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Prospects for the development of distance education in Ukraine: methodological aspect

Perspectivas para el desarrollo de la educación a distancia en ucrania: aspecto metodológico

Olena Tsilmak

tsilmak@gmail.com

<https://orcid.org/0000-0001-7348-4876>

National university «Odessa law academy», Ukraine.

Natalia Revenko

nmirey@gmail.com

<https://orcid.org/0000-0003-1788-3914>

V.O. Sukhomlynskyi National University of Mykolaiv, Ukraine.

Natalia Kryvun

natashabk@gmail.com

<https://orcid.org/0000-0002-8112-7016>

Berdyansk State Pedagogical University, Ukraine.

Olena Fedorenko

fei0971@gmail.com

<https://orcid.org/0000-0003-4948-9524>

Kharkiv National University of Internal Affairs, Ukraine.

Iryna Tsisaruk

tsisaruk@gmail.com

<https://orcid.org/0000-0002-7285-9055>

Kremenets Taras Shevchenko Regional Academy of Humanities and Pedagogy, Ukraine.

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Abstract

The article identifies and characterizes the organizational and pedagogical preconditions, patterns, features of the development of distance education in Ukraine, analyzes its role in solving the problem of modernization of vocational education in Ukraine. The main trends in the development of distance education and new learning technologies in Ukraine, based on modern information and telecommunication means of manipulating educational information, have been studied in order to find out the prospects for its further development. The principles of modeling the process of distance learning are disclosed, which allow creating a special learning environment in any geographical location and due to the didactic tasks of higher education. The concept of variable modeling of distance training systems for a future specialist by creating a special learning environment in any geographical location has been developed and theoretically substantiated. The organizational and pedagogical conditions for the effective implementation of distance learning models in the current system of training

specialists in higher education are shown.

Keywords: higher education, education system, distance learning, distance education.

Resumen

El artículo identifica y caracteriza las condiciones previas organizativas y pedagógicas, los patrones y las características del desarrollo de la educación a distancia en Ucrania, analiza su papel en la solución del problema de la modernización de la educación vocacional en Ucrania. Se han estudiado las principales tendencias en el desarrollo de la educación a distancia y las nuevas tecnologías de aprendizaje en Ucrania, basadas en medios modernos de información y telecomunicaciones para manipular la información educativa, con el fin de conocer las perspectivas de su desarrollo futuro.

Se dan a conocer los principios de modelado del proceso de educación a distancia, que permiten crear un ambiente de aprendizaje especial en cualquier ubicación geográfica y debido a las tareas didácticas de la educación superior.

Se ha desarrollado y fundamentado teóricamente el concepto de modelado variable de los sistemas de formación a distancia para un futuro especialista mediante la creación de un entorno de aprendizaje especial en cualquier ubicación geográfica.

Se muestran las condiciones organizativas y pedagógicas para la implementación efectiva de modelos de educación a distancia en el actual sistema de formación de especialistas en educación superior.

Palabras clave: educación superior, sistema educativo, aprendizaje a distancia, educación a distancia.

1. Introduction

In the 21st century, society is faced with such problems as the rapid change of information flows, economic instability. Many professions become morally obsolete in the labor market, and therefore, in the process of rotation, workers in these areas are forced to change the scope, content and quality of their knowledge and skills in the process of rotation or acquire them from scratch, adapting to a new professional field. New professions appear that require a quick response from the education sector with to fill the expanding nomenclature vacuum.

Significant changes have taken place in the domestic education system due to the development of market relations and changes in the socio-economic situation in the country. The university has become one of the institutions of the market economy. Transformations in the economy, significant changes in working conditions, the need to train highly qualified specialists for new or modernized areas of activity have a direct impact on its institutional structures and curricula.

The change in priorities in society and the economy has led to a drop in demand for graduates from previously prestigious technical universities and a sharp increase in competition for economic, law, environmental and humanitarian faculties. Introducing new specialties, modern universities turned out to be financially and methodologically unprepared to provide the educational process with adequate educational infrastructures, specialized libraries and educational technologies, including distance education technologies.

The demand for distance education in Ukraine today is estimated as commensurate with the needs of full-time education, i.e. is approximately 0.5 million students per year. Large consumers of the distance education system are the population in European countries and individuals (Gao,

2021). The demand for a distance learning system is also due to the need to implement the principle of openness in education, to expand the rights of an individual to receive that education and in that educational institution that seems more attractive to the future specialist.

Currently, distance education is considered as a form of education that makes it possible to choose educational resources and is a promising way to get education in areas remote from educational centers.

