UDC 371.1:37.036
DOI: https://doi.org/10.17721/2415-3699.2024.19.06

Liudmyla LEVYTSKA, PhD (Pedagog.), Assoc. Prof.
ORCID ID: 0000-0002-9955-0453
e-mail: Ludmbogd@knu.ua
Taras Shevchenko National University of Kyiv, Kyiv, Ukraine

FEATURES OF THE IMPLEMENTATION OF DISTANCE EDUCATIONAL TECHNOLOGIES IN THE EDUCATIONAL PROCESS OF A HIGHER SCHOOL

Background. *The peculiarities of the introduction of remote educational technologies into the educational process of higher schools are revealed, in particular, case technologies, TV technologies, and network technologies.*

The essence of the concepts "distance education", "distance educational technologies" has been clarified. Distance learning is defined as an innovative organization of the educational process, which is based on the principle of independent learning, and students and teachers are separated in space and time, but have the opportunity to constantly maintain dialogue in the virtual space.

Methods. *The general research methodology consists of the ideas of the philosophy of general connection, mutual conditioning of the integrity of the phenomena and processes of the surrounding world; fundamental ideas of philosophical and pedagogical anthropology about the nature and essence of human activity; concepts of personality development in ontogenesis; dynamic principles that take into account the dialectic of external and internal conditions of its development; concepts of humanistic pedagogy; concepts of activity of the subject of activity, a system of views on the relationship and interdependence of phenomena and processes based on spiritual universal values and their role in the educational process of higher education.*

In the study, we refer to the scientific provisions of the theory of professional and pedagogical activity; the dialectical unity of the actual and the potential in the development of the individual and the formation of his creative individuality; theories of socialization and social development of personality; theories of pedagogical innovation, development of innovative systems and innovative activities; the concept of pedagogical interaction and support of subjects of pedagogical activity in achieving the goals of individual and personal improvement of the subjects of education as the basis of targeted systemic changes in its quality.

The concept of "distance educational technologies" is defined as educational technologies implemented in the educational process of a higher school through the use of information and telecommunication technologies with mediated (at a distance) or fully mediated interaction between a student and a teacher. The purpose of using distance educational technologies in the educational process is to provide students with the opportunity to master educational programs directly at their place of residence or temporary stay (location) on the territory of an educational institution.

The concept of "distance educational technologies" is defined as educational technologies implemented in the educational process of a higher school through the use of information and telecommunication technologies with mediated (at a distance) or fully mediated interaction between a student and a teacher. The purpose of using distance educational technologies in the educational process is to provide students with the opportunity to master educational programs directly at their place of residence or temporary stay (location) on the territory of an educational institution.

Results. *It was found that the use of distance educational technologies contributes to the growth of feedback dynamics between the teacher and the student, provides unlimited access to digital educational resources in time and space, creates prerequisites for increasing the efficiency of independent work of students, including due to the opportunity outside the classroom the laboratory to master the skills of managing physical objects, allows purposeful use of subject-specifically adapted digital resources to individualize students' educational work, stimulates students' internal motivation to study.*

Conclusions. *The isolated features of the introduction of distance educational technologies in the educational process of higher education institutions give reasons to consider them as a factor in improving the quality of training in the disciplines of professional and practical training of students.*

Keywords: *distance education, distance educational technologies, distance learning.*

Background

The intensive development of Internet technologies and the improvement of computer technology led to the gradual introduction of distance learning information technologies into the educational process of higher education institutions, which, of course, actualized the issue of academic integrity. On the basis of computer-oriented modern technologies of distance learning, it is possible to reveal the significant educational, developmental, educational potential of learning much more deeply; they should become an integral part of the methodological systems of teaching all educational disciplines without exception, and distance learning is one of the forms of raising the level of education, as well as an alternative form of obtaining education. Under the conditions of using distance learning, the effectiveness of conducting and organizing students' independent work and monitoring its performance increases.

Special attention in the educational process should be paid to the ability to use distance learning technologies in a pedagogically balanced way, with the help of which the student will navigate in the information space and reasonably and effectively introduce the means of information and communication technologies into the educational process of higher education institutions in his further professional activity. The use of information technologies in education introduces changes in educational activities that affect many processes, including emotional and motivational, cognitive, and processes related to influencing human behavior. One of the most positive consequences of the use of information technologies is the strengthening of the cognitive component of educational activity. The use of information technologies in education, taking into account the observance of academic integrity by the participants of the educational process, contributes to the increase of the share of independent educational activity and the activation of cognitive activity of students, the formation of such positive features as self-learning, self-education, which will also allow the balanced and effective use of such tools in the future in their professional activities.

Distance education should be considered as a form of education and educational technology aimed at the practical implementation of the principles of open education under the conditions of using the possibilities of distance education: mass, accessibility, openness, interactivity, comfort, efficiency, economy, etc.

A new type of educational environment is reflected in the distance form of education, which is inferior if the participants of the educational process do not observe academic integrity.

ISSN 1728-3817

Distance education reflects the goals and values of the educational environment of a higher education institution as a social institution, the purpose of which is the development of knowledge and education of decent citizens. In this sense, the institution of higher education develops and confirms the availability of knowledge in students, and society receives decent citizens and professionals.

Literature review. The key problems of distance education as a component of the formation of the information society are discussed in the works of our compatriots, in particular, the aspects of information technology teaching methods were highlighted by Z. F. Bondarenko (Bondarenko, 2010) and I. V. Havrish (Havrish, 2006), O. P. Borzenko (Borzenko, 2011). The essence of distance learning is revealed in the works of M. V. Hrynyova (Hrynyova, 2012), M. L. Smulson (Smulson, 2012), I. A. Zyazyun (Zyazyun, 2001), P. I. Zamaskina and N. V. Chabanna (Zamaskina, & Chabanna, 2010), O. G. Zakhar (Zakhar, 2016).

The case method as a modern distance learning technology was substantiated by T. Pashchenko (Pashchenko, 2015), Ya. B. Sikora (Sikora, 2015). The psychological principles of distance learning were revealed in his works by M. L. Smulson (Smulson, 2012).

The essence of the concepts of "distance learning" and "distance education" was revealed by S. U. Goncharenko, who believed that these categories differ in their content, since learning is a joint purposeful process of interaction between the teacher and students, during which the development of the personality, its education and training (Honcharenko, 1997).

Thus, distance education is education using distance learning.

In recent years, the significant expansion of the possibilities of modern digital technologies has made the problem of modernization of the higher education system urgent. This applies not only to the emergence of new forms of learning, but also to the expansion of the number of different means of using digital technologies in the educational process. The essence of such modernization of education is most reflected in the concept of distance education, which, thanks to the spread of distance educational technologies, becomes the most important factor in the development of education and society as a whole.

The use of distance learning provides a number of advantages, which usually include the following:

• the possibility of combining different forms of information presentation (textual, graphic, animation, video, audio);

• the possibility of adapting the course to the individual characteristics of students;

• giving students the right to manage the size and sequence of issuing portions of educational information;

• ensuring flexible interaction between students and teachers thanks to the technological basis.

Having analyzed the various definitions of scientists, the following main characteristics inherent in distance learning should be singled out:

• distance learning is considered as a new form of organization of the learning process, based on the principle of independent student learning;

• interactive interaction between participants (student and teacher) of the pedagogical process is carried out at a distance using distance educational technologies.

The quality of the implementation and application of distance education can be evaluated using such indicators as (Smulson, 2012):

• effectiveness (the degree of assimilation of knowledge, the ability to apply accumulated knowledge in practice, success rate, individual learning process, flexible consultations);

• accessibility for all segments of the population (students, businessmen, disabled people, military personnel and prisoners);

• resource intensity (no need to attend lectures and seminars, no need for classrooms, significant reduction of financial costs, material resources, etc.);

• efficiency (time for assimilation of knowledge, delivery to students, etc.);

• democratic connection "teacher – student";

• complex software;

• leading distance educational technologies.

