Web content as a base component of the educational environment

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Abstract. The article is devoted to the research of the organizational, scientific-methodological, staff and informational conditions of elaboration of electronic textbook for student's learning in the new information-educational environment. This theme is particularly relevant in the present period of development of distance learning including provision of continuing professional education.

1 Introduction

The learning process in the contemporary information society is a joint activity of a lecturer and students. This activity occurs within the framework of the information-educational environment.

In this instance the information space becomes one of the most crucial elements of the learning process. The information space provides an opportunity to get free access to volumes of data, to increase the possibility of choosing the means, forms and tempo of exploring various educational areas. It enhances interest in studied disciplines, self-directed learning motivation and engagement into the process of education, by visibility, an entertaining and interactive form of the training toolkit. It promotes the development of critical thinking, encourages the active use of peer education methods (i.e. chats, forums) reveals the abilities and interests of students [4, 5].

Distant education makes this joint activity interactive as well as variative, thus every student has an opportunity to form his or her own individual educational approach [2, 4, 5].

Furthermore, a competency-based approach to learning stands out as a basic method in the information society. This approach implies forming students' core competencies allowing to solve arising life problems with the help of existing knowledge and skills [2, 4, 5].

Competence-based approach creates the conditions for a more effective quality management of professional education as a methodological principle for a new generation of educational standards. This approach involves the formulation of learning goals in accordance with the competences required in the professional activity of a modern specialist.

2 Practical learning methods in information-educational environment

While on the subject of secondary vocational education one should consider that the most effective technology of implementation of this educational direction is a modular competence-based approach whereby it is necessary to seek complementarities of different technologies and the synergistic effect of their interaction.

Modular-competence approach is an important part of the concept of continuing education and allows to adapt subsequently to the changing situation in the sphere of labour and to continue professional development and education [5, 8].

All of this requires innovative approaches to organising such a process of learning. It can be observed that the lecturer loses the exclusive right for possession of the information and the primary focus will be on helping students in self-mastery of this information rather than giving them this information.

It is notable that the learning process in the information-educational environment offers the prospect of communication not only with lecturer but also with other students, it promotes the cooperation in the different kinds of cognitive and creative activity. It is impossible to develop a successful learning approach by using traditional methods of its preparation alone. It becomes difficult in this case to use traditional educational and methodical potential of the textbooks, problem books and even the words of the lecturer [3, 4, 7].

3 Electronic textbook as a forming component of the educational environment

Currently, an electronic textbook is becoming a component of the learning information and educational

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environment. Electronic textbook is regarded as a complete textbook that does not require a printed supplement. Electronic textbook - is an educational software system of integrated destination, ensuring the continuity and completeness of the didactic cycle of the learning process.

The electronic textbook should be presented by theoretical material, conditions for the training educational activity, and the system of knowledge control. An equally important factor in creating effective e-textbook is the possibility of information search activities, mathematical and simulation modeling with computer visualization. That particular electronic textbook can provide continuity of education during the transition from secondary vocational to higher education. According to the structure, it can also include various modules, even those which allow to study new material and to repeat previously learned [1, 5].

In general, an electronic textbook as educational environment component allows students to organize the search, interpretation, analysis of information, its transfer into knowledge in the learning process. Through e-textbook they can carry out the use of this knowledge in practice, and implement its sharing and distribution in the professional community.

4 Experimental research on the use of the electronic textbook for teaching students

MTI College has been conducting such an experiment for three years by involving the use of electronic textbooks as a component of the educational environment. The development of the electronic textbook as a multi-purpose training software system that ensures the continuity and completeness of the didactic cycle of the learning process includes many aspects, such as organizational, scientific, methodological, human, economic and informational. The basic conceptual provisions will be covered further in this work.

The use of the electronic textbook as a component of the information-educational environment is regulated by the principle of pedagogical appropriateness of remote technologies in the process of lifelong learning. Any model of the electronic textbook should include flexible combination of the self-directed cognitive activity with various sources of information, training materials, specially designed for the particular course, group work in the form of training in cooperation and the operational system of interaction with the lecturer [6, 7].

The learning process of a student using e-textbook is connected with detailed planning of student activities, its structuring in conformity to the aims and objectives of education and the development of specific educational content, necessary learning materials and learning tools.

It is also important to note that it is necessary to use special pedagogical technologies for learning motivation, effective self-knowledge that will uncover internal resources of each student and will allow to obtain the necessary general and professional competences. At the

same time special pedagogical technologies contribute a lot to the formation of social personality traits.

As has been mentioned above, e-learning is based on a module system that includes the means of information transmission and absorption, means of control and self-control, which allows students to see their progress.

The modular approach in shaping the structure of the electronic textbook provides an opportunity to use it first for a college, and then to continue their studies at a higher education level. The modular-competence approach also enables the integration of theoretical and practical training, redefining the place and role of theoretical knowledge in the development of competencies.

The advantage of the modular programs based on competencies is that their flexibility allows to upgrade or replace some modules with changes of specific requirements to a specialist thereby ensuring the quality of training at a competitive level. It makes possible to individualize learning by combining modules.

To establish the list of competencies presented in the content of the electronic textbook, used by the federal state educational standards, which are specified for each discipline and overall professional competence that the student should master in the process of studying this particular discipline.

The introduction of competence-based approach in the educational process involves the elaboration of integrated courses in the subject areas which correspond to the different types of competence, expansion in the structure of educational programs of interdisciplinary component subjects, interdisciplinary development of electronic textbooks [1;8]. Informational and educational environment also has its own characteristics associated with the learning process. Firstly, it is a personal orientation of this very environment which implies active subjective beginning. Secondly, it is a multimedia aspect consisting of presentation of information in different ways: text, audio and video recordings, photos, illustrations, animations, etc. Thirdly, it is an adaptability as a medium property associated with the satisfaction of a variety of educational needs of the individual. Eventually, the multidimensional nature should be mentioned, which bears providing information about the process or phenomenon from different points of view in a variety of connections and relationships [1, 3, 5, 6].