Today, the need for specialists who can work with a dynamic information environment exceeds the ability of the educational system to train them (Palvia et al., 2018). This led to the fact that education began to be considered as the most important factor in the economic growth and social development of countries, solving a number of global problems related to the survival of mankind.

There is a contradiction between the new needs of society for highly qualified specialists and the inability of the modern professional school to satisfy them; between the speed of economic and social transformations in society and the inertia of the educational system, which fails to timely and adequately adapt to these transformations (Hillier, 2018). The dynamic genesis of distance education, which allowed it to transform in the historically shortest possible time from a simple use of technical means in the educational process to a specific didactic approach, and then a specific system for organizing this process, has been suspended in recent years.

The main attention began to be paid to the improvement of the means of technical support themselves, and not to the study of the didactic problems of distance education (Atieku-Boateng, 2021), (Shoufan, 2019).

Thus, the forms, methods and principles of distance learning, didactic conditions for the effectiveness of its organization, including those related to the search for optimal combinations of distance and contact learning, have not received proper development.

This, in turn, predetermined the range of particular contradictions between:

- the rapid advancement of the level of technical support for distance education and the imperfection of its didactic base;
- the novelty of the forms of organization of distance education and the lag in the methodological support of the process of distance learning;
- the inefficiency of transferring traditional didactics methods that are not adapted to the features of distance education and the need to use them due to the undeveloped specific didactics of distance learning;
- a variety of didactic tasks that need to be solved in the process of distance learning, and the lack of evidence-based variant models of its organization;
- the parallel existence of two independent didactics of contact and distance learning without conducting a study of the possibilities of their integration for the training of specialists (Shehab & Khalifa, 2021).

2. Literature review

Despite the obvious advantages of online learning in higher education institutions, the introduction of the educational process in electronic format involves solving a number of issues for both

students and for academic staff of educational institutions (Riera Guasp, Ardid, Vidaurre & Dueñas, 2018), (Rajab, 2018).

For academic staff, the real challenge of online learning was the significant increase in the time required to provide a quality learning process. In particular, the time for preparing lecture classes, checking homework, and maintaining electronic and hardcopy records of attendance and success of education applicants has doubled (Ali, Khalil & El-Sharkawy, 2020). The major reasons for the suspension of the educational process during warfare are considered to be the lack of a clear plan of action for the use of online learning for all participants in the educational process and the lack of adequate facilities of institutions of higher education that could ensure the proper quality of online education (O'Doherty, Dromey, Loughheed, Hannigan, Last & McGrath, 2018), (Nikadambaeva, 2020), (Morin, 2020). Considering the challenges of online learning organization, scientists pay attention to the issues of qualified support of the student by the educator or other authorized persons during online learning. Such qualified support should begin at the stage of searching for proposals of distance learning programs and accompany the student during the entire learning process (Langedard, Kiani, Nielsen & Svensson, 2021). However, a review of the literature on the development of online education in times of war has shown that the issue of developing special strategies for working with higher education applicants during military conflicts remains unresolved. This is due to the lack of specialized software and information developments for working with students that take into account the specifics of receiving education specifically during military conflict (during its exacerbation especially) in the territory where the educational institution or students studying at such institutions are located.

3. Aims

The identified contradictions prove the existence of the research problem: what are the conceptual foundations for the variable modeling of the distance learning process in the specific conditions of distance education of future specialists in the "person-to-person" sphere? The solution to the problem is due to the need to determine the appropriate limits of applicability of this type of education for solving certain pedagogical problems, constructing variable models that optimize its combination with other learning methods. Today, the methodological foundations of distance education are based entirely on the principles of informatization of education and the extensive use of new telecommunication technologies. The didactic principles that ensure the intensification of distance learning require their justification.

Insufficient theoretical and practical elaboration of the problem and its particular relevance and scientific significance in modern conditions of the development of society determined the choice of the topic of the article.

Object of the article: the process of remote training of future specialists in the sphere higher education.

The purpose of the article is to develop and theoretically substantiate the concept of modeling options for distance education, to create and experimentally test options for its organizational and pedagogical models, to isolate the boundaries of its expedient application and conditions for effectiveness.

4. Materials and methods

Research methods. At different stages of the study, a set of complementary methods was used:

- a) theoretical (analysis and synthesis of scientific literature on the topic of research; generalization, extrapolation, modeling, design of systems and processes, study of directive, regulatory and program and methodological documents in the field of education);
- b) empirical (study, analysis of the current experience of the functioning of the system of continuous education and distance learning, prolonged observations; questionnaires, heuristic conversations, content analysis, rating, Internet search, pedagogical experiment, retrospective analysis of personal pedagogical experience in modeling learning systems and implementing distance learning);
- c) statistical (quantitative and qualitative processing of experimental data, graphical representation of the results).

