

Telecommunication Technologies As The Basis Of Distance Education

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Summary

The article discusses the evolution of the development of distance learning in world practice; investigated the essence and modern content of the concepts of "distance learning" and "distance education"; studied the principles of distance learning in the educational process; analyze the use of distance learning in higher educational institutions of Ukraine; substantiated the effectiveness of introducing distance learning into the higher education system; formed new management approaches in the distance learning system; proposals for the organization and improvement of distance learning at the university were developed on the basis of the analysis.

Key words:

Postgraduate Education; Qualities; Additional Training; Professional Education; Technologization, Distance Learning.

1. Introduction

The study of the content of scientific, educational and pedagogical literature, regulatory documents related to education, as well as the texts of journal articles and numerous speeches at conferences and seminars, showed that there is no common interpretation of the essence and content of the concept of "distance learning" (DL). There are numerous interpretations of this concept, reflecting the variety of approaches to its understanding. Before formulating our vision of the definition of DO, let us give the most famous interpretations of this term.

The Concept for the Creation and Development of Distance Learning provides the following definition: distance education is a complex of educational services provided to the general population in the country and abroad using a specialized information educational environment based on the means of exchanging educational information at a distance (satellite television, radio, computer communication, etc.). DL is one of the forms of lifelong education, which is

designed to realize the human rights to education and information [1-3].

Thus, Distance education is a form of education that ensures the use of the latest technical means and information technologies to deliver educational materials and information directly to the consumer, regardless of his location.

Distance learning is a set of information technologies that ensure the delivery of the bulk of the studied material to the learners, the interactive interaction of learners and teachers in the learning process, providing students with the opportunity to independently work on mastering the studied educational material, as well as in the learning process.

Distance learning is a new stage of distance learning, which provides the use of information technologies based on the use of personal computers, video and audio, space and fiber-optic technology.

Distance learning is a systematic purposeful learning that is carried out at some distance from the teacher's location. At the same time, the processes of teaching and learning are separated not only in space, but also in time.

Distance learning is a type of education based on educational interaction between teachers and students who are distant from each other, implemented using telecommunication technologies and Internet resources. Distance learning is characterized by all the components of the learning system inherent in the educational process: meaning, goals, content, organizational forms, teaching aids, a system for monitoring and evaluating results.

The analysis of the above definitions allows us to conclude that the most acceptable definition of the concept of "distance learning" is a form of teaching in which the interaction of the teacher and students and students with each other is carried out at a distance and reflects all components inherent in the educational process (goals, content, methods, organizational forms, teaching aids), implemented by specific means of Internet technologies or other means providing interactivity "[4].

Why is this definition the most appropriate? Learning is a two-way process in which the learner and the learner interact

and, during which education, upbringing and human development are systematically and purposefully carried out. This means that if we are talking about teaching, we assume the presence of a teacher in this process. This is the fundamental difference, the conceptual difference from the systems and programs of self-education, self-study, which we deal with when working with courses on videotapes, in television and radio courses, when working with computer programs and even programs on CD-ROM. In these programs, courses, the user can rely only on his own strength, on his own perception and understanding of the program. The learning process is characterized primarily by the fact that it is interactive in its organization, i.e. in the interaction of teacher and student.

Emphasizes in his definition of distance learning that this is a new form of education, along with full-time, part-time, external studies. The author also considers it unjustified that in the RF law "On Education" distance learning is presented as some kind of distance technology, which, accordingly, does not require additional funding. Distance learning is a specific form of education, since it presupposes the main reliance on the means of new information and communication technologies, multimedia, video communications, another form of interaction between the teacher and students, students among themselves. At the same time, like any form of education, any system of instruction, it has the same component composition: goals determined by the social order for all forms of education; content, also largely determined by the current programs, standards for a particular type of educational institution, methods, organizational forms, teaching aids.

In addition, it should be noted that some authors were wrong to identify the concepts of "distance learning" and "distance education". Education is a broader concept that includes:

- education as a value;
- education as a system;
- education as a process;
- education as a result

Therefore, distance education is a system in which the process of distance learning is implemented and the individual achieves and confirms the educational qualification. Thus, distance learning should be considered in the general education system, and certainly in the system of continuous education, thereby providing not just a certain system, but the continuity of its individual links.

