Didactic Principles Aimed At The Development Of Electronic Publications

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ABSTRACT

This article presents didactic principles focused on the development of electronic publications. In addition, theoretical analyzes are presented on the development of students ' preparations for graphically visualizing using computer technology.

Keywords: Hypertext, didactic principle, electronic textbook, professional qualification, visualization graphic visualization method, didactic feature, etc.

Introduction. Referring to the educational opportunities of hypertext systems in the modern era, it should be taken into account that the teacher is able to create information educational resources only in cooperation with relevant specialists in the field of Information Technology. It is as a full participant in the design of electronic educational publications that the teacher can not only develop a meaningful component of such textbooks, but also express his position on the problem of improving the structure and functional capabilities of such didactic systems.

To implement the process of designing a hypertext didactic system, ensuring the systematic integrity of educational information directly determines the optimal number of the main vectors of the development of the study of a particular subject. related to the analysis and appropriate logical determination, including the development of a system of the most effective principles of navigation. For example, if in some cases it is quite enough to provide students with the availability of a simple thematic table of contents with hyperlinks that show the search path to specific content modules of the training course, in others, it is necessary to see the dynamically monitored individual learning trajectory of the student. ', which will be included in the full-text advanced search engine. the need for an appropriate navigation map is obvious, etc. With the help of a carefully designed interface, it will be possible to fully and deeply use hypertext, which performs the main function of providing an information-educational environment for various types of education.

In this regard, it is necessary to update the principle that the main potential capabilities of hypertext can be adapted and significantly expanded not only with the help of a standard access mechanism used to view Internet pages, but also conceptually using mechanisms that determine the ability of students to work with educational information: hash tags, indexes, questionnaires. Such didactic systems include the LSE abbreviation (visual. Learning Support Environment-refers to a class defined by the learning process, that is, the environment that creates the necessary conditions to ensure the maximum possible effectiveness of students ' independent work).

One of the significant disadvantages of hypertext is reflected in the problem of planning the cognitive activity of students, since it is very important for them to keep in memory all the connections that occur during numerous transitions through hyperlinks, which inevitably determines the appearance of an excessive cognitive load in students. This means that a certain number of opportunities for processing educational information aimed at mastering the relevant material will be directed to the next stage - meta-level. This happens in simple reading of hypertext. At the same time, students will have a lot of opportunities when choosing links, moving along them. The freedom of students from the correctness of externally established thinking reflects one of the important advantages of hypertext systems. At the heart of the idea of hypertext lies the opportunity to have a direct advantage over the connections in the student's mental activity, and they usually do not appear when familiarizing themselves with plain text.

The possibility of free movement along hypertext raises a natural question: is the right of students to manage their own educational trajectories capable of changing the role of educational resources provided for by educational issues of a traditional nature, that is, tasks that must be performed in a strictly regulated sequence? We assume that it is impossible to give an exact answer to the question posed. It all depends on the specific educational goals and objectives set at a particular educational stage, based on the specification of the subject being studied, the individual characteristics of the students, etc. The balance between the free and regulated learning process is constantly changing, becoming impossible. The use of some interactive, heuristic forms and methods of teaching in the educational process, the opportunity to involve students in search and research educational activities will be appropriate only on the basis of the results of preliminary training, which are traditionally regulated mainly from the outside.

The problem of the learning process, regulated and self-directed from the outside, is undoubtedly relevant in the context of the expansion of the use of Information Technology in education.

Hypertext technology can also provide such opportunities in full. By encouraging students to create new ideas, develop new points of view in solving non-standard educational problems, the hypertext learning system creates conditions for mastering knowledge in the implementation of creative, sought-after educational activities of students. The hypertext training system is able to fully ensure the necessary effectiveness of the process of forming professional qualifications in future service engineers.

All basic requirements for an electronic textbook are classified according to two grounds:

1. Invariable requirements. Such requirements are universal. They are put in all textbooks, regardless of the purpose of education, the method of collecting and storing educational information.

2. Special requirements. These requirements apply only to those teaching aids that are presented in electronic form and are intended to provide the educational process only in higher professional educational institutions.

It should be borne in mind that the preparation of electronic textbooks, like many others, is based on the only didactic principles that are universal in this regard. These didactic principles should fully reflect the specific laws of the educational process and meet the necessary didactic requirements. We actualize the invariable principles that should be directed when developing electronic publications.

1. The principle of science. This principle applies to the creation of the content of an electronic publication and is associated with such structural requirements as the correctness, depth and scientific reliability of educational information. These data, studied by students in the process of using electronic educational publication as a source of obtaining this information, must be developed using research methods such as observation, experiment, abstraction, comparison, concretization, generalization, analogy, deduction and induction, synthesis and analysis,

modeling, including mathematics, as well as the method of System Analysis.

2. The principle of ease. This principle implies the need to take into account the complexity and size of the studied educational information in accordance with the individual characteristics of the subject. Training should be feasible for the student.

