

Modern Problems And Prospects Of Distance Educational Technologies

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Summary

The theoretical analysis and synthesis of prospects for the development of distance learning in Ukraine, the main topical problems of distance education in Ukraine are considered, the main factors that hinder the introduction of distance learning are analyzed, to pay attention to the need to increase the level of computer literacy among Ukrainian educators and the formation of modern methodology of distance learning, in particular, a single, systematic, national approach of organization, coordination and control in this area. Research methods: analytical method, method of structural and functional analysis, phenomenological method, content analysis method, philosophical reflection method, sociological methods (questionnaire, interview).

Keywords:

distance learning, educational processes, distance education

1. Introduction

Over the past two decades, there is a process of transition from traditional training to training based on computer technology. This became possible mainly with the development of the Internet, which made it possible to send the required amount of melon from one end of the world to another, to freely conduct discussions with other users of the network in Online mode and post information on Internet sites, making it available to everyone.

Modern information technologies make it possible to increase and improve the effectiveness of the educational process. During the reform of education in higher educational institutions, the concept of distance education is progressively developed, which involves the development of various technologies, including mixed learning technologies.

According to the concept of the development of distance education in Ukraine, a distance education is an equivalent form of full-time, evening, correspondence and external resident, which is mainly implemented according to distance learning technologies [1, 9].

In recent decades, scientific and methodological foundations of distance learning are rapidly developing. Problems on the development of distance education are devoted to the work of many foreign scientists, such as: R. Delling, G. Ramble, D.

Kigan, M. Simonson, M. Moore, A. Clark, M. Thompson, and despite the large number of scientific scientific Research of modern distance education in Ukraine resembles traditional forms of absentee training, without the use of all the possibilities of fundamentally new forms and methods of training [6].

Today, in higher educational institutions there is no question of the need to introduce distance education, since it occupies its socially significant place around the world.

The distance of distance education is somewhat different from foreign, since it is close to our consumer and is more democratic, combining mixed open education technologies: cases, network technologies and the like [3, 9].

Actual issues in modern society were and remain the development of a comprehensive technology for preparing a person for life, or rather technology for self-study and not only in a particular subject or topic, but also the development of the very technological cycle of searching for new information on the issue and development of the main skills of this search. One of the requirements for a modern specialist, wherever he works, is the ability to assess the situation and the ability to find methods of acceptable solutions to problem situations. The ability to assess possible problematic, non-standard situations and the proposal of ways to solve them and should determine the level and quality of training of a specialist [2, 5].

Distance learning makes it possible for students around round-the-clock access to educational materials, constant support and consultation of teachers and methodologists, online lectures and other technological solutions to ensure an effective and high-quality learning process. However, next to this, the most difficult task of the remote model of education remains is a change in the personal attitude of both teachers and students to self-education and self-development: the need to move from a reproductive approach to the development of productive creative mental activity.

The modern model of education should ensure the integration of various ways to master the educational material, thereby reveal and increase the creative potential of a person. Since it is necessary that the main goal of the new paradigm of education is to ensure the conditions of education, training and development of a free, critically thinking personality that

meets the requirements of life in a market economy, capable of continuously increasing the level of education and culture, as well as integrated into the world information space [5]. The purpose of the article is to determine the essence of the concept of "distance learning", signs and characteristic features of distance learning; Analysis of the advantages and disadvantages of distance educational technologies, the disclosure of prospects and difficulties of distance educational technologies at the present stage of education.

2. Theoretical Consideration

Today there is no unanimous solution among scientists regarding the definition of the concept of "distance learning". You can also find such a definition as "remote education". Also, some foreign scientists assign a special role in telecommunications in the organization of distance learning and define it as "telecope" [8].

Remote training is a technology based on the principles of open learning, widely uses computer curricula for various purposes and creates an information educational environment with the help of modern telecommunications to supply educational material and communication [4].

Remote training has several advantages over other forms of learning. So, practically without leaving home or without leaving your workplace, you can maintain regular contact with the teacher using telecommunication technologies, including video communication, and receive structured educational material presented in electronic form [3].

The minor in time and volume of the educational process of distance education can be carried out in full -time form (passing exams, practical, laboratory work, etc.) [2].

High professionalism, the desire for cooperation, self-affirmation and a high level of communication with colleagues are the main signs of distance learning [19].

Distance learning technologies are formed with pedagogical and information technology.

Characteristic features of distance learning:

A sign of an essence.