Therefore, the effectiveness of distance learning is based on the fact that students themselves feel the need for further education, and do not succumb to external pressure. They have the opportunity to work with educational information in such a mode and volume that suits them directly. The effect largely depends on how regularly the student practices. Consistent performance of tasks, as well as support in all matters from the teacher ensures systematic assimilation of knowledge.

Educational effectiveness of distance education and high economic indicators of implementation contribute to its popularity in the West. For Ukraine, distance learning is a promising branch of education that has just begun to develop.

Let us consider in more detail the principles on which distance learning in institutions of higher education is based, namely:

• purposeful and controlled independent work of a student who can study in a place convenient for him, according to an individual schedule, having with him a set of special teaching aids and an agreed possibility of contact with the teacher by phone, fax, e-mail or regular mail, in the mode online on the Internet, as well as in the mode of regulated visual contact;

• increased level of interactivity, which is especially evident in the use of network technologies in the learning process;

• the educational interaction of the participants and the organizers of the educational process can be carried out both synchronously in time, that is, at the same time, and asynchronously in time, when the simultaneous participation of the participants in their educational interaction is not required or expected.

The main functions of distance learning in institutions of higher education include (Zyazyun, 2001):

• providing students with educational and methodical materials;

• formation and management of the catalog of information resources on disciplines;

• conducting automated testing of students' educational achievements (incoming, ongoing, modular, final, etc.);

• identification of users and their structuring by categories;

• ensuring interactive communication between students and teachers and students among themselves;

• provision of all students with access to information resources of the Internet for the performance of educational tasks, etc.

Distance educational technologies consist of pedagogical and information and communication technologies of learning.

Distance educational technologies are technologies for creating active communication between teachers and students, mediated through software and hardware, using telecommunications and the methodology of individual work of subjects of study with structured educational material

presented in electronic form. Distance educational technologies include: correspondence technology, case technology, TV technology, network technology, mixed technology, etc. Currently, there are several distance education technologies that differ in the following characteristics:

• according to the form of submission of educational materials; the presence of an intermediary in the education system or a centralized form of education;

• by the degree of use of telecommunications and personal computers;

• according to the technology of organization of educational process control;

• according to the degree of implementation of conventional methods of conducting the educational process in the teaching technology;

• according to the methods of student identification when taking exams.

It is appropriate to highlight the advantages and disadvantages of distance learning. The advantages of distance education, compared to other forms of education, include:

• unsurpassed speed of updating knowledge with the support of information resources chosen by students from global electronic information networks;

• extraterritoriality (there is no attachment to a certain territory);

• the opportunity to study anywhere where there is a computer, the material is strictly dosed by week and coincides with all the requirements for students, in addition, the student has the opportunity to complete the task at a time convenient for him.

Disadvantages of distance learning include:

• lack of face-to-face communication between a teacher and a student (no computer can replace the living word of a highly qualified and erudite lecturer), which makes it difficult to organize an individual approach to education and upbringing; insufficient technical equipment of both higher education institutions and students;

• lack of practical classes and lack of constant supervision (students are not always self-disciplined, conscious and independent);

• problems of a methodological nature (insufficient amount of quality educational materials, impossibility of demonstrating the performance of technical processes).

However, distance education – learning at a distance – has become a real innovation of the 21st century, as it is characterized by openness, continuity, economy, and accessibility.

Distance education takes place in a specific pedagogical system and differs from traditional forms of education. We characterize the features of its introduction into the educational process of a higher school.

Individualization of education. Distance educational technologies allow taking into account the individual characteristics of students and improving the quality of their education through quick perception of information, a better form of information presentation, motivation of students, taking into account their propensity for group and individual work, etc. The use of multimedia and hypertext technologies in distance learning makes it possible to present educational material in the most visual way. Modern means of communication make it possible to organize individual consultations, as well as joint activities of students.

As a rule, before the start of studies, students pass an entrance test, the purpose of which is to identify the psychological characteristics of students, to find out their advantages in learning. The obtained results will be taken into account in the future when drawing up an individual plan for the student to create the most favorable and comfortable conditions.

Flexibility of learning. Distance learning allows students to choose a convenient time and place for classes, study at a pace convenient for them, and make their own individual schedule of classes.

Every student can start studying at any level. In addition, each student, given the absence of strict time limits in distance courses and the possibility of multiple use of educational materials, can study as much as he needs to master the relevant competencies when studying the academic discipline.

Humanism. Distance learning provides an equal opportunity to receive education for all categories of citizens, regardless of social status, material wealth, location and living conditions. The technologies used in distance learning allow people who live in regions geographically distant from the centers, people who do not have the opportunity to regularly attend classes due to employment, family circumstances or a change of residence to receive an education at prestigious universities. Distance learning also provides access to educational services to those who cannot attend an educational institution due to special physical characteristics of the individual.

Economy. Distance learning is characterized by high economic efficiency. Research conducted by leading foreign scientists gives reason to claim that it is 1.5-2 times cheaper than the traditional one. First, distance learning makes it possible to teach a larger number of students than traditional. At the same time, the absence of the need for the mandatory presence of a large number of people in educational classrooms leads to a decrease in the costs of maintaining educational premises. Secondly, electronic educational materials do not require large areas for storage, are easily replicated and updated. Thirdly, distance learning reduces the costs of organizing classes, arranging classrooms, transportation, etc.

However, distance learning requires significant initial financial costs for the creation of a technical base, development of educational and methodological materials and training courses, as well as retraining of employees.

Technicality. Distance learning is based on the application in the educational process of the latest achievements in the field of information and communication technologies.

So, all of the above gives reason to assert that the use of modern high technologies in the educational process of higher education contributes to the involvement of students in the information culture and the acquisition of skills that are vital in the modern information society.

It should be noted that distance learning is a pedagogical process in which all the principles of the classical theory of learning are applied, such as scientificity and accessibility, the connection of learning with life, the continuity and systematicity of learning, the visibility of learning, the consciousness and activity of students, etc. (Borzenko, 2011). The specific principles of distance learning are:

• the principle of initial knowledge;

• principle of modularity;

• the principle of priority of independent activity of students;

• the principle of the new role of the teacher in the learning process;

• the principle of integration of pedagogical and information and communication technologies;

• the principle of choosing the content of education, etc.

ISSN 1728-3817

The groups of methods that are characteristic of distance learning include: information-receptive methods, reproductive methods, problem-based learning methods, heuristic and research methods.

In distance learning, all methods known in pedagogy are used, but the following ones have become particularly popular: the problem presentation method, the project method, the research method, heuristic and game methods, etc. These methods are the most productive in the conditions of distance learning, as they stimulate the independent cognitive activity of students.

Any of the teaching methods must be supported by appropriate teaching aids that allow it to be implemented.

Distance learning uses both traditional and modern innovative learning tools based on the application of computer and network technologies. In the conditions of distance learning, resources are used that perform the following functions:

1. Ensuring the possibility of independent study of educational information, as well as the implementation of control and self-control of knowledge.
2. Provision of a convenient method of delivery of educational information.
3. Ensuring communication between students and the teacher, students among themselves, support for the collective work of the entire study group.

The following learning tools should be used for distance learning (Prokopenko, 2013):

- educational publications on paper media;
- electronic editions;
- electronic educational and methodical complexes;
- audio and video educational materials;
- electronic libraries;
- computer training complexes (trainers);
- remote and virtual laboratories, etc.

In addition, distance learning involves the use of traditional educational publications, such as textbooks, teaching and methodical guides, various reference books, problem books, etc. Publications used in distance learning are subject to the following requirements, due to the specifics of the learning process:

- textbooks and manuals should contain detailed instructions for studying educational information and completing tasks that help students organize their independent work;
- the material should be structured according to the modular principle;
- each topic and module as a whole should correspond to clearly formulated goals of their study, which helps to increase the interest of students and aims them at the expected result.

