DIGITAL ENGINEERING – A NEW DIDACTIC METHOD IN EDUCATION

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ABSTRACT

This article examines the problems of digital didactic engineering in modern education based on audiovisual technology as a new tool in the process of online learning. Studying this issue allows us to assess the role of the teacher's personality as a person who integrates traditional and digital methods into a single educational complex.

Keywords: Communication, audiovisual, didactics, engineering, education.

INTRODUCTION, LITERATURE REVIEW AND DISCUSSION

Pedagogical activity, like the entire field of education, is experiencing great changes due to the emergence of new technologies and their active introduction into various aspects of social life. The Internet, which has truly become an integral part of society, plays a special role here.

The advent of the Internet has opened up opportunities for the rapid growth of various types of distance education. This type of training became especially relevant when quarantine measures were introduced across the planet.

In almost all countries, the complete transition to online education has revealed the urgent need to train teachers who can adequately use Internet resources to effectively conduct such classes.

Online learning has shown a lag in preparation and, as a result, teachers' willingness to transition to the online format. Also, widespread online education has determined the vector of training of modern teachers in the direction of highly qualified teachers who know how to work in the information environment, develop and create new types of educational process that contribute to effective education. .

Such development and construction involves the use of engineering skills to some extent. "In the new conditions, the teacher becomes an engineer to some extent: a teacher-engineer". [one]

Educational theory and teaching are usually defined by the word didactics. In general, didactics deals with the main goals and principles of education, their content and methods. For many years, scholars have debated whether didactics is the science or the art of teaching.

From the point of view of the formation of its research methods, the existence of a unique structure and logic, it is undoubtedly a scientific science - the theory of education and training. However, at the stage of putting the foundations of this theory into practice, a teacher whose activities are more in line with the concept of art will be needed.

As a result of this situation, some scientists understand didactics as a theory of learning, and others as an art of teaching. Perhaps both groups are right in their own way. At the same time, didactics as a part of pedagogy is not only a science, but also an art of education and upbringing.

The introduction of new technologies leads to a revision of the traditional concept of didactics because it does not fully meet the requirements of the information society.

The rapid development of information and communication technologies (ICT) is the reason why didactics includes educational engineering in addition to science and art. This addition to traditional didactics helps to transform it and shape it as a developing field, seeking to expand the theoretical base of educational foundations by combining research and teaching.

One of the results of this expansion of the scientific field was the emergence of solutions based on the integration of teaching and learning processes with engineering methodology. A similar direction in educational theory is called didactic engineering.

The main goal of didactic engineering was the analysis and development of teaching technologies. This goal is achieved by applying the scientific method in the development of teachers' activities.

Applying scientific methods in this way leads to the development of analytical and design thinking skills in the creation of various didactic systems, processes and situations. All this allows us to conclude that didactic engineering has its subject, which is represented by the development and design of result-oriented educational products, as well as the use of scientific method and constructive thinking in the analysis of didactic systems, processes and situations. in order to create an effective learning environment.

Didactic engineering has a dual nature: it is both a product and a process of educational activity. It is the product of didactic analysis and development, as well as the process of introducing the designed learning product into the learning environment.

Thus, didactic engineering as an educational activity can be defined as a sequence of stages in the analysis, development and design of educational products and their use in the educational process to obtain the expected educational results.

The market for online education services is growing steadily. For example, at the University of Texas at El Paso (USA), about 50 percent of the core courses are taught online. [2]

To expand online services, leading universities are creating consortia of massive open online courses - MOOCs (MOOC = massive open online courses, for example, Coursera, Udacity, edX) to launch special programs to support the development and delivery of online services. courses, as well as the development of new tools for online learning systems.

With the transition of many university subjects, including teacher training courses, to an online format, there is a need to rethink the training of school teachers.

Instead of traditional teacher training, the focus is on a new type of teacher training—teachers with high demand for knowledge in the digital age and the ability to design effective online learning.

In addition, in the digital age, a teacher is not just an online tutor, he becomes in a certain sense an analyst and manager of information resources, a developer and constructor of courses, modules, lesson parts using interactive multimedia tools.

With the changes that occur in the role of the teacher in the digital age, an important question arises: what kind of teachers are needed in the digital age?