Flexibility students, students, listeners who receive distance education do not mainly attend regular classes, but study at a convenient time and in a convenient place.

Modularity.

The distance education program is based on the modular principle; Each separate course creates a holistic idea of a separate subject area that allows you to form a curriculum that meets individual or group needs from a set of independent courses.

Parallelism.

Training is carried out simultaneously with professional activities (or with training in a different area), that is, without interruption from production or other type of activity.

Big audience.

The simultaneous appeal to many sources of educational information of a large number of students, students and listeners, communication through telecommunication communication between students and teachers.

Economy.

The effective use of training space and technical means, concentrated and unified presentation of information, the use and development of computer modeling should lead to a decrease in the cost of training specialists.

Technology.

The use of new achievements of information technologies in the educational process, which contribute to the entry of a person into the world information space.

Social equality.

Equal opportunities to obtain education, regardless of the place of residence, state of health and social status.

Internationality.

The opportunity to get an education in educational institutions of foreign states, without leaving their country and provide educational services to foreign citizens and compatriots living abroad.

The new role of the teacher.

Remote education expands and updates the role of the teacher, makes it a consultant mentor who must coordinate the cognitive process, constantly improve the courses that he teaches, improve creative activity and qualifications in accordance with innovations and innovations.

A positive impact on the student.

Improving the creative and intellectual potential of a person who receives distance education, through self -organization, the desire for knowledge, the use of modern information and telecommunication technologies, the ability to independently make responsible decisions.

Quality.

The quality of distance education is not inferior to the quality of full-time education, since the best faculty of the same professor and methodological materials are used to prepare didactic funds; It is assumed to introduce specialized quality control of distance education for compliance with its educational standards.

Thus, distance learning provides higher education applicants with access to non -traditional sources of information, increases the effectiveness of independent work, gives completely new opportunities for creative self -expression, finding and consolidating various professional skills, and teachers, in turn, allows you to realize completely new forms and teaching methods on the use of use conceptual and mathematical modeling of phenomena and processes.

Remote training allows you to introduce interactive technologies for teaching material, receive a full -fledged higher education or improve their qualifications. It has a number of advantages such as flexibility, relevance,

convenience, modularity, economic efficiency, interactivity, international.

The development of distance learning will continue and improve with the development of Internet technologies and improving distance learning methods.

Advantages and disadvantages of distance educational technologies

Modern information technologies make it possible to increase and improve the effectiveness of the educational process. At the same time, scientists determine both positive and negative features of distance education. Scientists attribute the following positions to the positives of the characteristics of distance education:

- The real contingent of potential students can be attributed to those who are often on business trips, military personnel, territorially distant listeners, women on maternity leave, people with physical disabilities, those who combine studies and work, employees who improve their qualifications and the like [7];

- The most important components of distance learning are: the creation of practical situations during the educational process, the ability to prove oneself, self-realize, the clarity of the organization of the educational process, an individual approach. The least important: participation in research work, the ability to "show yourself" [5];

- Most students of distance learning technology, regardless of the course, are given easily and positively affects them. So, more than half of the students noted that during the training they mastered the ability to work independent work, increased their level of knowledge and gained confidence in their abilities and plans for the future. We can conclude that students are kindly related to distance learning [25];

- Students students remotely, more adapted to external conditions, they are more independent, sociable and sociable, are not afraid to make important decisions, which means that in the modern world of business it will be easier for them;

- Assessment by satisfaction with the place in the team and relations with the leadership of graduates of distance technology is slightly higher than that of graduates of traditional learning [8].

The disadvantages of distance education should be classified [9]:

- the lack of full -time communication of the teacher and the student, which means there is no individual approach to training and education;

- Students are not always self-disciplined, conscious and independent, as is necessary with distance learning;

- for constant access to information sources, good technical equipment is required;

- lack of practical classes and lack of constant control;

- the need for a student of strong personal motivation, the ability to learn independently, without constant support and pushing from the teacher;

- the lack of the possibility of immediate practical application of the knowledge gained with the subsequent discussion of

the issues arising with the teacher and the clarification of the situation with specific examples [9];

- The percentage of completion of programs is quite low, given that tens of thousands of people are recorded on online courses. This is partly due to the fact that such a process requires personal discipline. Also, the online world is not recognized as official institutions;

- low theoretical study of the problem of distance learning. This is manifested, first of all, in the absence of clearly expressed goals of learning and the necessary initial requirements for the student, to work in this system, a weak level of the system of control of his knowledge, the absence of requirements for the maintenance of distance courses and educational and methodological support, and protect the copyright of developers of educational materials, certification of distance education institutions and the like. And, in addition, not all specialties can be trained by specialists with the help of distance courses [9].