Electronic editions are electronic versions of printed educational materials, but have a number of advantages. First, it is compact storage and easy transmission over long distances. Secondly, updating electronic materials is faster and costs much less. Thirdly, electronic editions, as a rule, contain means of navigation for educational material and means of search (electronic reference books), which increases the speed and efficiency of the educational process. If necessary, using a printer, any electronic publication can be turned into a paper copy.

Nowadays, you can see e-books in various formats: from simple text documents to specialized formats (TXT, DOC, PDF, DjVu, CHM, HTML, executable Exe files, etc.). Electronic educational and methodical complexes are automated educational systems that contain didactic, methodical, and informational and reference materials on the educational discipline, as well as software that allows you to use them comprehensively for independent acquisition and control of knowledge. Such complexes consist of various blocks that perform organizational-methodical, informational-cognitive, control-training functions. As a rule, educational and methodical complexes include:

1. Introduction to the discipline: the subject, the value of the acquired knowledge for solving tasks in the subject area of future specialists, the relationship with other researched disciplines.
2. Working program, which contains the purpose and tasks of the course being studied, methodological instructions for studying course materials and organizing independent work, a list of recommended literature and electronic resources.
3. The main educational material, organized according to the modular principle, a directory of terms of the studied subject area (glossary).
4. Questions, tests, tasks for self-control and assessment of knowledge.

Hypertext technologies used in the creation of electronic educational and methodical complexes allow students to quickly make transitions between different sections of the complex, to navigate according to the researched topic. Thus, the student is given the opportunity to build his individual trajectory of studying the academic discipline. Multimedia tools allow you to use various forms of information presentation: text, graphics, sound, video, which increase the effectiveness of its perception through clarity. An important feature of electronic educational and methodological complexes is the availability of tools that facilitate the organization of interactive testing and resources that provide feedback to the teacher.

Audio and video educational materials are lectures recorded on magnetic media, instructions for studying the material, illustrative material, demonstration films, etc. CDs and DVDs, video and audio cassettes are used for their distribution. The advantage of audio and video lectures over ordinary classroom lectures lies in the possibility of multiple listening and independent adjustment of the pace of studying educational information. Demonstration videos and educational videos complement other types of educational materials and illustrate the practical application of theoretical knowledge. Audio materials are an indispensable tool for learning foreign languages.

Electronic libraries are sites of educational resources that allow students to familiarize themselves with additional material of academic disciplines. Electronic libraries contain electronic books, articles, scientific works, educational audio and video materials.

Libraries are a database that allows you to quickly find the necessary materials using a search system according to various criteria: the author's last name, a sign of belonging to a certain subject area, keywords. As a rule, only pre-registered users can access such libraries.

Remote and virtual laboratory workshops are resources for organizing practical and laboratory work that requires additional special equipment. This tool is of great importance for the training of specialists in those specialties for which it is important to acquire not only theoretical knowledge, but also specific practical skills. A remote laboratory practicum is a connection to the real equipment of the laboratory of the educational center using special remote access software. Working with remote laboratory equipment, students see a graphic image of the corresponding device on the screen, simulate the effect on it with the help of a mouse and keyboard. Examples of remote access software include REDCLASS,

BaumanTraining, LabView, etc. Such laboratories allow students to gain practical skills in working with real equipment and conduct experimental laboratory work.

Virtual laboratory workshops do not use real physical equipment, but only a simulation of working with it. The technology of simulation mathematical modeling of physical experiments, visualization software and hardware, and computer graphics are used to create a virtual toolkit.

The means of communication of the distance learning organization, which are used to communicate and organize the joint work of all participants, are divided into synchronous (on-line) resources and asynchronous (off-line) resources.

Synchronous resources involve the interaction of a teacher and a student in real time. Synchronous means of telecommunications include chat, audio and video conferences, and IP telephony. Asynchronous means of communication do not require the simultaneous connection of all communication participants. This allows everyone to work according to an individual schedule. For example, a student sends his question, and the teacher answers it at any convenient time. Asynchronous means provide an opportunity for the participants of the learning process to interact, even if for any reason they cannot communicate at the same time, for example, they live in different time zones. Asynchronous tools include:

- e-mail (e-mail);
- electronic forums;
- chats;
- audio and video conferences;
- IR-telephony on the Internet;
- mobile Internet.

Let's consider the pedagogical possibilities of these tools, which should be used in the organization of distance learning.

E-mail (e-mail). E-mail is the simplest and most effective means of exchanging information between participants in the learning process. It allows you to exchange not only text messages, but also forward any type of information along with text in attached files: archive files, audio and video files, images, etc. E-mail is a means of non-verbal communication of participants in the educational process. E-mails are used to exchange educational information, transfer files, hold consultations with the teacher, communicate with each other among students, and search for information on the Internet via an FTP server. Note that a feature of e-mail for the organization of distance learning is the asynchrony of information exchange.

Automatic mailings are also built on the example of e-mail. Mailing lists can be created by any user using e-mail programs. Every message sent to a mailing list is automatically distributed to its members. Recipients can also send their messages to the list. Mailing lists allow you to organize group communication between students and the teacher. At the same time, the teacher can perform the functions of a moderator, that is, manage the mailing list. So, mailing lists are a means of collective work of students.

E-mail refers to remote access technologies. This is one of the modes of services provided by computer networks, which allows users (teachers, students) to exchange text and graphic messages. Traditional basic computer training of the user is sufficient for free work in e-mail mode. With the help of e-mail, you can construct "virtual classrooms".

Electronic forums. Electronic forums (teleconferences) are used to hold discussions and exchange news on a certain topic. Electronic forums take place in the form of exchanging text messages. The difference between forums and mailing lists is that in the case of mailing lists, a message sent by a member of the forum is sent by the mail server to everyone else, they also send their messages, which are sent by the server. Forum messages are not forwarded to anyone, but are published on the server on a general board that is available to all members.

All forums have time limits and can last from several hours to several days. Each participant of the forum at any moment of the time allotted for its passage can join the forum, read all available messages of other participants and add their own. Forums give students the opportunity to make "reports" on a given topic, express themselves about the content of the report, and ask each other questions. The fairly long duration of the forums allows participants, in case of difficulties in answering questions, to familiarize themselves with additional materials on the chosen topic, and then to answer the question.

The teacher notifies students in advance about the time and topic of the forum, develops a script. During the forum, he evaluates the activity and answers of students. All electronic forums are recorded and can be used in the further educational process.

Chats (Internet Relay Chat). Chat systems allow two or more participants to enter the server and correspond in real time. At the same time, everyone can ask questions and immediately see the relevant messages on their computer screen. Chats allow students to communicate with each other, share their learning achievements, consult with the teacher, and promptly receive answers to their questions. Online chat correspondence has a special emotional component. Such real, live communication does not allow students to feel alone in the learning process, stimulates them, and helps to increase motivation. Currently, a method of conducting classes based on chat systems has been developed and is being used.

A chat conference is a means of quickly exchanging information using text messages with one or more interlocutors in real time. This method of information exchange in pedagogical activity is used for discussions, discussion of problematic issues and problematic topics, provision of group and individual consultations.

Web technologies (WWW) is a term used to denote a number of Internet technologies and services. Web technologies involve the joint active activity of people, in particular teachers and students, to fill the World Wide Web with materials, share their skills and abilities, and form "network" logic and information culture in them.

Video and audio conferences. Video and audio conferences are means of verbal communication. The main feature of video communication is the possibility of visual contact and interactive communication between the teacher and students. This characteristic contributes to the fact that the video conference becomes a powerful means of interaction between the participants of the educational process who are at a distance from each other. Students and the teacher interact directly in a dialogue mode, which makes remote classes as close as possible to face-to-face ones. Video conferences allow not only to conduct a dialogue on a certain topic, but also to organize group work of the participants of the educational process on educational materials, to view additional materials on this topic. Joint control of the screen during video conferences enables its participants to create drawings, drawings, and transfer materials. Video conferences provide a significant increase in the number of listeners, the involvement of highly qualified specialists in lecturing them.