Recently, in the educational environment, there has been a tendency for the development of distance forms of education. Many higher education institutions are beginning to offer the possibility of obtaining both first and second higher education or continuing education. At the same time, it is worth noting in particular the highly developed structure of distance learning in international universities. Therefore, the development of distance forms in institutes and universities is a relevant and promising direction, which is quite feasible at the current level

of technology development and corresponds to the modern trend in the development of the educational services market.

Undoubtedly, a natural question arises about the need to introduce distance technologies under the existing system of higher education in Ukraine.

To solve the set tasks, the following research methods were used in the work, adequate to the subject, goals and objectives of the research: theoretical methods - analysis of philosophical, psychological and pedagogical, regulatory and scientific and methodological literature on the research topic; empirical - a generalization of advanced pedagogical experience, the method of pedagogical modeling and design, a pedagogical experiment, a questionnaire method, a testing method, a method of expert assessments, methods of analyzing the products of students' activities. Methods of mathematical statistics were used to process the data obtained in the course of the experimental study.

2. Theoretical Consideration

The main advantage of distance learning (compared to full-time, part-time and part-time) is the ability to provide educational services for an unlimited number of students without the need to provide the educational process with lecture audiences, as well as the costs associated with the placement of students. In this case, training is carried out at a distance using modern interactive technologies. This form of training allows you to gain knowledge, for example, without interrupting work or people living in settlements remote from regional centers.

The main disadvantage of distance learning can be considered the lack of direct contact between the student and the teacher. However, this drawback can be easily eliminated by organizing consulting lectures using modern telecommunication, interactive and information technologies. All of the above applies to distance learning, however, the development of interactive learning systems can significantly increase the level of education for daytime education.

Let's consider examples of the positive application of distance education for a higher education institution.

Developed systems of interactive learning can be used to attract applicants. Thus, the institutes purposefully prepare personnel for admission and raise the level of training of applicants in the main areas and specialties. 2. Elements of distance education can be successfully introduced in various forms into the educational process for full-time students: a) in the form of theoretical testing. In this case, at the end of the lesson, each student is given a test task containing from one to two dozen questions.

Groups of didactic units and, thus, adjust the presentation of

the material by introducing additional examples or focusing on the most difficult moments to master. It should be noted that test tasks should not contain tasks that require large and time-consuming calculations. Questions should contain definitions and understanding tasks, with selected numerical values.

The main task of such control is to identify "gaps" in the knowledge of students. In addition, such testing will help prepare students for proficiency testing [1-3].

b) in the form of training portals and video-electronic laboratory work. In many laboratories of the Higher Educational Institution, demonstration stands are a complex of laboratory work that requires direct adjustment before the lesson. In this case, the mobility of laboratory work is lost over time. An example of this is the need to readjust test installations for educational groups studying in different educational programs. This issue is especially acute when carrying out laboratory work with branches, for which it is necessary to coordinate the time of changeover and laboratory work. Creation of laboratory work in electronic form will provide additional practical support for the educational process. When introducing modern information technologies into the educational process, the topic of discussion can be the type and method of presenting educational material. The presentation of the lecture material should be a text document with a detailed description of the main provisions of the required material. In this case, the lecture material should contain a large number of understandable examples. All derived formulas and dependencies cannot contain abbreviations or provisions for independent consideration. If interested, the student can independently supplement his knowledge with the help of complete teaching aids. The calculated part of the training material should also be a text document with explanations for the choice of the option and the design of the calculation and graphic works. For each task, it is necessary to analyze a similar example and give methodological recommendations for implementation. In addition, conclusions and explanations are desirable for understanding the results obtained. A laboratory workshop should contain two main parts: practical and calculated [5].

The practical part for students studying remotely can be presented in various versions: in the form of electronic laboratory work, in the form of video laboratory work, etc. It should be noted that the video laboratory work is most closely approximated to the daytime form of education, the student has the opportunity to actually observe the experiment. For example, practical courses in medical institutes are organized in a similar way, during operations. Students observe the work of an experienced doctor from the outside or using modern telecommunication means. The calculation part should contain material for processing the obtained experimental data and comparing them with

theoretical ones taken from reference manuals. In this case, the student independently acquires the skills of processing the information obtained experimentally. As a control of the development of the computational material, it is possible to introduce control works into the educational process. In this case, various goals can be achieved. First, the statistics of mastering the material is collected. Secondly, a check is made of the independence of the execution of computational and graphic works. Thirdly, the most difficult to understand parts of the taught material can be identified, after which certain conclusions can be drawn and the learning system can be adjusted. All of the above allows us to conclude that it is possible to integrate distance education not only as an independent form of education, but also as an auxiliary for the daytime form of education, which is easily implemented with the modern level of information technology [7-9].