The presence of these shortcomings forms a stable trend in the direction of mixed learning. By mixed learning (Blended Learning), it is customary to understand the combination of formal training tools in audiences, the study of theoretical material with informal, for example, discussion using e-mail and Internet conferences. The mixed form of learning organically combines both day and distance forms of training [6].

Mixed learning consists of three stages: a remote study of theoretical material, the development of practical aspects in the form of daytime classes, the last phase is to pass the exam or the final work [5].

A mixed training model is a model for the use of distributed information and educational resources in stationary learning using elements of asynchronous and synchronous distance learning. It is practiced as an element of inpatient learning during audit classes and in independent work of students. That is, mixed learning inherits the advantages of distance learning and excludes its shortcomings [7].

Mixed learning uses a wide variety of methods, both traditional and interactive: lecture laboratory, computer presentations, computer training and Internet training.

Comparative characteristics of remote and mixed learning [6]:

Distance learning:

- one-sided communication;

- A student or student passive, is inactive, he is an outside observer;

- the structure of the course is hidden from a student or student;

- A student or student on his own;

- the text of the lectures is written dryly and impersonally;

- A student or student almost does not apply knowledge and skills;

- tasks are given only at the end of the chapter;

- the text is divided into chapters and large sections;

- no control tasks are provided;

- A student or student cannot receive a review of his successes.

Mixed learning

- bilateral communication;
- A student or student active, active, involved in the educational process;
- a student or student is familiar with the structure of the course;
- the student or student is under the leadership;
- the text of the training manual is written in a friendly and invigorating form;
- A student or student uses acquired knowledge and skills;
- tasks and exercises are placed throughout the text;
- the text is divided into small sections;
- control tasks are provided;
- A student or student receives reviews about his successes [9].

So, distance learning technologies have already taken one of the leading places in modern education. Interest in obtaining a specialty is growing remotely, and the qualitative characteristics of specialists are distinguished only by positive moments: confidence in their own abilities, easy adaptation in the team, and the ability to self-figurate. At the same time, distance learning technologies can be considered as the natural stage of the evolution of the traditional education system from a blackboard to an electronic board and computer training systems, from a book library to electronic, from a regular audience to virtual.

The effectiveness of distance learning is based on the fact that those who are taught themselves feel the need for further training, and are not amenable to pressure from the outside. They have the opportunity to work with training materials in such a mode and volume that is suitable directly. The effect largely depends on how regularly the one who studies regularly. The consistent implementation of control and diagnostic tasks and graduation work, as well as support in all matters from the teacher of the coordinator ensures a systematic assimilation of knowledge.

Open education in many countries is considered today as a system that provides nationwide access to educational resources through the widespread use of information educational technologies of distance learning and on this basis provides conditions for the most complete exercise by citizens of their rights to education, in structure and quality meets the requirements of the development of the economy and civilian society.

Prospects and difficulties of distance educational technologies

The formation of a highly educated person during the period of transformation of the national economy requires the application of the latest educational programs and technologies of the educational process that contribute to the practical embodiment of the concept of continuous education throughout life. Given the realities of the present, the distance

education is an important basis for the implementation of this concept, since it allows a modern specialist to actually have access to electronic textbooks prepared by leading specialists in the field of industry science.

At the same time, there is no doubt that the full implementation of distance education allows you to expand the geographical capabilities of higher educational institutions, attracting the broad circles of students to master the normative and variable components of educational programs. On the other hand, significant advantages can arise among students themselves, who, not being able to be directly present in educational audiences, will be able to master the fundamental disciplines of an applied nature, spending a minimum amount of personal time and additional financial resources [6].

In this regard, areas of the implementation of individual plans for the training of specialists and work plans for specialties in educational programs in accordance with the requirements of applicable regulatory acts remain extremely pressing issues. Given the provision of autonomy to universities in matters of the formation of educational content, we consider it advisable to note that it is distance courses that can become the unique intellectual product, an intangible asset of each university, within which the remote form of education has been introduced. At the same time, the student remains the right to choose a higher educational institution, an educational program, a normative or variable component, a distance course, an individual teacher or tutor, as well as an individual plan for mastering the discipline.