According to the National Educational Technology Standards (NETS), promoting learning in the digital age must meet the following standards:

(1) facilitate and inspire student learning and creativity;
(2) design and development of digital age study methods and assessment systems;
(3) emulating the work and study of the digital age;
(4) promote and model digital citizenship and responsibility;
(5) track your professional growth and leadership.
A similar set of standards has been published by UNESCO.

At the same time, the American ISTE standard for teachers to "design and develop digital age teaching methods and assessment systems" requires the teacher to expand his role as a design engineer - who knows and can build an effective learning environment.

In traditional education, the three roles mentioned above (teacher, didactic, engineer) exist separately.

Integration implies a rethinking of the main role of the teacher in the digital age: traditional teaching is being transformed into an engineering approach to teaching based on science achievements.

This transformation requires educators to understand educational theory and the learning sciences in order to effectively develop educational goals, digital content, and assessment, and to make connections between goals, content, and assessment.

However, theory without practice is known to be blind. Didactics needs a teacher who applies theory in practice. And here we do not ignore the "art" segment, which plays an important role in the teacher's professional skills, his personal qualities, teaching culture and style, creativity and talent, teaching philosophy, etc.

Also, we cannot turn a blind eye to the important historical fact that the founders of dialectic-didactics, Hugo, Rami, Rathke, and Comenius, accepted didactics primarily as an art of teaching.

In fact, some scholars understand didactics as the theory of learning, while others understand it as the art of teaching. Perhaps both groups are right in their own way. At the same time, didactics as a part of pedagogy is not only a science, but also an art of education and upbringing [3].

It seems that these two variants of didactics (didactics-science and didactics-art) cannot be separate. The average question arises: what connects them? What is the mechanism of transition from one version of didactics to another?

Perhaps this connection should allow the teacher to effectively apply didactics-science in educational practice. This is primarily the ability to teach effectively.

For this, the teacher should be able to comprehensively and meaningfully analyze the educational process and situations, select and design various didactic products (for example, educational goals, content and activities, evaluation system, etc.).

in other words, in addition to being a science and art, didactics should be considered as a design activity.

Therefore, we propose to define didactics as a science, engineering and art of teaching. This revision is important in terms of redefining the role of traditional didactics in the design of learning in the digital age. The new didactics of electronic education is called electronic didactics [4].

In the framework of e-didactics, we consider the following levels of ICT use: low, medium and high. The low level of ICT is characterized by the spontaneous use of individual technology tools such as calculators (including graphing calculators) or basic programs (Word, Power Point, Excel) in the educational process.

The secondary level includes teaching with extensive use of digital technologies and multimedia tools. Advanced level includes the use of learning management systems to support the e-learning process. The educational format is divided into traditional (f2f - face-to-face), hybrid (or blended) and distance (online) education. If the traditional didactics zone is a low level of use of technological tools in teaching and learning, mainly in the f2f format, the e-didactics zone is directed to the virtual space using digital tools outside the traditional boundaries of teaching and learning. multimedia tools and distance learning systems.

REFERENCES

1. M. A Choshanov. E-didactics: a new perspective on the theory of education and the era of digital technology. University of Texas. El Paso. Electronic resource: https://cyberleninka.ru/article/n/e-didaktika-novyy-vzglyad-na-teoriyu-obucheniya.
2. Pereosmyslenie pedagogiki v tsifrovuyu pokhu. https://openu.kz/storage/lessons/663/pereosmyslenie-pedagogiki-v-cifrovuyu-epohu.
3. E. T. Kenenbaev. Influence of computer technology and communication media. Collection of materials of the Republican scientific-practical conference on "Innovative methods of using modern information technologies in education", - Chirchik: Uzbekistan, 2020. - str 35-38
4. ET Kenenbaev. Mnogosloynost peredavaemoy informatsii v elektronnoy pismennosti, kak svidetelstvo poyavleniya novogo vida kommunikatsii / Ekonomika i sotsium" №1 (80) 2021/1. Str. 107-112 www.iupr.ru //
5. ET Kenenbaev. Communication and legality of use of nekotoryx terminov, svyazannyx s etim ponyatiem // Vestnik Chelyabinskogo gosudarstvennogo universiteta / Chelyabinsk 2021g. No. 1 (447) - p. 73-82