

## **ANALYSIS OF THE USE OF DISTANCE LEARNING IN THE PROCESS OF STUDYING PROFESSIONAL DISCIPLINES**

*Abstract:* Distance learning can help make higher education more accessible to different groups of students, including those who work or live remotely from universities. This learning format requires teachers to rethink and adapt teaching methods to the virtual environment. Research into best practices in distance learning can help improve the quality of education. Evaluating the effectiveness of distance learning in the study of professional disciplines is key to ensuring the quality of education and understanding its impact on student achievement.

*Keywords:* distance education, professional disciplines, online learning, quality of education, information technology.

### **Introduction**

Thanks to the development of technology and the Internet, distance learning is becoming more accessible and effective. Additional opportunities for interactive learning, the use of virtual tools and the integration of artificial intelligence tools make distance learning attractive for higher education institutions. The main feature of distance education is that the higher education institution, which guarantees the quality of education in accordance with state educational standards, and students are spatially separated, but students and teachers are in constant interaction, organized through telecommunication technologies [1].

The COVID pandemic and the war in Ukraine have changed the way we learn, forcing educational institutions to move to distance learning. This has led to the need for research aimed at improving distance education and its impact on the education process in general and especially in professional disciplines. Distance learning can help make higher education more accessible to different groups of students, including those who work or live far from universities. This learning format requires teachers to rethink and adapt teaching methods to the virtual environment. Research into best practices in distance learning can help improve the quality of education.

### **The main part**

Among the main trends in the development of modern education is the fact that due to the large volume of curricula, students of higher education institutions need to study a fairly significant part of the educational material on their own in order to successfully master the disciplines. In the case of full-time education, self-study currently accounts for at least 45% of the entire educational process, and the amount of self-study is growing every year. Students use

various resources for independent study of academic disciplines: printed publications, materials from libraries or purchased in bookstores, and Internet resources. At the same time, with the development of modern science, a student who uses printed resources (books, textbooks, manuals) for independent study always faces the problem of the relevance of the information in the selected material. In addition, obtaining the necessary material from books and manuals requires quite a lot of time, and in the modern learning process this problem is quite critical.

At the same time, the student takes an active part in the educational process, which entails greater efficiency of learning, as well as more economical use of the student's time, since the learning process takes place in a convenient place, at a convenient time and in a more efficient way. The student does not need to be present in the university classroom during the hours clearly defined by the schedule [2]. In distance learning, it is very important to understand that, as in any other educational system, there is interaction between teachers and students, as well as between students and each other. This interaction takes place with the use of various information and communication technologies, for example, traditional printed learning tools (textbooks) are used to familiarize students with new learning material, e-mail is used to ensure communication between teachers and students (sending assignments and completed work, individual consultations) [3].

In distance learning, it is difficult to manage the educational process manually, as it is in traditional (face-to-face) education. The remoteness of the student from the teacher and the asynchronous nature of their communication, the availability of new forms of presenting educational information, organizing independent work and testing are the main factors that complicate the usual forms of maintaining educational documentation and administering the educational process [1].

Existing developments in the field of distance education theory are fragmentary, often loosely connected with general pedagogical theories, which is largely due to the fact that the initiators and implementers of distance education developments are mostly specialists with technical education. This is due to the fact that the technical backwardness and information basis of distance learning are the means of new information technologies, which can be evaluated and used in the education system at this stage to a greater extent by a specialist with engineering education [4].

An analysis of modern pedagogical theories has led to the conclusion that the theory of personality-based education can become the pedagogical and methodological basis for distance learning.

Distance learning can be aimed at both systematic training (certified training, advanced training, retraining) and open education (raising the general level of education and culture of the population, dissemination of scientific knowledge) [5]:

1. Flexibility

2. Modularity
3. Cost-effectiveness
4. The new role of the teacher
5. Specialized forms of control
6. Use of specialized technologies

The success and quality of distance education largely depend on the effective organization and quality of the materials used, as well as on the management of the process and the qualifications of the teachers involved. Distance education requires careful and detailed planning of students' activities, a clear definition of learning goals and objectives, and the organization of the delivery of the necessary learning materials.

It is necessary to ensure the maximum possible interaction between the student and the teacher, feedback between the student and the learning material, provide opportunities for group communication and provide highly effective feedback so that students are confident in the correctness of their progress from ignorance to knowledge [6].

Evaluating the effectiveness of distance learning in the study of professional disciplines is key to ensuring the quality of education and understanding its impact on students' academic achievement. Thus, this study on the topic is extremely relevant, as it aims to address a number of important issues in the field of education, which is undergoing transformation in the context of the modern world.