In conclusion, it should be said that now online education is one of the most of the fastest growing areas of pedagogical theory and practice. The training tool of such a dimension of pedagogy with modern electronic educational methodical complexes offers a student all necessary conditions for getting modern education and familiarizing with culture of the information society.

4.1 Purpose, objectives and hypothesis of the experiment

During the experimental work the electronic textbook development, corresponding to modern requirements for training software system of integrated destination, ensuring the continuity and completeness of the learning

process, has been determined as the main research objective.

As a basis of research has been taken the hypothesis that the learning potential of the developed electronic textbook will be effective if it meets the following requirements:

- Textbook structure facilitates independent cognitive activity of students and the creation of individual educational trajectory;
- The electronic textbook content helps to create the necessary competencies and social qualities of an individual;
- Pedagogically appropriate methods and technologies of the educational process with the use of the electronic textbook will be applied in the educational environment.
- Electronic textbook is designed on a modular principle, and includes the necessary components of information and means of control and self-control of students;
- The forms of material presented in the book will be varied and delivered in different ways (multimedia);
- A modular approach to the formation of an electronic textbook structure allows it to be "cross-cutting", and provides an opportunity to use it for the implementation of continuing professional education.
- The objectives of the experiment coincided with the strategic directions of development of the educational environment of the college and institute.

As part of the experiment the following was planned:

- To develop an electronic up-to-date training textbook for a multi-purpose software system that ensures the continuity and completeness of the learning process;
- To explore the possibilities of the electronic textbook in the formation of the necessary competencies and individual educational trajectory of students;
- Define the problem space for the implementation of continuing professional education through the use of e-learning;
- Develop an effective mechanism for the implementation of the educational process at the secondary and higher levels of the educational environment by using an electronic textbook.

The main indicators for evaluating pilot activities were:

- The number of subjects taught at the secondary professional education level and the number of cross-cutting programs of professional and higher education, which developed electronic textbooks;
- Conforms to the requirements of the modern electronic content of the educational process;
- An increase in the number of students using designed electronic textbooks;
- The range of the developed teaching materials, publications in support of distance learning as part of the experiment.

4.2. Primary experimental results

Pilot electronic textbooks on history, philosophy, chemistry, physics, painting and drawing, computer science and other disciplines have been designed at the beginning of the experiment. The structure of the electronic textbook modules has been defined as well as

the main approaches to the organization of the educational process in the framework of distance e-learning. A new package of regulatory and methodological documents of the college and the institute relating to the organization of teaching students was formed. Competence approach and features of the electronic textbook as a teaching tool innovation by form and content, were the basis of the newly developed work programs, working curricula, basic professional educational programs in all disciplines of college and institute.

Multifaceted approach to learning implies that the electronic textbook for each discipline is part of the educational complex, which along with the electronic textbook includes guidance on the study subjects, practicum or book of problems, test materials and tests for intermediate and final exam [5, 8].

Within the framework of the educational process the structure of the electronic textbook in general and the technical requirements of each of its constituent module have also been elaborated.

The content of each electronic textbook was primarily determined by its author. At the same time, it was discussed in detail with lecturers of relevant departments of the Institute. Selection of authors was carried out in accordance with their qualifications and experience. Almost all of them received additional training on issues directly related to distance learning.

The technologies developed and tested during the experimental activities have been represented at the interregional and international conferences (Moscow, St. Petersburg, Ivanovo, Tambov, Orenburg, Nizhny Novgorod, Ryazan, Astrakhan, etc.).

Learning through electronic textbooks envisages direct communication with the lecturer as a mandatory element of the educational process. This need can be implemented by using webinars in on-line mode on a par with the chat and the subsequent access to the archive of webinars. For individual counseling of the students, electronic forum should be created [4, 5, 8].

Thus, the technology of the organization of the educational process of college and institute students within the framework of distance learning systems with the use of the electronic textbook as the base content is a full cycle which comprises: instructing students on all issues of concern, the opportunity to communicate with lecturer and other students, informing on schedule and schedule changes. It also needs to include direct training through the content presented in the system of distance learning, the possibility of passing the tests and examinations in all subjects and designing an evaluation approach.

In order to create an individual educational trajectory of students an acceleration technology (reduction) of the period of study was developed, based on the success of the assimilation of the material, individual skills and additional training of students

Overall, we can estimate analytical and designing organizational and methodological experimental task as completed successfully. The next step will improve the structure and the content after its testing in the learning process by using pilot e-books. It is also necessary to

provide training and exchange of experience among the authors of the electronic textbooks. It is also advised to create electronic textbooks for all specialties, taught in colleges. It is crucial to consider the possibilities of the electronic textbook in more depth and detail as the formative component of the information-educational environment in system of continuing professional education.

Involving the sources of potential information, the student forms personal (individual) education network PLN (*personal learning network*). The learning is done through many channels as different relations are used to deliver educational material. Development of informative and cognitive independence is one of the key pedagogical tasks for modern education system as the ability to learn something new is more important than current knowledge that we possess (ability to enrich knowledge is more important than the static system of accumulated knowledge) [10].

5 Conclusions

Various approaches and personal skills are required for effective learning in modern society: for example, ability to make relations and see the sense between spheres of knowledge, concepts and ideas is one of the major skills ensuring effective activity in the modern world. Timely renewal of knowledge is a necessary feature of modern education. Moreover, this is a process of decision-making (ability to choose, analyze, organize, classify, evaluate incoming information), which presupposes high

level of development of informative and cognitive independence of students' personality.

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