5. Results

Consideration of the essence of distance education as a pedagogical category showed that distance education is a complex of educational services provided to the general population with the help of a specialized information educational environment based on the means of exchanging educational information at a distance. This is one of the options for modernizing modern education systems in the country.

This is a universal humanistic form of education based on the use of a wide range of information and telecommunication technologies and technical means that create conditions for the student to freely choose educational disciplines, dialogue exchange with the teacher, regardless of the location of the student in space and time. The teacher, student and information sources can be located in different geographic regions and communicate through special means of communication that allow for educational interaction without their direct contact. The use of computer technology and printed media, which is characteristic of this form, reduces the necessary amount of direct communication with the teacher and changes the nature, content and target orientation of educational interaction (Alqahtani & Rajkhan, 2020).

Distance learning as an information and educational remote access system based on modern information technologies combines elements of classical university education and numerous elements of a virtual educational environment. Modern means of communication make it possible to overcome the shortcomings of traditional forms of education, while maintaining all their advantages.

The basis of the distance educational process is the purposeful and controlled intensive independent work of the student, who can study in a convenient place, according to an individual schedule, having a set of special teaching aids with him.

The emergence of information and telecommunication training aids - personal computers with training, control programs, models and simulators, facsimile, video and audio technologies, systems. The introduction of computer technology made it possible to move to a different level of information transfer, made it possible to create training aids with powerful interactive capabilities. Computer systems can demonstrate the multivariance of a solution, examine, identify errors, give

the necessary recommendations, open access to electronic libraries, and help find the information you need in a matter of seconds (Ratheeswari, 2018).

6. Discussion

The research hypothesis is based on the fact that the results of the current system of training future specialists using distance learning can be significantly higher if:

- models of distance education will be based on the theoretical and methodological foundations of the long-term development of distance learning technologies based on modern information and telecommunication means for transmitting and processing information and integrating different types of systems for organizing the process of learning by students;
- training models will be variable, diverse and adequate to the target settings of their application;
- modeling of various options for the educational process will be based on the symbiosis of the principles of contact and distance learning, allowing you to create special learning environments in any geographical location, taking into account the specifics of the educational contingent;
- organizational and pedagogical conditions for the introduction of distance learning models into the current system of higher education have been identified and substantiated.

The prerequisites for expanding the scope of distance education are:

- processes of democratization and humanization of modern Ukrainian society;
- the release of a large number of jobs due to their obsolescence and the curtailment of many industries;
- the growth of the country's need for new specialties, reflecting a new level of technological progress;
- an increase in the desire for higher education of an increasing number of the population of the country, including those previously deprived of the opportunity to receive it due to the remoteness from educational institutions and the limited possibilities of the universities themselves.

Factors that determine the nature and features of the development of distance education are:

- the emergence in the country of new systems of technical support for the educational process, which allow organizing the training of specialists in any geographically remote point of the country;
- expansion of the information educational and scientific-pedagogical field by attracting world experience in the creation of special computer technologies; intensification of integrative processes of development of foreign economic relations; entry of Ukraine into the world economic and educational space;
- shifting the focus of global conceptual educational positions from "education for life" to "education throughout life";
- change of priorities from the militaristic doctrine of a closed society to society from the everyday type, interacting in a single world space;
- the emergence of a global paradigm setting for the continuity of education.

The chronology of the history of the formation of distance education in the country with the

periodization of the main stages of its development is substantiated.

The principles of modeling distance education are defined, combining general didactic principles with the principles of informatization:

the priority of the pedagogical approach when designing models of the educational process in the system of distance learning;

flexibility, dynamism and variability of distance learning models;

compliance of the teaching technologies used by the teacher with the selected models and types of distance education used by this teacher or educational institution;

non-antagonism of models used in distance learning to existing forms of education; modularity, interactivity, cost-effectiveness and accessibility to various categories of the population in the construction of distance learning models;

Variable organizational and pedagogical models of distance learning for specialists working in the field of "human-to-human" have been developed:

- model of synchronized learning without feedback;
- model of synchronized learning with feedback;
- model of asynchronous learning with feedback;
- model of asynchronous learning with vertical and horizontal feedback;
- asynchronous learning model with vertical and horizontal feedback;
- a student-oriented model of distance learning, which allows students to work in modes from a rigidly controlled one, which sets the student's performing activity within a strictly defined framework of an information and training program, to research one, carried out in the conditions of working on a single group project or individual research.