**The purpose of** the study was to determine the level of effectiveness of distance learning in the process of studying professional disciplines, which was carried out according to the author's questionnaire, using the results of research and recommendations of scientists.

To form the stages of the research and experimental work, well-known approaches to the development of a questionnaire were used to identify the effectiveness of distance learning in the process of studying professional disciplines, the peculiarities of changes in the roles of the teacher in the educational process of distance learning and the technology of distance learning.

In the course of the study, the following was done:

1. Study and analysis of the theoretical basis of the study; determination of the essence of the main definitions of the distance learning process, the necessary competencies, awareness of the need to organize distance learning.
2. Determination of types, criteria and indicators of the effectiveness of the educational process in distance learning.

The author's questionnaire was developed and the necessary data was collected from students. The experiment involved 4th year students of Igor Sikorsky Kyiv Polytechnic Institute, a total of 85 students.

#### **Analysis of the results**

1. According to the survey, 14.3% of students said that they assess the overall effectiveness of professional disciplines in online learning at the university as "very effective", 66.7% - "effective", 19% - "not very effective".

2. Quality of teaching of professional disciplines in online learning: 15.9% of students are very satisfied with the quality of teaching of professional disciplines in online learning at the university, 60.3% are satisfied, 23.8% have no opinion.

3. The type of distance learning that satisfies the most when studying professional disciplines is online classes with a teacher (regardless of schedule or additional classes) - 27%, 22.2% prefer video recordings of educational content and independent study of tasks, 47.6% - independent study of educational materials with periodic consultations with a teacher, 3.2% - independent study of materials and additional literature.

4. The educational content is sufficient for theoretical preparation and assignments: 28.6% of students agree, 55.6% - the content is mostly enough for theoretical preparation and practical tasks, 11.1% - there is not enough content for practical tasks, 3.8% - there is not enough content for theoretical preparation, 0.9% - there is little / not enough content.

5. Assessment of practical work: 30.2% of students indicated that they most often receive "excellent" (A) for practical work, 41.3% - very good (B), 23.8% - good (C), 3% - satisfactory (D). 1.7% - sufficient ("E").

6. Teachers are ready to explain the assignment they give for processing or answer questions related to its implementation: 38.1% of students agreed, 58.7% believe that they are mostly ready, 3.2% - rarely.

7. The reasons that prevent students from mastering the disciplines of their specialty are shown in Fig. 1.

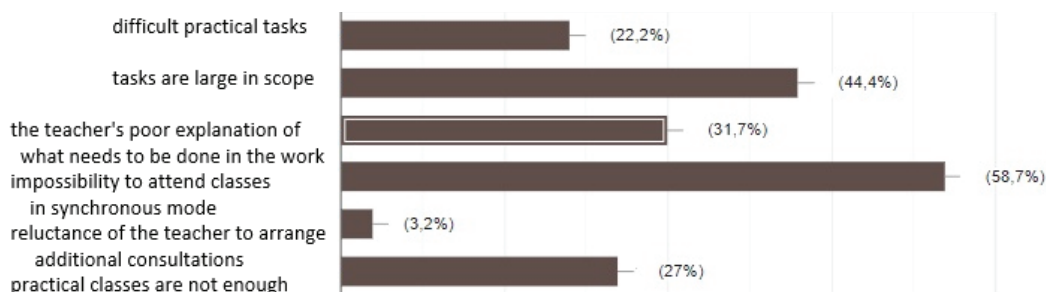


Fig. 1. The reasons that prevent students from mastering the disciplines of their specialty

8. The options for checking / crediting practical work are most often provided by teachers: 63.5% of students chose to upload a report on the performance to the learning platform for verification by the teacher, 11.1% - noted that the work should be demonstrated in video communication and explained, 25.4% - both options.

9. Advantages of online learning: security and convenience are at the top of the list (about 21%). Other options are: the ability to work, no need to go to university, flexible schedule.