One of the main approaches is the widespread use of active teaching methods, both in face-to-face classes and in the organization of work with educational materials. It is the activation of self-learning by placing in the educational materials a series of questions of various types, involving the personal experience of students and their working situation in the educational process, using the methods of problematization that makes it possible to increase the effectiveness of teaching through reading to the level of a lecture.

Interestingly, for adults with significant personal experience, such self-study is even preferable to the lecture form, since it provides sufficient time to understand the relationship between available knowledge and experience and offered in the course of training.

It should be noted that the systematic use of the features of adult learning - andragogy - actually arose during the development process.

Adults feel the lack of time much more strongly; therefore, active methods of face-to-face studies such as business games, group discussions, collective work with case studies, trainings that allow the most effective use of time resources are dominant in preschool education.

Other equally important tasks of face-to-face studies are providing students with feedback, correcting misunderstood questions and creating motivation for learning.

A short list of other educational approaches used in preschool education is given below:

- Educational approach: helping to form the student's own big picture of views, rather than imposing the correct one.
- Developmental approach: learning to think and use knowledge, not just know.
- Transition from a disciplinary to an integrative,

interdisciplinary method of building courses and programs.

- Wide involvement in the educational process of the student's own experience, as well as the experience of other students.
- Combination of active group teaching methods and individual interaction of the tutor with each student (written work, counseling).
- Learning throughout a person's life (continuing education).
- Combining the versatility of course presentation and teaching students the skills to adapt the content to specific activities [6].

One of the most important subsystems of DOs is the control system. Feedback issues, including the assessment of student success, are generally key for distance learning, since the teacher relatively rarely contacts the student.

Nevertheless, impressive progress has been made in this area. The test system was rejected as deliberately unacceptable, since it allows you to test, in the main, the student's ability to memorize. It is more important to test the student's ability to analyze problem situations, synthesize solutions, use a combination of theoretical material with his own experience.

All these functions are implemented both in examination procedures and in current written work, which students do about once a month.

An important role is played by the opportunities for self-control provided to the student in the form of a system of questions and answers in textbooks. In contrast to the frequently used final tests, these questions are evenly distributed throughout the text in order not so much to control the student as to stimulate his activity.

For the specifics of Open Education in general, it is characteristic not so much to control the student as to help him, which is, for example, expressed in the obligatory comments of a tutor to written works, etc.

Nevertheless, the final written exam is very strictly regulated and is conducted in full-time mode, for which hundreds of examiners are simultaneously sent to all regions with examination tickets sealed in bags. In the same packages, they bring them to the central office to check the work of students.

The second level of the control system is focused on checking and coordinating the work of the inspectors themselves. It includes re-checking about 10% of written works, statistical analysis of the level and distribution of marks of various teachers, procedures for agreeing examination marks for all countries in which training is taking place, etc.[9].

The powerful technological and methodological base of Open Education is a good springboard for its development. But is there any reason to believe that over time it will take on the main burden of extended training of specialists? And if so, what gives him these qualities?

Of course, first of all, it is unique accessibility. And it is the result of a small need for face-to-face classes and a wide network of training centers. Probably the biggest gains come from distance education in cities remote from the central regions, where there are practically no other learning opportunities. This is especially important for such a vast country as Ukraine.

Modular course design also contributes to accessibility. Everyone can choose their own courses according to their needs and, naturally, the number of their combinations is many times greater than the number of possible specialties of full-time or part-time education. Someone studies intermittently, trying to make the most of all the ideas of the course, to put them into practice, while the other is studying several courses at the same time. In general, the student can gradually reach any skill level.

Secondly, it is the practicality of teaching, which is achieved through a set of methods for adapting teaching to the needs of the student's work activity and focusing on achieving practical results at the student's work while still in the learning process.

Thirdly, the low relative costs of training, which is associated with a small need for classrooms and teachers, as well as the absence of the need for the student to travel to the session (the tutor comes to the student himself). This is especially important for adults, whose tuition fees must also include lost wages. Fourth, high mobility. World experience shows that distance learning is less conservative in relation to the newly emerging areas of human activity than full-time. Replicating good textbooks is cheaper than professors.

