World Bulletin of Social Sciences (WBSS)
Available Online at: https://www.scholarexpress.net
Vol. 8, March,2022
ISSN: 2749-361X

USING MODULAR TECHNOLOGIES IN CREATING ELECTRONIC COURSE

I.U. Nazarov
Senior lecturer of the department
"Information Technologies" TSPU named after Nizami
S.A. Alibekov
Associate Professor of the Department
"Information Technologies" TSPU named after Nizami

Article history:

Received: 18th January 2022
Accepted: 18th February 2022
Published: 30th March 2022

Abstract:

The issues of the development of electronic training courses of a new generation, built on a modular principle, are considered. Such construction of educational material makes it possible to improve the quality of students' education, increase the amount of material studied, it is easier to organize distance learning and an individual approach to the student.

Keywords: E-Course, E-Learning Modules, Distance Learning, Optimization Of The Educational Process.

The massive introduction of e-learning technologies in the field of education and science, the use of new educational content involuntarily entails a change in the very paradigm of education, a change in standards and requirements, teaching methods and, as a result, require a change in the very strategy for the development of education.

The bottom line is to rebuild the content and methodology of the educational process in all parts of the education system in such a way that it is able to prepare students for new conditions of existence in a timely manner, to give them such knowledge, skills and abilities that would allow them to successfully adapt to the new social environment. and information environment of education.

In the field of informatization of education, the main attention is focused on the problems of creating effective and full-fledged electronic educational resources (EER). There are various formulations of the definition of the concept of "electronic educational resource", which to the greatest extent reflect the essence of this concept.

An electronic educational resource is considered as:

- educational material, for the reproduction of which electronic devices are used (A.A. Valueva) [1];
- a set of didactic materials presented in digital form (T.K. Sveshnikova, Yu.F. Katkhanova) [2];
- a set of data in electronic form, realizing the possibilities of information and communication technologies, containing information intended for the implementation of comprehensive pedagogical activities (I.V. Morozova) [3]

From a pedagogical point of view, an EER is a set of programs and data; from a user's point of view, it is content, i.e. a set of content elements representing objects, processes, abstractions that are the subject of study.

Essentially content is what we see and hear. Content, as a rule, is supplemented by controls that allow you to navigate through the content array, i.e. move from one fragment to another. The organization of movement (in the general case - non-linear) with the help of these elements is usually called navigation.

So, effective e-educational products should contain highly interactive, multimedia rich content supported by simulation programs. And at the same time, network availability is necessary, i.e. the possibility of distributing such products on the Internet.

Developing a new architecture for highly interactive, multimedia rich e-learning products for distribution on the Internet is not a trivial task. However, even with the solution of this problem, the second side of the problem is actualized: it is required to unify the specifications of formats and interfaces, software components and technologies for the development of EER to ensure their joint storage, cataloging, search in order to implement access and use anywhere at any time.

The second problem, specific to education, is the need for an individual approach to each student, it is also required to take into account the diversity of requests and abilities of teachers. In other words, it is necessary to ensure the possibility of building an individual educational trajectory in the array of subject knowledge, as well as the author's training course.

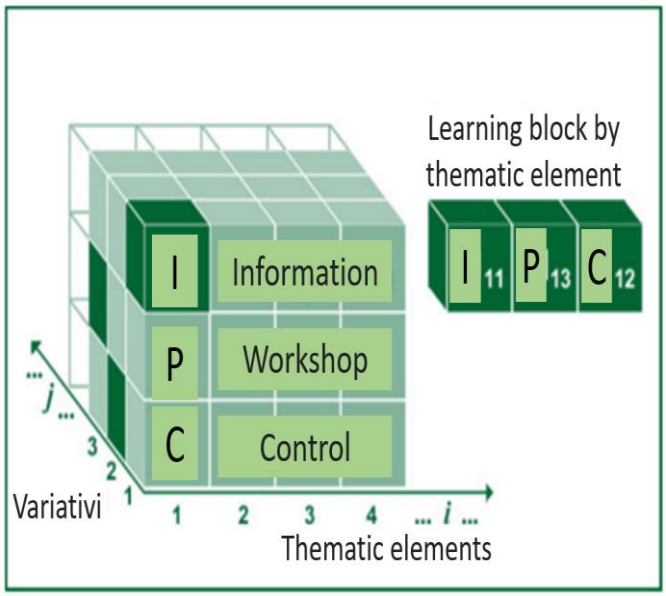
A special EER architecture, defined as an open educational modular multimedia system, makes it possible to successfully solve these problems [4].