ISSN 1728-3817

Video conferences open wide pedagogical possibilities, and also provide additional identification of students, which reduces the risk of falsification of learning results.

However, expensive equipment and high-speed communication lines are required for video conferencing with high-quality image transmission.

Audio conferences allow voice communication between students and the teacher. They, in contrast to video conferences, have limited capabilities, so they have not become so widespread.

IP telephony. IP telephony is a means of providing voice communication. The advantage of IP telephony is relatively low tariffs during the conversation. With the help of IP-telephony, students can quickly contact the teacher and get answers to their questions.

Currently, the form of accessing the Internet using mobile phones has become widespread. You can receive and send e-mail, view files, visit sites that support the WAP protocol, and access other Internet services directly from the phone. This enables students to work with educational materials and continue their educational activities even in the absence of a computer.

Also, it should be noted that the development of information technologies has led to the emergence of a new social phenomenon – a digital barrier, that is, unequal access of members of society to remote technologies. Originating in the mid-1990s, this term initially characterized only the possibility of access to computer equipment, but later began to characterize remote technologies in general. Overcoming the digital barrier was facilitated by the emergence of mobile learning as a modern trend in the development of distance learning systems using mobile phones and smartphones.

Electronic textbooks are a set of educational, control, modeling and other programs that reflect the main scientific content of the academic discipline. Audio clips are e-textbook information in audio format. Videos are visual or audiovisual material that involves the process of performing laboratory work, experiments, films of a scientific nature.

A great role is played by means of telecommunications, which allow you to overcome long distances, ensure the delivery of educational information and communication between the participants of the educational process. Each type of telecommunications has its own specifics, which imposes restrictions on the educational process. The need to use certain well-recommended traditional forms of organizing classes requires the search for adequate means of telecommunications that have appropriate didactic properties. Along with this, the means of telecommunications are constantly developing, which contribute to the emergence of new forms of classes, new ways of joint activities of the teacher and students.

The analysis of the scientific literature gives grounds for asserting that, along with traditional, distance educational technologies occupy a worthy place in the training of future specialists. So, distance educational technologies are technologies for creating, transferring and saving educational materials, organizing and supporting the educational process of distance learning using telecommunications, which are classified into:

• presentation technologies (books and printed materials, electronic texts and publications, computer training programs, multimedia, television, radio, virtual reality and simulation, electronic support systems);

• delivery technologies (radio broadcasting, television broadcasting, CD-ROM, DVD (digital video and audio discs), Internet);

• interaction technologies (teleconferences, e-mail, etc.).

Currently, the following three main types of distance learning technologies are used:

1. Case technology.
2. TV technology.
3. Network technology.

We characterize each of the specified types of distance educational technologies.

Developed by English scientists M. Shaver, F. Edey and K. Yeats, case study (case method, situation analysis method) has become one of the interactive methods that has gained popularity in Great Britain, the USA, Germany, Denmark and other countries of the world.

Currently, methodological innovations are associated with the use of active or, as they are also called, interactive learning methods. Their essence is that the educational process is organized on the basis of interaction, dialogue, during which students learn to think critically, solve complex problems based on the analysis of circumstances and relevant information, consider alternative opinions, make thoughtful decisions, participate in discussions, communicate with by other people

Case technology of learning is learning based on audio and paper media (educational and methodical assistance, CDs, textbooks). A teacher works with the student, who checks the completion of tasks sent by mail and is ready to answer students' questions by phone or conduct consultations in special educational centers. Teaching and methodical materials are completed in a special set (case), which is sent to the student for independent study ( ).

Case technology, as a rule, is used in a university that has a network of branches in geographically distant regions. Such remote educational centers conduct training according to the educational programs of the basic university. The basis of case technology is independent study by students of a special set of educational and methodical case materials. Such a case is a program-methodical complex where all materials are interconnected into a single whole. Both traditional teaching tools and resources based on the application of modern information technologies are used to complete the case. The case may include:

1. Printed textbooks, educational and methodological aids, educational and methodological support for the discipline, etc.
2. Methodical materials for independent performance of practical, control, course and scientific works.
3. Electronic publications.
4. Electronic educational and methodological complexes.
5. Audio and video educational materials.
6. Computer training complexes (trainers).

Case materials are provided to students on paper and magnetic media.

The cases are characterized by:

• the completeness and integrity of educational information, maximally covering the studied subject area and allowing students to master the course in the shortest possible time;

• interactivity, which involves stimulating students' independent work and supporting their motivation at a sufficient level.

After passing the entrance exams (or according to the test results), each student is given a complete case containing all the methodological and educational materials necessary for studying.

As a rule, an introductory lesson is held for each discipline, which is necessary for the teacher to explain to students how to work with the educational and methodical

materials contained in the case, what to pay special attention to, how to properly plan and organize their independent work. After that, students independently study case materials, answer control questions, and perform training tasks. If students face difficulties, they can ask for help from a teacher-tutor.

Consultations can take place both face-to-face and using any available means of telecommunications: telephone, e-mail, etc. In the process of studying an academic discipline, students periodically complete and send control tasks to the teacher for verification. This gives the teacher the opportunity to monitor students and, if necessary, make timely adjustments to their learning process.

A component of case technology is traditional classes – tutorials, which are conducted with the aim of practical application by students of knowledge and skills acquired in the process of self-study. Instructional classes and tutorials are held on the territory of the branches of the basic university by teachers and tutors.

The training ends with an exam, which is traditionally conducted in oral or written form. The advantages of this learning technology are its low price and availability.

Most of the time, students work autonomously, as a result of which costs for the organization of the learning process are significantly reduced both for the university and for the students themselves, since there is no need to purchase special equipment to implement the interaction of participants in the learning process. With the help of telecommunications, the load on network traffic is reduced.

To receive education using case technology, students need only a personal computer, as well as audio and video equipment. This remote educational technology allows you to implement training according to educational programs using educational and teaching-methodical materials. These materials were developed by university teachers for students who live in remote areas with poorly developed infrastructure and insufficiently developed means of telecommunications.

The use of this remote educational technology provides an opportunity to develop the intellectual skills of students of pedagogical universities, which they will need in further education and professional activities, contributes to achieving success in the formation of their technological culture.

The application of the case method as a personal and developmental distance educational technology contains the following main components:

• the target component, which reflects the goal (general and specific), includes mental prediction of the final result of the learning process, development of the student as a subject of educational activity, creation of appropriate conditions for active acquisition of knowledge and realization of creative potential;

• motivational component, which highlights the student's deep internal motivation and motivation for joint activities;

• content component covering the content of educational information, reflected in various cases, divided by subject of classes, independent search and acquisition of knowledge;

• the operational activity component, which is determined by the forms and methods of learning (interactive methods "microphone", "brainstorming", discussion, role-playing game, "aquarium", etc.), student development, the activity of the teacher in managing the educational process, i.e. the actual technological process, contains an algorithm and expedient ways of solving specific situations in practical activities;

• the control-regulatory component, which is related to the achieved results in the learning process, which is an important incentive to learn, involves the teacher's indirect control over the amount of material studied, the learning process, constant feedback with students, in which the teacher acts as an organizer, consultant;

• reflective component – the teacher's assessment, which is formed based on taking into account the activity of each student, his efforts, the way of communication, the ability to cooperate (Pashchenko, 2015).

The application of the case method is based on the unity of the following didactic principles:

• individual approach to each student;

• provision of a sufficient number of visual materials;

• maximum freedom in education;

• formation of skills of independence, self-organization, ability to work with information;

• concentration on the main provisions, and not on a large amount of theoretical material;

• emphasis on the development of positive and necessary qualities for further improvement of students of pedagogical universities.