Theoretical significance of the study.

Theoretical and methodological foundations for modeling distance education as a set of basic subsystems are substantiated, each of which consists of certain components and is built taking into account the development of new innovative technologies and information and telecommunication means of information transmission.

The main trends in the development of distance education have been identified, which make it possible to create a theoretical basis for it, which ensures its further development:

- globalization (transition through distance education in the country to a single global educational space);
- a combination of remote and interactive forms of interaction between the student and students, ensuring the completeness and variety of interactive communications;
- integrativity of organizational and pedagogical models of distance learning with existing didactic systems;
- the focus of education on the priorities of the individual and her well-being, as well as on the science of industry and the economy of tomorrow;
- continuity of education throughout a person's life.

The organizational and pedagogical conditions for the introduction of distance learning models

have been identified and justified, and the effectiveness of their application based on the use of information technology and computer technology has been confirmed:

- a) basing distance learning models on a combination of general didactic principles with specific ones, their creative interpretation in the process of adapting to new tasks of training specialists in a professional educational institution;
- b) integration of different types of systems for organizing the process of mastering knowledge by trainees;
- c) effective use of information technologies and computer technology, overcoming the socio-geographical factors of removal of the student from the teacher.

In the course of the study, the main principles for designing a distance education system were determined: the principle of the priority of the pedagogical approach in designing the educational process in the distance learning system; the principle of flexibility and dynamism, which determines the ability of trainees in this system to work at a convenient time in a convenient place; the principle of pedagogical expediency of applying new information technologies; the principle of taking into account the starting level of education; the principle of compliance of the teaching technologies used by the teacher with the selected models and types of distance education used by this teacher or educational institution; the principle of freedom of choice of the content of education by students; the principle of information security in the distance learning system; the principle of non-antagonism of distance education to existing forms of education; principles of modularity, interactivity, intensification, economic efficiency and accessibility to various categories of the population.

The analysis of the literature on the problem under study and the accumulated experience of variable modeling of target models of the organization of the distance educational process made it possible to develop a formula for the concept of variable modeling of the distance learning process. Briefly, it is formulated as follows: modeling of distance education in higher education as a system of integrated learning technologies is implemented through the creation of special methodological, didactic and organizational- technological learning environments, functioning on the basis of a complex of variable pedagogical models for organizing a distance educational process, built on the integration of systems of various types organizing the process of assimilation of knowledge by trainees, the combination of general didactic and information and telecommunication principles and the use of information technology and computer technology.

7. Conclusions

Thus, the creation of a distance learning system should be based on fundamental principles, on the one hand, denoting a set of requirements inherent in any type of education, on the other hand, defining the specifics of this type of education. The didactic foundations of distance learning should be based on a combination of general didactic principles with specific ones, creatively interpreting them in the process of adapting to new learning tasks.

Selected models of organizing a distance educational process based on the integration of different types of systems for organizing the process of assimilation of knowledge by trainees (model of synchronized learning without feedback; model of synchronized learning with feedback; model of asynchronous learning with feedback; model of asynchronous learning with vertical and horizontal feedback; diagnostic - asynchronous learning model with vertical and horizontal feedback; student-centered model of distance learning) allow students to work in modes from a tightly

controlled, setting the performing activity of the student within a strictly defined framework of the information program to research, conducted in the conditions of working on a single group project or individual research. They can also be used in the full-time and part-time system of organizing the educational process. The difference will be the proportions of the ratios of the contact and distance components of training in terms of content, volume of material studied and time, as well as the schemes and nature of the interaction of participants in the educational process.

The implementation of the concept of creating a distance learning model in higher education dictates the need to create a single educational space that unites teachers and students not only with the noble goal of knowledge and education, but also mass familiarization with the technical and cultural achievements of mankind. The possibilities of distance learning methods and means of technological support of the educational process give education a democratic character, flexibility and mobility, sufficient to take into account the various interests of the “learner”, while maintaining high quality and exactingness.

The attempt made in this study to build the concept of variable modeling of distance education as a system of integrated educational technologies, to lay the foundations for the process of distance learning of a future specialist, to create and experimentally test such models for higher education, based on the principles and specific means of distance learning and adequately changing the ways of organizing the educational process , predetermines the prospects for its further comprehensive research in order to improve the concept of distance education development in the country.

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