The modular system is an electronic educational resource of modular architecture. At the same time, each module is an autonomous, meaningful and

World Bulletin of Social Sciences (WBSS)
Available Online at: https://www.scholarexpress.net
Vol. 8, March,2022
ISSN: 2749-361X

functionally complete educational resource designed to solve a specific educational problem. So, the main principle of organizing data in a modular system is the division of the total content on the subject into autonomous modules according to thematic elements and components of the educational process (obtaining information, practical exercises, control).

Many different electronic learning modules form the total content of an open educational modular multimedia system, the logical structure of which is presented (Rice. 1).



Rice. 1. Logical structure of the aggregate content of the OMS

Unlike all known educational materials, the total content of the OMS is three-dimensional, so it is worth considering the coordinate values in more detail.

Thematic elements are determined by discretizing the content of the State Educational Standard (if any) and/or curriculum in the subject area. At the same time, the content of each ELM should be, on the one hand, sufficient to solve a specific educational problem; on the other hand, the volume of the ELM should not exceed known values (about 10 MB). The definition of thematic elements is one of the main tasks in developing the concept of a new generation of EER in this subject area.

For each thematic element, three types of ELM are developed, corresponding to the main components of the educational process:

- information acquisition module (I-type),
- module of practical exercises (P-type),
- control module (C-type).

At the same time, each module is autonomous, it is a complete interactive multimedia product aimed at solving a specific educational problem [5].

For each ELM, there may be one or more variants.

Variations are electronic learning modules of the same type, dedicated to the same thematic element. To understand the essence of the variation, let's draw analogies from the experience of education.

The variant for the I-type module reflects the teacher's behavior when he is not understood: "I explain the same thing, but in other words." An obvious analogue is also the replacement of the textbook, including for in-depth study of the subject. However, a variable ELM can (and should) use audiovisual components instead of texts, use other learning objects, other ways to achieve the learning goal.

A variant of the P-type module may reflect a change in the nature of learning activity: writing instead of dictation, laboratory work instead of solving computational problems, classifying learning objects instead of observing them in nature, etc. The electronic educational module, unlike traditional educational equipment, easily provides a change in the laboratory scheme, layout, laboratory bench as a whole. The implementation of these innovative qualities in variations is very relevant. Classes on a simulator that simulates complex systems is also a subject for creating a variant of the P-type module.

In this case, there are few traditional analogues, so the use of such ECM capabilities is especially advisable.

The same can be said about the C-type variations. Of course, we are not talking about test suites in the simplest - text execution. A C-type variant can only be considered a module that provides new, deeper opportunities for assessing knowledge and skills in a complex, allowing you to assess the understanding of tasks and the depth of competence in the subject area. In other words, in order to talk about C-type variations, it is required to create content aimed at solving practical problems in conditions close to real ones [5].

Each module can have a modified counterpart in execution (technological, methodological, content), dedicated to the same thematic element of the training course in this subject, but containing a more detailed presentation of information or an alternative scientific approach or other methods of presenting material.

An electronic educational module is a complete multimedia product that solves a specific educational problem.

World Bulletin of Social Sciences (WBSS)
Available Online at: https://www.scholarexpress.net
Vol. 8, March,2022
ISSN: 2749-361X

In order for several individual modules to constitute an integral electronic course on the subject, they must have a unified architecture and standardized internal and external parameters.

In addition to electronic learning modules containing educational content on the subject, the open educational modular multimedia system also provides for the so-called "methodological support module". Such a module sets the sequence of presentation of the material that make up the course of study along a certain trajectory. It may also contain files with methodological information on the course. At the same time, the sequence of studying educational topics should be determined and the methodological compatibility of the electronic modules used should be established. Violation of these rules may lead to a situation where the study of the next thematic element is not provided with the necessary initial knowledge / skills. The methodological support module is designed to solve this problem.

The software components of the modular system form a functional environment that provides storage, search, selection and reproduction of individual electronic modules. Such a construction of an electronic training course makes it possible for a teacher to build an author's training course and create an individual educational trajectory for a student: due to the availability of analogues for the execution of electronic training modules in CMS, it is possible to choose their optimal combination from a personal point of view for a course on a subject.