We consider it necessary to note that the system of higher education in Ukraine provides for the formation of promising directions for the implementation of the concept of continuous education throughout life, based on the individual needs of each person [1]. At the same time, distance education should be only one of the priority forms of the educational process, but not replace existing classical forms. A particularly important issue is the use of distance technologies at the initial stages of learning for students who receive basic educational degree and should study fundamental educational disciplines directly in educational audiences. Under these conditions, a remote education should be an auxiliary tool for an effective organization of the educational process, complementing the traditional daily form of training [5].

In the end, you can summarize the priority directions of the implementation of the above concept in the following functional blocks [1]:

1. The introduction of individual forms of training specialists and the provision of free access to existing electronic sources of information space that provides a higher educational institution.
2. The use of distance courses as auxiliary teaching aid for students who have a basic higher education and receive additional (improve their qualifications, carry out training or retraining, undergo production internships).

3. The formation of a triad relationship between the university, student and enterprise in the context of the substantive filling of programs of theoretical and practical training of specialists in accordance with the possibilities of providing theoretical knowledge and needs of production practice.

4. Improving the prestige and status of higher education, which will increase the intellectual potential of a student of a student, effectively convey acquired knowledge and experience from generation to generation, develop national educational traditions by applying the advantages of electronic teaching aids.

5. Ensuring the continuity of the educational process due to the use of distance technologies that contribute to the coordination of educational programs in certain areas of training and periods of training specialists.

6. Constant development of alternative distance courses and modernization of the content of students who already exist in accordance with the needs of students who want to receive education throughout life and strive to master several areas of training at the same time.

Thus, the introduction of modern distance technologies into the educational process will allow, within the limits of higher educational institutions, to ensure the opportunity to almost realize his own individual learning strategy, focused on the embodiment of the concept of continuous education throughout life.

Nevertheless, the issues under consideration should remain the subject of further scientific research, cause discussion in broad scientific circles.

Today, distance learning has temporary difficulties, we will reveal them [7]:

1) insufficient computer literacy of students and students, lack of experience in distance learning; Many teachers and students are not ready for such a teaching method, giving preference to traditional education;

2) insufficient development of information and communication infrastructures in Ukraine;

3) training programs and courses are not well developed due to the fact that there are not many qualified specialists who are able to create such textbooks today;

4) weak use of standards in distance learning;

5) the problem of searching for specialists. High qualifications of developers are required; To create high-quality multimedia courses, you need a team from a specialist in the subject area, artist, programmer, etc.;

6) insufficient interactivity of modern distance learning courses;

7) a low percentage of completion of courses due to insufficient experience in using distance learning systems and the complexity of the motivation of students.

Based on the analysis of scientific research, we will reveal some approaches to solving the problems of implementing distance education at the university [2]:

- development of the concept of distance education;

- development and adaptation of a corporate network of universities, bringing the throughput of the telecommunication channel (access to the Internet) to the minimum necessary, which meet the requirements for ensuring the educational process of distance education;

- development of electronic textbooks and educational materials and the creation of a database of distance education, the acquisition and implementation of network tools;

- consolidation of the efforts of the organizers and developers;

- search, acquisition and implementation of existing developments of electronic textbooks and educational materials;

- the creation of a single corporate system of distance education and uniform resources;

- organization of training and advanced training of teachers and technical personnel in the field of methodology and information technologies of distance education;

- creation of an electronic library, inclusion in the corporate network of libraries of the region, ensuring access to open libraries of the Internet;

- creation of a center of distance education on the basis of universities in Ukraine, admission to the International Association of Open Electronic Libraries, other relevant organizations;

- presentation and combination of learning assessments;

- the creation of a "unified inter-university system for monitoring distance education", which should develop uniform norms, standards, carry out methodological support aimed at improving the educational process, as well as to carry out selective control of educational institutions.

In order to solve the problem of the quality of educational services that students of distance learning receive, teachers must develop and implement information technologies that contribute to the development of distance education. Distance training at the university gives students the possibility of round-the-clock access to educational materials, constant support and consultations of teachers and methodologists, online video lectures, virtual simulators and other technological solutions to ensure an effective learning process [4].

The use of the Internet network makes it possible to promptly access the information resources of the educational institution and the possibility of effective interaction "teacher-student", both on-line and in off-line modes [9].

Summing up the above, despite all the negative aspects of distance education, I would like to express hope for the introduction of existing information technologies into the educational process of universities and the development of new technologies more advanced in form and adapted to the conditions of Ukraine.