Case technologies are based on independent study of printed and multimedia teaching and methodical materials provided to the student in a special form (case). The essence of the technology is to use specific situations for joint analysis, discussion or development of solutions from a certain section of the discipline. The effectiveness of the method lies in the fact that it can be easily combined with other teaching methods, that is, the case method makes it possible to supplement the arsenal of methodological techniques.

Case technology simultaneously reflects a practical problem and actualizes a certain set of knowledge necessary to solve this problem, and also successfully combines educational, analytical, and educational activities. The method provides an opportunity to develop independent thinking in students of pedagogical universities, the ability to better understand the topic, ideas, thinking and discussion, analytical strategic thinking, the ability to solve problems and draw rational conclusions, communication skills. The case method makes it possible to learn to combine theoretical knowledge with the realities of life, to transform abstract knowledge into values and skills.

The case method or the method of situational exercises is intended for obtaining knowledge from educational disciplines, the content of which changes very quickly with the development of modern technologies.

The result of the application of this method is not only acquired knowledge, but also professional skills, since a student of a pedagogical university develops his system of values, professional positions, life attitudes in the process of working on a case.

Considering the essence of the case method, I. Prokopenko singles out the following features that allow it to be distinguished from other teaching methods:

• availability of a model of the socio-economic system, the state of which is considered at a certain point in time;

• collective decision-making;

• multi-alternative solutions;

• a single goal when making decisions;

• existence of a system of group assessment of activity;

• presence of controlled emotional tension of students (Prokopenko, 2013).

The creation of a case takes place in the following sequence:

• formation of didactic goals of the case (determination of the place of the case in the structure of the educational discipline, formulation of goals and tasks);

• determination of the problem situation;

• drawing up the main theses of the case;
• search for an institutional system (firm, organization, etc.);
• determination of sources and methods of information collection;
• construction or selection of a model of the situation that reflects the activity; verification of the conformity of the model with reality; choice of case genre; writing the case text; diagnostics of the correctness and effectiveness of the case;
• preparation of the final version of the case;
• search for technical means, with the help of which case delivery is organized;
• preparation of methodical recommendations for case application;
• introducing a case into the learning process (Sikora, 2015).

Using the case method as an interactive learning technology is a complex process in which the following stages can be distinguished:
• familiarization of students with the text of the case and its analysis (most often this stage takes place a few days before its discussion and is implemented as an independent work);
• organization of case discussion (discussions, presentations);
• evaluation of discussion participants;
• summing up.

It is recommended to solve cases in five stages:

The first stage is getting to know the situation and its features;

II stage – selection of the main problem (main problems), selection of factors and personalities that can really influence it;

III stage – proposal of concepts or "brainstorming";

Stage IV – analysis of the consequences of adopting a particular decision;

V stage – solving the case – offering one or more options (sequences of actions), indicating the possible occurrence of problems, mechanisms for their prevention and solutions.

However, a well-prepared case is not enough for an effective lesson. For this, it is necessary to prepare methodical support both for the independent work of students and for conducting the lesson itself.

The collection of information and methodical materials is a collection of information sources, educational documentation, and textbooks that provide optimal conditions for active cognitive learning activities of students.

In the general case, the collection of informational and methodological materials should provide documents – carriers of information – all elements of the organizational and psychological structure of educational activities.

The software provides for the search for technical means, with the help of which the delivery of the case is organized. Various options for providing a software product to consumers of educational services are possible. It can be the creation of an informational and educational site, thanks to which the case will be delivered in an interactive mode. Another possibility is the use of the Internet and e-mail for sending educational and methodical materials (Sikora, 2015).

The pedagogical potential of the case method is much higher than the pedagogical potential of traditional teaching methods (Pashchenko, 2015).

The case method has great educational potential from the point of view of the formation of such personal qualities:
• creativity;
• diligence;
• willingness to take responsibility for the results of one's own analysis of the situation and for the work of the entire group;
• self-confidence;
• development of strong-willed qualities, purposefulness;
• ability to compete;
• a socially active and vitally competent individual capable of self-development, self-improvement and self-realization.

Therefore, the use of the case method by the teacher for teaching students of pedagogical universities, on the one hand, stimulates their individual activity, forms positive motivation to study, reduces the number of "passive" and self-confident students, ensures high efficiency of training and development of future specialists, forms certain personal qualities and competencies, and on the other hand, it enables the teacher to improve himself, that is, to think and act in a new way, to increase his own creative potential.

Currently, there is a huge shortage of cases that can be used by teachers of pedagogical universities. Therefore, a teacher who wants to use the case-study method must independently develop and write cases.

The mechanical introduction of any innovation into the traditional educational process does not ensure significant conceptual changes and improvement of the quality of education. For the successful application of the case method during the training of students, the following principles must be observed: the principle of a systematic approach, the relevance of educational programs to current problems, practical orientation, the freedom to form teams of performers, cooperation between the teacher and the student.

The disadvantage of case technology is the lack of constant interaction of the student with other students. As a result, the possibility of using some active learning methods, for example, game methods or the method of group projects, is limited. For some specialties, where communication skills are the key to successful professional activity, for example, for psychologists and teachers, this can become a decisive factor.

The next technology is TV-technology, which is based on the use of a television system and satellite communication channels to deliver educational and methodical materials to students and organize consultations with teachers-consultants. This technology is implemented with the help of a network of geographically remote training centers that provide access to the resources of the base university. Television technology (TV-technology) is characterized by the fact that the entire range of educational activities of the central educational organization is "cloned" in numerous branches through satellite communication channels.

At the same time, satellite communication channels ensure the transfer of digital educational materials from the central server of the base university to the servers of the access centers.

Lectures broadcast on satellite television are the main element of education. Lectures are given by leading teachers of the base university. The technology for preparing and conducting such lectures is diverse: they can be held live, and a preliminary recording of the lecturer's reading of the educational material is also possible. The method of reading televised lectures is well developed. Currently, there are various models of television lectures, such as lectures-conversations, lectures-presentations, lectures-seminars, lectures "together". In televised lectures, the main method of presenting the material is its verbalization. To improve the perception of the material and increase the effectiveness of the lectures, its reading is accompanied by means of visualization: tables, diagrams, diagrams, videos, etc.

The educational process, based on TV technology, takes place in remote educational centers. On their basis, introductory classes in each discipline and control classes

are held. Thanks to satellite communication channels, every student gets the opportunity to access the programs and educational and methodological materials of the basic university. Students mostly independently study the educational material, perform practical and control tasks. If necessary, students can get advice from the teachers of the center. The advantage of televised lectures in the distance learning system is the possibility of mediated, limited, but still live communication with a qualified university teacher.

However, this technology has a number of disadvantages. First, it involves significant financial costs associated with the lease of satellite communication channels and equipping remote centers with the necessary hardware and software: satellite antennas, converters, decoders, special software, etc.

Secondly, television systems do not provide effective feedback, therefore active joint activities of students, taking exams are possible only on the territory of the educational center. To acquire practical skills and participate in collective work, students are forced to go to the nearest educational centers. This is associated with additional financial and time costs.

Thirdly, it to a certain extent limits the freedom of students in choosing the time for studying by depending on the schedule of traditional classes and the schedule of lecture broadcasts. This can be a problem for those students who work and do not have the opportunity to leave their workplaces for a long time.

As a result of the mentioned shortcomings, TV-technology has received a very limited distribution and now its application is possible only in combination with other types of distance educational technologies.

With the development of information and communication technologies, network technology is becoming more and more widespread. The network technology of distance learning is a technology that is based on the use of the capabilities of local and global Internet networks. Network technologies include Internet technologies and technologies that use the capabilities of local and global computer networks. The Internet is used to provide students with educational and methodical material, as well as for interactive interaction between the teacher and students.

Currently, this is the most promising technology, since the technical capabilities of the Internet allow the most complete implementation of such principles of distance learning as individualization, accessibility, flexibility, etc.

The information and communication tools of education provided by the Internet have wide didactic capabilities and allow the educational process to be carried out at a fairly high level.