Since each educational module is autonomous and the system is open, an open modular system is a dynamically expanding educational resource that does not require any significant processing as a whole when the content or technical external conditions change.

Finally, the modular principle of constructing EIR opens up prospects for certain unification and standardization, promising benefits for both the user and the developer. In other words, each electronic module is an independent educational product with a volume of several MB, so obtaining it on a network request does not present fundamental difficulties even for narrow-band (low-speed) computer networks.

Thus, the main task of new pedagogical technologies is solved - increasing the time of communication with students in the classroom. In other words, the growth of the creative component in the activities of the teacher, the transition from broadcasting to discussion. The key to solving this problem is the transfer of some traditional classroom activities to the sector of independent study.

BIBLIOGRAPHY

1. Valueva A.A. To the question of the classification of electronic educational resources / A.A. Valueva // Problems and prospects for the development of the hospitality industry in the Kaliningrad region through the eyes of young scientists, 2019. P. 102-104.
2. Sveshnikova T.K., Katkhanova Yu.F. Electronic educational resources in teaching color science / T.K. Sveshnikova, Yu.F. Katkhanova // Modern trends in the development of the education system, 2019. P. 34-36.
3. Morozova I.V. Classification of information electronic educational resources / I.V. Morozova // Bulletin of the Mari State University, 2012. No. 9. P. 46-47.
4. Arzamastsev A.A., Kitaevskaya T.Yu., Zenkova N.A. Curriculum design algorithms: monograph. M.: RAO Institute of Content and Teaching Methods, 2004. 77 p.
5. Osin A.V. Open educational modular multimedia systems. // Moscow: Publishing Service Agency, 2010. - 328 p.
6. Qizi, U. S. B. (2021). Digitization Of Education At The Present Stage Of Modern Development Of Information Society. The American Journal of Social Science and Education Innovations, 3(05), 95-103.
7. Abduganievich, A. S., & Marsilovna, S. R. (2022, February). Features of the professional activity of a computer science teacher in the modern conditions of the organization of the educational processS. In Conference Zone (pp. 195-198).
8. Bagbekova, L. (2020). Distance education system as a new form of teaching. Theoretical & Applied Science, (9), 12-14.
9. Xo'jayev, M. O. (2020). The role of theory and practice in the development of ideological competence in students. Theoretical & Applied Science, (9), 18-20.
10. Bagbekova, L. (2019). Opportunities of massive open online courses. *European Journal of Research and Reflection in Educational Sciences Vol*, *7*(12).
11. Ilich, M. E. (2022, February). Problems of professional development of future teachers in the field of informatics. In Conference Zone (pp. 193-194).
12. Kadirbergenovna, B. L. (2022, February). Create 3d graphics with the hand of 3d max software. In Conference Zone (pp. 206-208).

World Bulletin of Social Sciences (WBSS)
Available Online at: https://www.scholarexpress.net
Vol. 8, March,2022
ISSN: 2749-361X

13. Mirzahmedova, N. D. (2022). Working with digital information on a computer. World Bulletin of Social Sciences, 6, 88-89.
14. Otaboevich, K. M. (2021). Model of Developing Ideological Competence in Students. *Annals of the Romanian Society for Cell Biology*, 1284-1292.
15. Nazarov, I. U., Payazov, M. M., & Tadjibayeva, M. Z. (2019). Technology is getting rid of the noise in speech perception. European Journal of Research and Reflection in Educational Sciences Vol, 7(12).
16. Elmurzaevich-TSPU, M. O., & Rustamovich, A. J. (2019). The benefits of using information technology in the education system. European Journal of Research and Reflection in Educational Sciences Vol, 7(12).
17. Абдурахманова, Ш. А. (2018). Об одном аспекте развития интеллектуальных умений в цифровом обществе. In актуальные проблемы профессионального педагогического и психологического образования (pp. 12-14).
18. Абдурахманова, Ш. А. (2017). Развитие педагогической науки в Республике Узбекистан. Молодой ученый, (1), 428-430.
19. Mamarajabov O.E. Benefits of Using Information Technology in the Education System // Vocational Education. Tashkent, 2019. No.1. P. 55-59.