So, the advantages of distance learning technology are: accessibility to a larger volume of material through network libraries; The possibility of clarifying incomprehensible by both the teacher and other students (holding a video of

conferences, electronic discussions and the like). The use of modern computer and telecommunication technologies in the educational process not only creates the conditions for a more effective independent work of students, helps to individualize the process of training specialists, but also significantly changes the forms and content of communications between the teacher and the student. With the help of distance learning, despite the unchanged trends in reducing the auditor, the direct and feedback of the “teacher-student” becomes more intense and active, and therefore distance education is indeed promising informative technology.

Conclusions

Remote training is a technology based on the principles of open learning, widely uses computer curricula for various purposes and creates an information educational environment using modern telecommunications to supply educational material and communication.

Remote training has several advantages over other forms of learning. Remote training allows you to introduce interactive technologies for teaching material, receive a full-fledged higher education or improve their qualifications. It has a number of advantages such as flexibility, relevance, convenience, modularity, economic efficiency, interactivity, international.

However, next to this, the most difficult task of the remote model of education remains is a change in the personal attitude of both teachers and students to self-education and self-development: the need to transition from a reproductive approach to the development of productive creative mental activity. In order to solve the problem of the quality of educational services that students of distance learning receive, teachers must develop and implement information technologies that contribute to the development of distance education.

With the help of distance learning, despite the unchanged trends in reducing the auditor, the direct and feedback of the “teacher-student” becomes more intense and active, and therefore distance education is indeed promising informative technology.

References

- [1] Georgieva E. A Comparison Analysis of Mobile Learning Systems. International Conference on Computer Systems and Technologies – CompSysTech’ 2006. P. IV.17-1 – IV17-6.
- [2] Coombs PH. The World education crisis. A systems analysis. Paris, 1968.
- [3] Coombs P.H. The World crisis in education: the view from the eighties. New York, 1985.
- [4] Encyclopedia of Global Studies / Ed. H.K. Anheier, M. Juergens Meyr. Los Angeles, London and others, 2012.
- [5] Attewell J. Mobile technologies and learning: A Technology Update and mLearning Project Summary. London. Learning and Skills Development Agency, 2005. 25 p.
- [6] Botkin J., Elmanjra M., Malitza M. No limits to Learning. Bridging the Human Gap. A Report to the Club of Rome. Oxford. 1979.
- [7] Kay A. Personal Dynamic. IEEE Computer. 1977. – Vol. 10(3). P. 31–41.
- [8] Iasechko, M., Shelukhin, O., Maranov, A.: Evaluation of the use of inertial navigation systems to improve the accuracy of object navigation. International journal of computer science and network security, 2021, 21, 3, p. 71-75. Available at: http://paper.ijcsns.org/07_book/202103/20210310.pdf.
- [9] Heinze A. Blended learning: an interpretive action research study : submitted in Partial Fulfilment of the Requirements of the Degree of Doctor of Philosophy. Aleksej Heinze. University of Salford. Salford, 2008. 328 p.
- [10] Griffin T. Evolution of blended learning in a large enrolment subject: What was blended and why? Proceedings ascilite Melbourne 2008. P. 355–359.
- [11] M.Iasechko, O.Shelukhin, A.Maranov, S.Luki anenko, O. Basarab, O.Hutchenko (2021). Evaluation of The Use of Inertial Navigation Systems to Improve The Accuracy of Object Navigation. IJCSNS International Journal of Computer Science and Network Security. Vol. 21 No. 3, pp. 71-75.
- [12] S. Piskunov, M. Iasechko, O. Yukhno, N. Polstiana, Y. Gnusov, K. Bashynskyi, A.Kozyr. (2021). Application Of Probability Filter For Maintenance Of Air Objects. IJCSNS International Journal of Computer Science and Network Security. Vol. 21 No. 5, pp. 31-34.

- [13] M. Iasechko, N. Sachaniuk-Kavets'ka, V.Kostrysia, V.Nikitchenko and S. Iasechko. The results of simulation of the process of occurrence of damages to the semiconductor elements under the influence of multi-frequency signals of short duration, Journal of Critical Reviews, 7(12), 2020, pp. 109 - 112. doi:10.31838/jcr.07.13.18.
- [14] Tetiana Kronivets, Yelyzaveta Tymoshenko, Oksana Diachenko et al. (2021) Artificial intelligence as a key element of digital education / IJCSNS International Journal of Computer Science and Network Security, VOL.21 No.106 pp. 67-72 <https://doi.org/10.22937/IJCSNS.2021.21.10.9>