And, finally, distance technology is as economical as possible in the student's free time. Mostly he studies at home (or at work) and does not even waste time on a trip to college. In addition, he can learn exactly at those moments of time when he is not loaded with other things, that is, at the least valuable time.

It is also clear that all these features of distance learning give an effect not only in themselves, but also in interaction, which allows us to speak of it as a qualitatively new form of education.

Recently, it has been marked by an interest in the theory of optimization of educational processes due to the widespread use of modern technologies in teaching, as well as high financial costs necessary in the implementation of quality education.

In educational systems, control is usually used based on the forecast of the state of the control object in the future. In the case of organizing distance learning at a university, there may

be an example of another university, where distance learning is already being used and is being used. Such management is associated with uncertainty and incompleteness of information. This management is implemented in the form of a constant and continuous stream of solutions.

Errors occurring during forward control are very difficult to identify and eliminate. An example is a situation when a higher educational institution implements and organizes distance learning, but the administration of this institution does not have clear clarity about distance learning itself, how it should work and be improved. It is impossible or very difficult to determine the degree of goal achievement, to distinguish right from wrong, if at least one of the goals of management is unfamiliar. Thus, the result of management has to be assessed by indirect indicators, which is very problematic. The subject of management is forced to act based on his experience, intuition and common sense, and the quality of management, its result will be visible only in the future.

There are mandatory elements of management activities when introducing distance learning into the educational process. First of all, these are the stages of its implementation and the types of management decisions taken. From the point of view of staging, we can distinguish:

1. Comparative-analytical stage, where the analysis of problems takes place, possible ways of their solution are identified. The administration of a higher educational institution makes a decision on the introduction of distance learning technologies into the educational process. This process can combine both traditional forms of education with the use of DL elements, and fully implement the educational process using DL technologies [10-12].

The stage of setting the problem. This stage is characterized by the isolation of the priorities of the activity. At this stage, the university management, as an experiment, creates a group of DL students in full-time or part-time studies for further comparison of academic indicators and the quality of the material learned with a similar group studying using traditional technologies.

The stage of making a management decision. Here, the technology and the sequence of solving the problem are considered and determined, the final and intermediate results are established. The intermediate result should be good performance of the experimental group, which is trained in DO. If, as a result of the experiment, good indicators are revealed, then this information can be brought to potential students using the media. As a result, it is possible to recruit new groups of students who should receive a quality education using already established technology.

Solution implementation phase. During this stage, specific activities are already taking place to implement the

management decision. From the point of view of the author, at this stage, it is advisable for the management of the university to select a permanent project manager for the implementation of DL. The project manager must provide a work plan for the implementation and implementation of DOs. (For example, one month after the launch of the project, computer classes and the number of computers should be determined, after 3 months, communication is fully established and the functioning of computer programs is checked, and after 5 months classes of the experimental group should begin).

The stage of evaluating the results. At this stage, the performance results are analyzed in comparison with the goals and objectives set at the first stage. That is, the results of the intermediate stages are monitored within the timeframes set by the curriculum and schedule. The leader of this project must, within a certain time frame, provide reports with comments on the results achieved.

From the point of view of the managerial tasks facing the university, the fulfillment of the task in terms of the level of education quality is understood as the ratio of the goal set for the educational institution and the result achieved by this institution in the educational process, i.e. the measure of achieving the goal.

This means that one should compare in a single coordinate system, i.e. in general terms, including financial:

- the goal set for the educational institution;
- the result achieved by this educational institution.

The above list of stages suggests that when building a management structure for distance learning, it is important that all stages are structurally provided and monitored in the process of management activities.

I would also like to note that management decisions directly depend on the type and nature of decisions made. That is, it is necessary to clearly understand the boundaries of their competence and the specifics of the organizational and managerial decisions taken by each division of the educational institution.

The problems of informatization can be solved by combining financial, scientific, educational, methodological and organizational approaches, the formation of which is an important part of the management of a higher educational institution.

The creation of an information and educational environment for the university, as well as the development of internal telecommunications facilities is an important step in the development of management issues. The information network is the basis of the modern information and educational environment of a higher educational institution. It is necessary for the implementation of the principles of informatization of higher education in practice, the development and improvement of information resources for general use.