Network technology is built on the use of networks to solve the following tasks:

- delivery of educational content to students and exchange of educational materials;
- providing access to remote electronic libraries and educational resources for students;
- provision of access to remote laboratories;
- conducting individual student consultations;
- organization of collective work of teachers and students;
- organization of verbal communication and visual contact of the participants of the educational process, separated in space.

Each task is solved using certain means. To deliver educational materials, as a rule, file sharing technology using the FTP protocol is used. Materials of small volume can be forwarded by e-mail. E-mail, IP-telephony, audio and video communication are the means of conducting consultations. Collective work is organized using such means of the Internet as forums, chats, virtual classes and blackboards.

In network technology, such teaching aids as electronic educational and methodological complexes and materials, audio and video educational materials, electronic libraries, computer educational complexes, simulator programs, remote and virtual laboratories are widely used.

Both magnetic media and communication resources are used for the delivery of materials.

The basis of learning network technology is network educational and methodical complexes developed from each discipline. The network educational and methodical complex is an electronic educational and methodical complex located on a server that can be accessed remotely. Hypertext and multimedia technologies are used to develop network educational and methodical complexes. Such complexes consist of instructional, informative, controlling and communicative blocks. Within the educational and methodological complex, students can study educational materials, receive and perform practical tasks, perform laboratory work.

The communication block allows you to exchange materials, quickly receive advice from the teacher and communicate with other students.

For the implementation of network technology, special software complexes are used – shells that provide the opportunity to manage electronic educational resources, communicate between students and with the teacher, and administer the educational process. Work with such a software shell is carried out using a standard web browser. Currently, this class of software products is widely represented by both foreign and domestic manufacturers.

After successfully passing the entrance exams, each student receives a personal login and password, using them, he can enter the program system at any time convenient for him and get access to the educational resources and services he needs.

Qualified teachers who have special training help students make their own individual study schedule. Most of the students' time is devoted to independent work, they perform control tasks, pass tests for monitoring and self-monitoring of knowledge. Work with educational materials is possible in two modes. In the first case, students work in network connection mode using a browser (on-line mode). In the second option, they study copied information or received materials on a local computer (off-line mode).

From each discipline, a teacher-consultant is assigned to the student, who can conduct both individual and group consultations.

Individual consultations are held both asynchronously and in real time. The first option is more acceptable in the case when the student and teacher are in different time zones, or for one reason or another cannot get in touch at the same time.

Network technology includes such forms of classes as lectures, seminars, laboratory workshops, etc. The method of their implementation is described in the works of A. Andreev, E. Polat, and A. Khutorskyi. Active learning methods are mainly implemented with the help of network technology. Thanks to such means of communication as a forum, e-mail, chats, digital telephony, audio and video conferences, it becomes possible to implement group learning methods: the project method, game methods, conducting active seminars, trainings, discussions, etc.

ISSN 1728-3817

The most common method of knowledge assessment in online distance learning technology is the use of interactive tests. In addition to interactive testing, communication with the teacher in real time using audio or video communication is also practiced.

The positive thing about network technology is that learning is available to all categories of the population. Students can receive educational services at any convenient time and in any place. For this, they need to have a computer and a means of accessing the Internet, which is currently provided using various technologies: satellite Internet, certain communication channels, wireless Wi-Fi technology, 3G technology, mobile Internet.

Thanks to the means of remote access, students can use electronic libraries and remote digital resources at any time.

The technical capabilities of the Internet and modern pedagogical technologies make it possible to organize the educational process both through traditional forms of education and innovative ones developed on the basis of information and communication technologies.

It should be noted that the effectiveness of distance learning based on network technology reaches the level of students' knowledge no lower than the traditional one.

Each of the three described technologies can be considered as a certain stage of the development and spread of distance learning. Currently, in practice, various combinations of the considered technologies are most often used, the basis of which is network technology: case + training in on-line mode, case + training in off-line mode, TV + network technology, network technology. However, the rapid development of learning technologies based on the use of the Internet (electronic cases, video conferences, etc.) gives reason to claim that the prospects for the development of distance learning are related to this technology.

Based on the analysis of scientific literature, we note that the set of distance educational technologies is a global educational system, the prototype of which was first described by domestic scientists in 1850, and then a similar system was developed in Germany, Sweden and other countries of the world (Bondarenko, 2010).

M. L. Smulson singles out four stages of formation of distance educational technologies in the educational process (Smulson, 2012). The first phase of the introduction of distance education technologies (1837 – 1913) is known as the period when correspondence education began to be carried out with the help of postal services (Smulson, 2012). In the early 1840s, shorthand and language courses began to open not only in the United States, but also in European countries. In 1837, the English stenographer A. Pitman began to use shorthand to provide educational services through correspondence. A. Pitman's note-taking method was adapted to 15 languages of the world and today remains one of the most popular in the world (Smulson, 2012; Zhernovnikova, 2014; Zamaskina, & Chabanna, 2010; Zakhar, 2016).

The second stage of the introduction of distance educational technologies (1914–1950) is associated with the invention of radio during the First World War, and then the appearance of television in 1950 (Grynyova, 2012), with the development of multimedia technologies and their distribution. For the first time, these technologies were implemented in practice at the radio school of Wisconsin in 1920 (Hrynyova, 2012). In 1930, five radio stations were used for teaching. At the end of 1950, in many US cities, television created educational channels. In 1970, educational television ETV began to use new methods to provide access to education in rural and remote areas. Despite significant U.S. investments aimed at spreading ETV to Latin America, including El Salvador, Brazil, Colombia, and Mexico, the results of studies have shown that the use of educational television has not led to an increase in the level of knowledge, which depends on the degree and nature of direct contact between students and teachers (Hrynyova, 2012).

The introduction of multimedia facilitated two-way interaction using telephone communication and postal messages, as over time educational materials began to be sent to students using the cable television system, short-wave transmitters, video cassettes, and currently – satellite transmitters (Gavrish, 2006).

The third stage of the introduction of remote educational technologies into the educational process (the second half of the 20th century – the beginning of the 21st century) is connected with the invention of computers and the beginning of their use in the education system. I. Havrysh notes that computer communication made it possible to use e-mail, hold virtual conferences and create electronic announcements (Havrysh, 2006).

The emergence of the Internet and the possibility of access to communication networks of the World Wide Web led to the emergence of distance learning courses, virtual universities and, ultimately, to the internationalization of education (Gavrish, 2006).

The fourth stage of the introduction of distance educational technologies into the educational process (beginning of the XXI century and to this day) is called by scientists the "Smart and Flexible Learning Model", which, thanks to such technologies as network administration, access to electronic libraries and other auxiliary services, formed a complete system of executive , auxiliary and educational technologies. We believe that this stage of the introduction of remote educational technologies into the educational process was complemented by the capabilities of the electronic network "artificial intelligence". We should also note that it is the last stage that best meets the requirements of training modern specialists. We emphasize the fact that at the first stage students were given maximum freedom and independence, and educational systems were called "independent learning systems"; at the second stage, the independence of students was preserved, but thanks to the efforts of developers of educational content, cognitive theories of learning appeared, which, with the help of media programs, "transferred" the student to the conditions of the workshop, laboratory, and even virtual classes, providing them with opportunities for meaningful learning and simulation; at the third stage, it became possible to establish humanitarian interaction in a synchronous or asynchronous mode with the help of computers and local networks, and structuralist theories of learning created opportunities for the dissemination of learning through the production and reproduction of knowledge in an individual or group form of learning; the fourth stage is characterized by the fact that it allows combining all forms of the introduction of distance educational technologies into the educational process, depending on the needs of the modern student.

Thus, the analysis of scientific literature gave reasons to assert that the process of evolution of means, methods and technologies that are used in distance education should be presented as follows: printing, postal correspondence, radio and television, fax, video and audio recordings, compact

discs, telephones, one-to-one video conferences, computers, the Internet, the global web, virtual educational space, content management systems, learning management systems, website software and development of standards. the technologies were quite primitive and were used, primarily, to "teach" students when preparing for the test; the third and fourth stages of the introduction of distance educational technologies into the educational process are characterized by the development of a creative personality capable of solving tasks of various levels.

