as the use of electronic textbooks by both students and teachers as a source of reference, the ability to directly and remotely monitor teachers' and students' knowledge using contemporary electronic textbooks, and dynamic analysis of their work statistics. The process of automated control and test assignments is also included in scenarios for the teacher's use of e-textbooks, taking into consideration their level of complexity and length of implementation. In this paper is possible remote control with electronic textbooks for students of pedagogical universities in the design of electronic textbooks, issues of informatization of education, unified theoretical rules, the relationship of learning and life, science and teaching problems, the structure and sequence of learning.

**Keywords:** online learning, distance learning, e-textbook, individualization, interactive process, information learning environment, hyperlink, competence.

Teachers and students are encouraged to read each new section of the study material before reading it, to familiarize themselves with the theoretical part, which aims to study the topic and outlines the basic theoretical rules. The utilization of various visual forms of problem-based learning presentation can also aid in the creation of the student's cognitive motivation. An e-textbook allows the student to choose the path that best suits their personal qualities and desires. Modern media allows for the creation of “multi-layered” text in an e-textbook, with additional material only visualizing the general outline of the narrative when downloaded, without loading or complicating it. In the textbook for higher education institutions, we cannot give up the subject-oriented approach because we train professionals and students may have pre-selected their field and profile of their future career.

The interactive process allows one to understand a topic almost instantly and quickly master the subject by entering linear algebra. In addition to interactive pictures, the textbook provides definitions of mathematical terms, theorems, and examples.

After studying the theoretical part, the student moves on to the main part - mastering the methods of movement, because it is a subject with a leading component. Cognitive readiness tests with the help of test tasks that determine the availability of the minimum required level of knowledge that allows the comprehension of new information.

When crossing the assessment threshold predetermined by experts and corrected directly by the teacher, using the network, the student understands and accepts the learning material presented in our scenario in the form of a block of educational questions goes to the stage of making. It should

be noted that here, too, the student's individual choice is possible, because the assignments are provided with the help of a dose of the teacher - advice.

At different levels, the student can refer to a theoretical material or a typical topic, reconsider ways of working, and thus build a tentative basis for their actions in general. If a student needs a private guess, he or she can get one. At any time, he can check the correctness of his opinion and make a decision.

In a special way of structuring the educational material, the principle of combining the individual work of the student with the dose of pedagogical assistance is implemented. In the following, we will discuss in detail how to separate the learning material and functional elements that provide different scenarios for using the textbook.

An e-textbook can be used by students and teachers as a reference, as the search for information in electronic form takes minimal time. This scenario in itself is the most obvious, since most of the available electronic textbooks and even electronic interpretations of printed publications have a system of interactive content and hyperlinks, whose completeness varies to varying degrees, which in a short time provides the necessary information can be found.

Pedagogik inustituti talabalari uchun zamonaviy elektron darslik yordamida, o'qituvchi va talabalar bilimni bevosita va masofaviy nazorat qilishini, ularning ishlari statistikasini dinamik tahlil qilish imkoniyatiga ega. O'qituvchi tomonidan elektron darslikdan foydalanish ssenariylari murakkablik darajasi va ularni amalga oshirish muddatini hisobga olgan holda nazorat va test topshiriqlarini avtomatlashtirilgan tarzda tuzish jarayonini ham o'z ichiga oladi.

When the functional structure of the textbook includes a block for assessing the complexity of tasks, we can automate the process of preparing lessons, conducting control activities, compiling a set of tests and control tasks, which are the most important in the accreditation of universities. For an initial assessment of the complexity of the task can be used objective statistics on the work of users, the number of elementary actions and theoretical rules used in the performance of the task, the opinion of experts.

With the correct statistical processing of user performance data, it is possible to obtain an initial automated assessment of student achievement, which is important in the assessment of a given rating in the intermediate attestation.

During the feedback phase and the control over the content of the textbook, the teacher uses the information about the students' individual work with the electronic textbook, even in preparation for the lesson; can confidently choose methods and forms of teaching. When working with a published textbook, it is technically impossible to know which assignments caused them the most difficulty, how much time each student spent on homework, and what achievements they made until they met with the students.

Of course, feedback on the university portal using ICT tools can be organized, for example, in the form of online consultations with the teacher through access to a global or social network organized on a single portal, but in this case the teacher only learns about the difficulties or successes of their desire to share. Using the e-textbook database of the client-server system, we obtain information about each student, even if a particular student is not studying at home.

From the point of view of the administration of various levels, it will be necessary to control the educational process from the curator to the dean during the semester, while it will be possible to take measures to reduce the number of students studying, control the rest of the knowledge in the preparation of the university, for example, to obtain information about the work of teachers in preparation for subsequent certification or licensing. In the latter case, the data are obtained

indirectly based on the criteria selected to assess the quality of teaching, but in any case, the level of mastery and student activity belong to them.

To implement these scenarios, the e-governance shell should ensure the storage and processing of statistics on the use of e-textbooks by the contingent of users, in particular, based on these statistics, it is intended to automatically generate the current ranking of users which is an important aspect in the organization of rating control and incentives for the subject during the semester in making decisions on the assessment of students' knowledge. We would also like to emphasize that scenarios for the use of e-textbooks by teachers and administrators are possible only when the textbook is organized in the network, that is, when it works as an integral part of the university's information learning environment.

Let's take a look at how the implementation of the various e-textbook scenarios described above is structured. Basically, the components of the electronic textbook proposed by the team of authors of the Federal Institute for the Development of Education, consisting of L.L.Bosova, S.M.Avdeeva, A.N.Leibovich, N.V.Tarasova, K.V.Tarasova, V.V.Volkova and others. In their work, the electronic textbook structure includes the following functional components:

- 1) basic material that provides a description of the main content of the subject;
- 2) additional material that expands and deepens the main part,;
- 3) explanatory texts;
- 4) "apparatus for the development of learning materials, which can be supplemented by means of collecting and storing statistical data on the results of the study material";
- 5) "Information search and navigation device that allows you to move from one element to another"

The division into these components is universal, without taking into account the specific features of the subject to which the e-textbook belongs, but in many respects both the content of the educational material and the organization of its acquisition depends on the type of subject. The functional structure of the e-textbook needs to be supplemented and specified during the design process.

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