This network provides:

organizational and managerial experience in the use of computer technologies, which in the future can be used to create more global information projects, for example, the organization of remote branches of a university. That is, conditions are being created for the introduction of modern IT - technologies in the main and main areas of activity of a higher educational institution;

remote access to resources via telecommunication networks based on uniform international standards. Thus, the internal efficiency of the educational institution increases thanks to modern technologies, when the teacher can have access to his resources regardless of his location;

improving the management and informatization of the main directions of the university's activities, when, along with the teaching staff and the administrative staff of the university, they have the ability to remotely access information resources; integration of information resources of a higher educational institution.

The development and improvement of the information environment must be carried out in the following areas:

Improvement of telecommunication means.

Increasing the information space of the university based on IT - technologies.

Development and provision of remote access to various databases (electronic libraries, regulatory documents, educational and administrative databases).

Introduction and development of modern methods of distance learning in higher education.

The priority areas in the process of creating the information environment of the university for the implementation of distance learning are:

development and approval of the introduction of educational and methodological material for training administrative and auxiliary personnel in information technology;

the use of effective means of computer training;

development and implementation of a modern technological base for the creation of training computer courses;

determination of the quality assessment of software and, if necessary, giving them commercial properties.

To implement these areas, it is necessary:

along with the further development, acquisition and implementation of training and monitoring programs, it is important to use electronic textbooks in the educational process;

when creating educational and methodological support of training courses, it is necessary to introduce hypertext multimedia technologies;

distribute teaching aids and literature in electronic form;

to create creative teams of developers, where it is necessary to

include programmers and methodologists, to make training programs and electronic textbooks commercially viable;

to introduce specialized tools and fillable shells for creating hypertext systems in order to reduce the preparation time and involve non-professional users in the development of computer training programs;

use large-scale educational television, expanding its capabilities through modern IT technologies;

it is necessary to organize a showroom in a higher educational institution, showing clearly the achievements in the field of modern information technologies for their use in the educational process during conferences and seminars.

In order to make the right decision on the development of educational programs, it is necessary to determine the purpose of the software being created. In accordance with this, it is necessary to select certain methods and forms of knowledge representation, methods of material presentation, knowledge control, etc.

Introducing DL into the educational process, the first thing the university administration is faced with is the choice of a strategy for its implementation. An educational institution needs to solve certain strategic problems in management.

A higher educational institution should think over the organization and management of the DL system in order to more flexibly use modern information technologies in accordance with the needs of any programs.

The higher educational institution must decide on the administrative, educational, technical goals and prospects for the development of DL.

The institution of higher education must develop its own model of interaction with other institutions. The chosen model should reflect potential relationships with schools, colleges, other universities, business, industry and other institutions in various countries and states.

When introducing new distance learning technologies, the second thing that the university administration faces is the choice of a distance learning model.

All DL models use different management technologies, as well as have their own degree of management and responsibility of the teacher and student. Some models are characterized by the fact that the educational institution fully manages the learning process, as in the case of a traditional learning system. Other models suggest that the management of learning is transferred to the trainees.

Three distance learning models are presented below. In our opinion, the decision to choose a particular model should be carried out at the analytical stage of managing the implementation of DOs. But one can immediately make a reservation that these models cannot reflect all possible approaches to DL. But despite this, they still reflect two specific cases of management of learning by the teacher and the management of the student himself.

Distributed classroom model - occurs when interactive telecommunications technologies extend a single classroom course to groups of students in different locations. The typical result is a blended class that brings together traditionally enrolled and distance students. The educational institution and the dean's office control their progress. Characteristics of this model:

classes include synchronous communication; students and teachers must be in a certain place at a certain time (at least once a week);

the number of participants varies from one to five or more; the greater the number of participants, the higher the technical, logical and cognitive complexity;

it is more convenient for students to organize their study place at home or at work than being in an educational institution;

educational institutions are able to serve a small number of students in one place or another;

mimicry and other non-verbal information that are important in the learning process elude students and teachers.

This is the most effective, but also the most difficult model for students, labor-intensive for teachers and costly for the university.

Self-study model - frees students from the need to be in a certain place at a certain time. Students are provided with a set of materials, including a course presentation and a detailed program, and have the opportunity to contact a methodologist or university teacher who provides guidance, answers questions and evaluates the work. Contact between the student and the methodologist is achieved through the use of telephone, computer conferences, e-mail and regular mail. The characteristics of this model are as follows:

classes are not held in the classroom: students study independently, following the detailed instructions of the program;

students interact remotely with a methodologist (tutor) and sometimes with other students;

presentation of the course content occurs through printed publications, computer disks or video recordings, which students can study at any convenient time;

course materials have been in use for several years and are usually the result of a structured development process involving course creators, experts, and learning environments specialists. These materials are common to all Methodists.