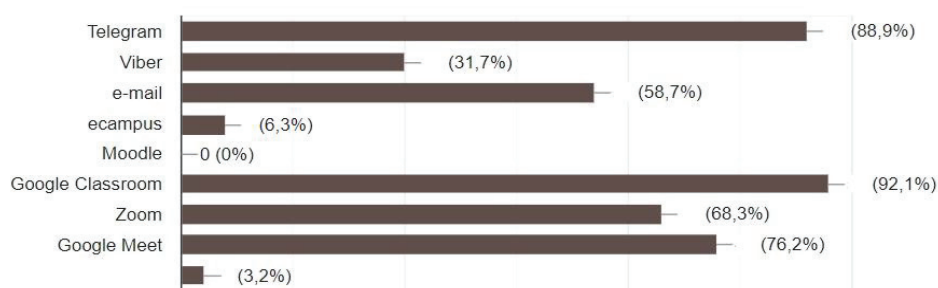
10. 11.3% of students participated in online classes almost every day/every day during the last month, 37.7% - 2-3 days a week, 22.6% - once a week, 24.5% - less than once a week, 3.9% - did not attend online classes.

11. From 01.09.2022 to the present day, 17% of students participated in online classes almost every day, 41.5% - 2-3 times a week, 22.6% - less than once a week, 17% - once a month, 1.9% - did not attend online classes.

12. 22.6% of students rated communication with teachers of professional disciplines in online learning as very good, 56.6% - good, 18.9% - average, 1.9% - no communication.

13. Teachers of professional disciplines have knowledge of distance learning tools: 18.9% very well, 66% - well, 15.1% - average.

14. Answers to the question of what means of communication and learning are used by teachers of professional disciplines are shown in Fig. 2.



*Fig. 2.* Answers to the question of what means of communication and learning are used by teachers of professional disciplines are shown

15. 37.7% of students agreed with the statement that online learning prepares students for future educational and professional opportunities to a sufficient level, 22.6% disagreed, and 39.6% were undecided.

16. The materials provided by teachers in online learning correspond to current topics and trends: 45.3% of students agreed, 18.9% disagreed, and 36.8% were undecided.

### Conclusions

The following areas of improvement of the use of distance learning in the process of studying professional disciplines should be highlighted:

1. Consider the possibility of adjusting the curriculum and work program, which provides for an emphasis on the development of new educational material. The educational material should primarily contain topics that are mandatory in accordance with the state educational standard. It is recommended to organize the presentation of new material in an accessible form using modern methods and techniques that allow to master such material in the shortest possible time in a remote form (infographics, video fragments, interactive tasks, visualization).

2. Minimize the number of educational services and platforms used by one teacher, as well as video conferencing systems for online interaction with students. It is preferable to use a single means of online interaction within one group. If the teacher uses specialized electronic resources in addition to the main ones to study the practical part of the subject, inform in advance about the specifics of the lesson or the formation of an electronic case.

3. To use the content of educational resources provided only on a free of charge basis when organizing the distance learning process during the period of restrictive measures.

4. Plan the volume of tasks taking into account the total time spent by students on their implementation in accordance with the schedule.

5. Use the format of creative assignments, home experiments, short-term projects and other types of homework aimed at the practical part of the subject and maintaining interest in learning. Such tasks can be assigned to the whole group or be individualized, taking into account the capabilities of the student.

6. Use the opportunities of students' project activities. The project proposed for development can be of an interdisciplinary nature and be carried out during the rest of the current academic year. Achievements based on the results of work on the project or its stages, individual types of work can be used as part of the current control of progress.

7. In order to reduce the burden on students and teachers, widely use integrated (interdisciplinary, interdisciplinary) classes, including online classes for the entire parallel (if technically possible).

## REFERENCES

1. Bykov V. Y. Cloud computing technologies, ICT outsourcing and new functions of ICT departments of educational institutions and scientific institutions. Information technologies in education. 2011. № 10. С. 18-23.

2. Distance learning. Terms of application. Distance learning course. Kharkiv: NTU "KhPI", "Torsing", 2002. 320 с.

3. Yelnikova G. V. Distance learning of skilled workers as a problem of professional pedagogy. Professional education: problems and prospects. 2013. №5. С. 7-12.

4. On Approval of the Requirements for Higher Education Institutions and Institutions of Postgraduate Education, Scientific, Educational and Research Institutions Providing Educational Services in Distance Learning for Training and Professional Development of Specialists in Accredited Areas and Specialties Order of the Ministry of Education and Science. URL: <http://zakon0.rada.gov.ua/laws/show/z1857-13>. (accessed: 09/18/2023).

5. Morze N. V. Methodological features of webinars as an innovative teaching technology. URL: [http://archive.nbuv.gov.ua/portal/soc\\_gum/itvo/2010\\_5/4.pdf](http://archive.nbuv.gov.ua/portal/soc_gum/itvo/2010_5/4.pdf). (accessed on 09/18/2023).

6. Kademia M. Innovative teaching technologies: a glossary. Luhansk: LSU BZHD, 2011. 156 с.