3. The principle of problematicity. This principle is determined by the essential features of educational and cognitive activity. It has been proven that students ' intellectual activity increases if problematic situations arise that require a solution. An electronic textbook helps to increase the level of feasibility of problematic tasks, since it contains multimedia.

4. The principle of exhibitionism. Modern information technology creates conditions for the implementation of the principle of exhibitionism in completely different, high-level possibilities. The creation of a virtual information world in the educational process of a higher educational institution makes it possible to develop not only the world of exhibitionism, but also the world of polysensory education.

5. The principle of conscious learning, independence and activation of student activity. Following this principle will help students develop a holistic system of didactic conditions that will allow them to demonstrate their independence, initiative and creativity in the learning process at the required level. It is important to understand that the didactic use of an electronic textbook should be based on an information-activity approach. This approach determines the methodological conditions for creating a model for activating the educational activity of students. Within the framework of the practical application of the information and activity approach, it is necessary for students to create various learning situations that form the possibility of choosing one or another potential vector of further education and the possibility of independent management of their own educational trajectories, to formulate and set educational tasks of different levels of complexity for students.

6. The principle of systematicity and consistency. This principle implies the necessary and appropriate sequence of step-by-step study of the content of an electronic textbook. This principle ensures the systematicity and consistency of the formation of professional qualifications of students.

This includes:

the educational content of the training manual must be strictly systematized and structured in the form of;

when developing all training modules, retrospective and promising formed competencies should be taken into account. At the same time, attention should be paid to interdisciplinary connections in the studied content of the electronic educational manual;

it is necessary to provide educational information and carefully plan the impact of teaching, each and every academic movement should be reasonably explained to students;

the process of mastering the educational material must be logically structured in accordance with the sequence rule;

the educational content of the textbook should be practice-oriented and imply the possibility of unconditional use in real life and professional situations. To do this, the educational content of the electronic educational manual should be strengthened by the necessary educational tasks of students, information technology, methodological assumption of the educational process, based on the individual educational experience of students.

7. The principle of flexibility. Orientation to this principle involves ensuring that the educational process is currently adapted to the existing real state of professionally connected competencies of students, as well as their individual personal qualities.

Local authors actualize the following levels of educational adaptation of students of higher educational institutions:

First level: students will have the right to choose the most optimal pace of learning didactic material.

Second level: a diagnostic study of the state of cash knowledge of students is carried out, based on the results of which the content and technological features of the didactic process are determined.

Third level. This level of adaptation involves the implementation by the authors of a set of measures to develop as many cases as possible of the use of an electronic educational publication for the most important contingent of students who are possible in the educational process of a higher educational institution.

8. The principle of interactivity of Education. This principle regulates the essence of the interaction of students with the electronic educational publication. Within the framework of the meager significance of the established principle, electronic textbooks are intended to provide an interactive mode of communication and a suggestive feedback of the established interaction between the student and the information materials of the electronic textbook (English suggest — offer, advise). The main technical condition for such communication and such an aggressive feedback is the worthy reaction of the electronic textbook to the educational actions of students. The mode of communication of students 'interaction with the electronic educational publication and the corresponding aggressive feedback are designed to create the necessary conditions for the necessary pedagogical control of students' educational actions with the subsequent possible correction in order to increase the effectiveness of the process of forming the necessary skills and abilities in students.

9. The principle of using the capabilities of computer visualization of educational information provided by electronic educational publications. The established principle dictates the need to use the current list of modern technical innovations at the moment in the preparation of an electronic training manual.

10. The principle of development of the intellectual potential of students. This principle determines the need to prepare an electronic textbook in terms of the state of development of basic mental operations necessary in students (according to age and education), their ability to conduct universal or specific educational competitions, the ability of students to effectively analyze and, accordingly, interpret the studied didactic material.

11. The principle of ensuring the completeness (integrity) and continuity of the didactic learning cycle in electronic educational publications. Based on this principle, the electronic textbook can be used within the framework of the possibility of revealing the educational potential of all current and successive educational stages of the didactic cycle within the framework of a single holistic work session of students with a certain educational information and appropriate information support.

The development of electronic educational publications should follow the following technical and technological requirements: the ability of the electronic tutorial to work in an electronic environment in Internet navigation, Microsoft Windows 7/8/10 and above; the ability of an electronic textbook to work in a local environment, using external media of educational information and in network mode; stable and proven reliability; mandatory use; heterogeneity, which means the ability to work compulsively, regardless of a specific computer platform; the ability to pass the test.

There are special technological requirements for different types of electronic educational publications and related technologies for their distribution.

Conclusion: The use of an electronic textbook as a learning tool should also take into account health, hygiene and sanitary requirements. Aesthetic requirements for electronic educational publications include the establishment of the necessary correspondence between the aesthetic decoration of the textbook and its functional goal58. At the initial stage, on the basis of the development of an electronic textbook, the “electronic publication model” lies.

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