This model is the simplest for students and teachers, economical for the university, as it is standardized on electronic media and minimizes contacts with the teacher.

However, the knowledge control function suffers.

Open Learning + Class model - includes the use of printed course presentation and other means (for example, videotapes or computer disks) that allow the student to study the course at the most appropriate speed in combination with interactive telecommunication technologies to organize student communication within a distance group. Specifications: presentation of the course content occurs through printed publications, computer disks or video recordings, which students can study at any convenient time, individually or in a group;

course materials are used for more than one semester and are different for each teacher (for example, video recording of his lectures);

students periodically come together to conduct classes with the participation of the teacher. In this case, interactive technologies are used (in accordance with the distributed class model);

classroom classes are held so that students can discuss and clarify basic concepts, gain skills in problem solving, group work, laboratory work, modeling and other applied research.

It seems that this model makes it possible to combine the advantages of the two previous ones with significant savings in the costs of the university. Therefore, it is most suitable for the development of innovative distance learning technologies by the university at the expense of its own financial resources.

From the point of view of the author of the dissertation research, it is also necessary to consider the role of strategic management in the implementation of distance learning at a university.

The theory of strategic management is based on an important fundamental idea that is being implemented at the present stage by many leaders of successfully operating universities: the main role in the development of education is played not by internal strategies of the organization's development, but by external market strategies, i.e. action plans of the university in the educational services market. The main distinguishing feature that reflects the essence of this approach to strategic management is the need to shift the attention of the university administration to the external environment in order to respond in time to the changes taking place in it.

Thus, if you follow the concept of the life cycle of a product, the university must choose a growth strategy, since the traditional educational services provided by it are at the stage of saturation of demand, which will inevitably be followed by a stage of recession. Therefore, the university cannot associate its growth prospects only with these services, it must take care of the development of new types of services, which can become distance learning services, provided that information educational technologies are used in a high-quality manner.

Summarizing all of the above, distance learning at the present stage of development of the economy, science and technology is relevant and timely. The distance learning

system should not stay in one place. It is necessary to develop and improve it in various organizational directions, from the training system to the methods of control and motivation.

Conclusions

The distance education system consists of certain DL courses, which can be considered the structural elements of this system and to which very specific requirements must also be presented during their creation - to the content part, to the procedural part, etc. Then the requirements and approaches to the creation of a DL system should begin with the principles of creating its constituent courses.

In the "distance learning" system, we have identified three main components - the student with his educational needs; teacher, coordinating and directing the educational activities of the student; specific educational environment in which the learning process is carried out.

The successful functioning of the system is possible provided that the learner and the educator are ready to interact in a new environment.

Thus, for the implementation of the DL process at the present stage, it is important to train not only the staff, as mentioned above, but also the composition of potential consumers, if we are talking about the educational process at the university, i.e. students.

As practice shows, automatic effective activity of both the teacher and the student in this environment is impossible. Both sides of the participants in the educational process need to be prepared in a special way, because the environment has its own specific characteristics, due to the nature of its occurrence on the basis of telecommunications.

A student's readiness / unpreparedness for learning conditions in a new environment is manifested mainly in his skills / inability, the presence or absence of skills in working with computer technology, as well as in the psychological component necessary for effective interaction with peers and the teacher not face to face, as in face-to-face forms of communication, and at a distance, i.e. virtually.

The teacher's readiness for an active coordinating and guiding position in the virtual educational process will manifest itself in his qualifications (experience with computer technology), will require possession of special knowledge about the types of psychological communication in a virtual environment, his own psychological readiness for new forms of interaction and activity, etc.

Thus, the following can be attributed to the first and fundamental requirements for the development of the foundations for creating resources for the DL system. Providing special measures for preparing students for the implementation of educational activities in a specific educational environment.

Training of personnel capable of creating DL resources and competently accompanying the learning process.

On the basis of a systematic approach and in accordance with the peculiarities of the DL process, the development of requirements and principles regarding the means, forms, methods of teaching and the activities of educational participants that exist and are manifested in a specific educational environment.

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