So, the history of the introduction of remote educational technologies into the educational process in Ukraine has its own characteristics, which are mainly determined by the implemented state policy and the scale of the country.

Methods

The general research methodology consists of the ideas of the philosophy of general connection, mutual conditioning of the integrity of the phenomena and processes of the surrounding world; fundamental ideas of philosophical and pedagogical anthropology about the nature and essence of human activity; concepts of personality development in ontogenesis; dynamic principles that take into account the dialectic of external and internal conditions of its development; concepts of humanistic pedagogy; concepts of activity of the subject of activity, a system of views on the relationship and interdependence of phenomena and processes based on spiritual universal values and their role in the educational process of higher education.

In the study, we refer to the scientific provisions of the theory of professional and pedagogical activity; the dialectical unity of the actual and the potential in the development of the individual and the formation of his creative individuality; theories of socialization and social development of personality; theories of pedagogical innovation, development of innovative systems and innovative activities; the concept of pedagogical interaction and support of subjects of pedagogical activity in achieving the goals of individual and personal improvement of the subjects of education as the basis of targeted systemic changes in its quality.

Results

The essence of the concepts "distance education", "distance educational technologies" has been specified. Distance learning is defined as an innovative organization of the educational process, which is based on the principle of independent learning, and students and teachers are separated in space and time, but have the opportunity to constantly maintain a dialogue in the virtual space.

The concept of "distance educational technologies" should be considered as educational technologies implemented in the educational process of a higher school through the use of information and telecommunication technologies with mediated (at a distance) or fully mediated interaction between a student and a teacher. The purpose of using distance educational technologies in the educational process is to provide students with the opportunity to master educational programs directly at their place of residence or temporary stay (location) on the territory of an educational institution.

Means of distance educational technologies are singled out: case technology, TV technology, network technology, etc.

It was found that the use of distance educational technologies contributes to the growth of feedback dynamics between the teacher and the student, provides unlimited access to digital educational resources in time and space, creates prerequisites for increasing the efficiency of independent work of students, including due to the opportunity outside the classroom the laboratory to master the skills of managing physical objects, allows purposeful use of subject-specifically adapted digital resources to individualize students' educational work, stimulates students' internal motivation to study. The isolated features of the introduction of distance educational technologies into the educational process of higher education institutions of Ukraine give reasons to consider them as a factor in improving the quality of training in the disciplines of professional and practical training of students in higher education institutions.

Discussion and conclusions

The study of the phenomenon of "distance educational technologies" was served by the works of scientists on defining the essence of the concepts "distance learning" and "distance education" as general scientific and pedagogical concepts. The generalization of theoretical provisions made it possible to define distance learning as an innovative organization of the educational process, which is based on the principle of independent learning, and students and teachers are separated in space and time, but have the opportunity to constantly maintain dialogue in the virtual space. Distance education is defined as a form of learning at a distance, in the process of which the educational interaction of the teacher and students takes place through the introduction of distance educational technologies into the educational process.

Based on the generalization of different approaches of scientists, the essence of the concept of "distance educational technologies" should be considered as educational technologies implemented in the educational process of a higher school through the use of information and telecommunication technologies with mediated (at a distance) or fully mediated interaction between a student and a teacher. The purpose of using distance educational technologies in the educational process is to provide students with the opportunity to master educational programs directly at their place of residence or temporary stay (location) on the territory of an educational institution.

The conducted theoretical analysis of the essence of distance educational technologies made it possible to distinguish the means of distance educational technologies: case technology, TV technology, network technology, etc. let's use them.

Case technology is a distance educational technology based on independent study of multimedia teaching and methodical materials presented to the student in a special form (case). The essence of this distance educational technology is that a teacher works with the student, who checks the completion of tasks sent by mail and is ready to answer his questions by phone or conduct a consultation in special educational centers.

It was found that the use of case technologies in the educational process of a higher school contributes to the effective interaction of a teacher and a student, the development of willpower, purposefulness, the ability to compete in a socially active and vitally competent individual, capable of self-development, self-improvement and self-realization, the qualitative formation of a wide information field in the format of a certain professional activity; has great educational potential from the point of view of the formation of personal qualities: creativity, hard work, willingness to take responsibility for the results of one's own analysis of the

situation and for the work of the entire group, self-confidence; and also activates the development of professional, analytical and communication skills. No less important is the fact that case technology is an environment not only for professional training, but also for the education of the individual as a whole.

TV-technology (television technology) is a distance educational technology that is based on the use of the television system and satellite communication channels to provide students with educational and methodical materials, the organization of consultations with teachers-consultants and involves the use of various television systems (network , cable, satellite, etc.) and special educational programs.

Lectures broadcast on satellite television are the main element of TV technology training. The technology of preparing and conducting such lectures is diverse – they can be held live, and it is also possible to pre-record the presentation of educational information by the lecturer. Television lectures include: lectures-conversations, lectures-presentations, lectures-seminars, lectures "together". In televised lectures, the main method of presenting the material is its verbalization. To improve the perception of the material and increase the effectiveness of the lectures, the reading of the material is accompanied by its visualization: tables, diagrams, diagrams, videos, etc. The advantages of TV technology include: the unparalleled speed of updating knowledge with the support of information resources chosen by students from global electronic information networks; its extraterritoriality (it is not tied to a certain territory); synchronous and asynchronous modes of interaction of the participants of the educational process; equal access to quality education for broad strata of different categories of the population; unification of the informational, intellectual, creative and scientific and pedagogical potential of the entire world community in the interests of man.

Network technology is a distance educational technology that is based on the use of telecommunication networks to provide students with educational and methodological materials and interactive interaction between the teacher, administrator and student. This technology has significant advantages, as it allows students to study according to an individual schedule, having constant contact with the teacher, classmates and the administration of the educational institution or center. The ability to communicate "everyone with everyone" is a fundamental difference between network technology and other distance educational technologies.

The peculiarities of the introduction of remote educational technologies into the educational process of a higher school have been determined:

• increasing dynamics of feedback between teacher and student;

• unlimited time and space access to digital educational resources;

• the ability to purposefully use subject-adapted digital resources to individualize students' educational work;

• strengthening integration processes in order to ensure the principles of continuity, mass, openness and mobility in education;

• continuous formation of the information culture of participants in the educational process;

• modernization of teaching methods in connection with the change of the student's position in the direction of increasing his independence, activity, interest in learning;

• transformation of education into a two-way process of mutual information exchange between teachers and students, based on the principle of mutual learning in the process of joint educational, research and practical activities.

It was found that the use of distance educational technologies contributes to the growth of feedback dynamics between the teacher and the student, provides unlimited access to digital educational resources in time and space, creates prerequisites for increasing the efficiency of independent work of students, including due to the opportunity outside the classroom the laboratory to master the skills of managing physical objects, allows purposeful use of subject-specifically adapted digital resources to individualize students' educational work, stimulates students' internal motivation to study. The isolated features of the introduction of distance educational technologies into the educational process of higher education institutions of Ukraine give reasons to consider them as a factor in improving the quality of training in the disciplines of professional and practical training of students in higher education institutions.

References

Bondarenko, Z. V. (2010). The method of teaching information technologies for solving differential equations in technical universities [Author's Ref. thesis PhD Pedagog. Sciences, M. P. Drahomanov National Pedagogical University] [in Ukrainian]. [Бондаренко, З. В. (2010). Методика навчання інформаційних технологій розв'язування диференціальних рівнянь у технічних університетах [Автореф. дис. канд. пед. наук, Національний педагогічний університет ім. М. П. Драгоманова]. https://enpuir.npu.edu.ua /bitstream/handle/123456789/10083/Bondarenko_ZV.pdf;jsessionid=847CBFEF37 3F009DE86495DDEB8EDB62?sequence=1]

Borzenko, O. P. (2011). Distance learning of students in Ukraine. *Pedagogy and psychology*, 39, 43–48 [in Ukrainian]. [Борзенко, О. П. (2011). Дистанційне навчання учнів в Україні. *Педагогіка та психологія*, 39, 43–48]. https://scholar.google.com/citations?view_op=view_citation&hl=ru&user=Wl26qQkAAAAJ&citation_for_view=Wl26qQkAAAAJ:2osOgNQ5qMEC

Havrysh, I. V. (2006). Theoretical and methodological bases of formation of readiness of future teachers for innovative professional activity [Unpublished thesis DSc Pedagog. Sciences]. Kharkiv National Pedagogical University named after H. S. Skovorody [in Ukrainian]. [Гавриш, І. В. (2006). Теоретико-методологічні основи формування готовності майбутніх учителів до інноваційної професійної діяльності [Неопубл. дис. д-ра пед. наук]. Харківський національний педагогічний університет ім. Г. С. Сковороди]. http://www.disslib.org/teoretyko-metodolohichni-osnovy-formuvannja-hotovnosti-majbutnikh-uchyteliv-do.html

Honcharenko, S. U. (1997). *Ukrainian pedagogical dictionary*. Lybid [in Ukrainian]. [Гончаренко, С. У. (1997). *Український педагогічний словник*. Либідь].

Hrynyova, M. V. (2012). *Pedagogical technologies: theory and practice.* ASMI [in Ukrainian]. [Гриньова, М. В. (2012*). Педагогічні технології: теорія та практика*. ACMI].

Zyazyun, I. A. (2001). Technologization of education as a historical continuity. *Continuing pedagogical education: theory and practice*, 1, 73–85 [in Ukrainian]. [Зязюн, І.А. (2001). Технологізація освіти як історична неперервність. *Неперервна педагогічна освіта: теорія і практика*, 1, 73–85]. https://lib.iitta.gov.ua/6145/1/%D0%B7%D1%8F%D0%B7%D1%8E%D0%BD4.pdf

Zamaskina, P., & Chabanna N. (2010). The use of modern computer and information technologies in the educational process of the gymnasium. *Computer in school and family*, 4, 17–19 [in Ukrainian]. [Замаскіна, П. І., & Чабанна, Н. В. (2010). Використання сучасних комп'ютерних та інформаційних технологій у навчально-виховному процесі гімназії. *Комп'ютер у школі та сім'ї,* 4, 17–19]. https://dnpb.gov.ua/wp-content/uploads/2016/02 /index_15_2_14.pdf

Zakhar, O. G. (2016). *A methodical system of improving the qualifications of informatics teachers with the use of distance learning technologies* [Unpublished Candidate's thesis manuscript]. Kyiv University named after Borys Grinchenko [in Ukrainian]. [Захар, О. Г. (2016). *Методична система підвищення кваліфікації вчителів інформатики із застосуванням технологій дистанційного навчання* [Неопубл. дис. канд. пед. наук]. Київський університет імені Бориса Грінченка.]. https://core.ac.uk/reader/78038890

Pashchenko, T. (2015). The case method as a modern technology of teaching special disciplines. *Youth and the market,* 8(127), 94–99. [in Ukrainian]. [Пащенко, Т. (2015). Кейс-метод як сучасна технологія навчання спеціальних дисциплін. *Молодь і ринок,* 8(127), 94–99]. http://nbuv.gov.ua/UJRN/Mir_2015_8_22

Отримано редакцією журналу / Received: 18.05.24
Прорецензовано / Revised: 26.06.24
Схвалено до друку / Accepted: 28.10.24

Людмила ЛЕВИЦЬКА, канд. пед. наук, доц.
ORCID ID: 0000-0002-9955-0453
e-mail: Ludmbogd@knu.ua
Київський національний університет імені Тараса Шевченка, Київ, Україна

ОСОБЛИВОСТІ ВПРОВАДЖЕННЯ ДИСТАНЦІЙНИХ ОСВІТНІХ ТЕХНОЛОГІЙ В ОСВІТНІЙ ПРОЦЕС ВИЩОЇ ШКОЛИ

В с т у п . ***Розкрито особливості впровадження дистанційних освітніх технологій в освітній процес вищої школи, зокрема кейс-технологія, TV-технологія, мережна технологія.***

Уточнено сутність понять "дистанційна освіта", "дистанційні освітні технології". Визначено дистанційне навчання як інноваційну організацію освітнього процесу, яка ґрунтується на принципі самостійного навчання, а студенти та викладачі постійно підтримують діалог у віртуальному просторі.

М е т о д и . ***Загальна методологія дослідження містить ідеї філософії загального зв'язку, взаємообумовленості цілісності явищ і процесів навколишнього світу; фундаментальні ідеї філософсько-педагогічної антропології про природу та сутність людської діяльності; концепції розвитку особистості в онтогенезі; динамічні принципи, що враховують діалектику зовнішніх і внутрішніх умов його розвитку; концепції гуманістичної педагогіки; концепції активності суб'єкта діяльності, систему поглядів на взаємозв'язок і взаємозалежність явищ і процесів на основі духовних загальнолюдських цінностей та їх роль у навчально-виховному процесі вищої школи.***

У дослідженні ми звертаємося до наукових положень теорії професійно-педагогічної діяльності; діалектичної єдності актуального і потенційного у розвитку особистості та формуванні її творчої індивідуальності; теорії соціалізації та соціального розвитку особистості; теорії педагогічної інноватики, розвитку інноваційних систем та інноваційної діяльності; концепції педагогічної взаємодії та підтримки суб'єктів педагогічної діяльності в досягненні цілей індивідуально-особистісного вдосконалення суб'єктів освіти як основи цілеспрямованих системних змін її якості.

"Дистанційні освітні технології" окреслено як освітні технології, що реалізовані в освітньому процесі вищої школи завдяки застосуванню інформаційних і телекомунікаційних технологій у разі опосередкованої (на відстані) або в повному обсязі опосередкованої взаємодії студента і викладача. Мета використання дистанційних освітніх технологій в освітньому процесі – це надання студентам можливості оволодіння освітніми програмами безпосередньо за місцем їхнього проживання або тимчасового перебування на території навчального закладу.

Р е з у л ь т а т и . ***З'ясовано, що використання дистанційних освітніх технологій сприяє зростанню динаміки зворотного зв'язку між викладачем і студентом, надає необмежений у часі і просторі доступ до цифрових освітніх ресурсів, створює передумови для підвищення ефективності самостійної роботи студентів, зокрема і завдяки можливості поза навчальною лабораторією оволодівати навичками управління фізичними об'єктами, дозволяє цілеспрямовано використовувати предметно адаптовані цифрові ресурси для індивідуалізації навчальної роботи студентів, стимулює внутрішню мотивацію студентів до навчання.***

В и с н о в к и . ***Виокремлені особливості впровадження дистанційних освітніх технологій в освітній процес закладів вищої освіти України дають підстави розглядати їх як чинник підвищення якості навчання дисциплін та професійної і практичної підготовки студентів закладів вищої освіти.***

Розкрито сутність понять "дистанційна освіта", "дистанційні освітні технології". Дистанційне навчання визначено як інноваційну організацію освітнього процесу, яка ґрунтується на принципі самостійного навчання.

К л ю ч о в і с л о в а : ***дистанційна освіта, дистанційні освітні технології, дистанційне навчання.***

Автор заявляє про відсутність конфлікту інтересів. Спонсори не брали участі в розробленні дослідження; у зборі, аналізі чи інтерпретації даних; у написанні рукопису; в рішенні про публікацію результатів.

The author declares no conflicts of interest. The funders had no role in the design of the study; in the collection, analyses or interpretation of data; in the writing of the manuscript; in the decision to publish the results.