CHALLENGES AND PROSPECTS OF THE DEVELOPMENT OF DISTANCE LEARNING AT THE UNIVERSITY DURING THE COVID-19 PANDEMIC

ВИКЛИКИ ТА ПЕРСПЕКТИВИ РОЗВИТКУ ДИСТАНЦІЙНОГО НАВЧАННЯ У ВУЗІ В УМОВАХ ПАНДЕМІЇ

Shalova N.S.,
Senior lecturer at the Department
of English for Engineering № 2
National Technical University of Ukraine
"Igor Sikorsky Kyiv Polytechnic Institute"
Stavytska I.V.,
PhD,
Associate Professor at the Department
of English for Engineering № 2
National Technical University of Ukraine
"Igor Sikorsky Kyiv Polytechnic Institute"
Korbut O.H.,
Senior lecturer at the Department
of English for Engineering № 2
National Technical University of Ukraine
"Igor Sikorsky Kyiv Polytechnic Institute"

Modern society is not possible without the use of information and communication technologies, which have been closely integrated into many areas of our life, including education. A feature of the modern stage of informatization of higher education is that the training of an information-literate specialist at the university is a priority direction. The rapid introduction of information technologies into all spheres of life in modern society requires the development of a new model of society and a system of higher education based on information and communication technologies. It is believed that higher education corresponds to modern trends in world development and quickly adapts to current and future challenges of the modern world, if modern electronic information resources, multimedia and network technologies are widely used in the educational process. The quality and availability of education have a significant impact on income, employment, development, health and socialization. The transition to distance learning in the context of the COVID-19 pandemic has led to a deterioration in the quality and accessibility of education, as well as many other educational problems. The advantages and disadvantages of distance learning in higher education and methods of improving the tools of online learning within a pandemic are analyzed in the paper. The following trends in the development of vocational education: digitalization of vocational education and standardization of vocational education are considered. The introduction of distance learning methods and changes in the organization of the educational process at the university are described, taking into account current challenges related to quarantine restrictions. It is determined that the introduced technologies are not only a compelled measure in response to temporary restrictions, but can also serve as an impetus for further improvement of educational activities. The risks and prospects of distance learning at the university within a pandemic are demonstrated.
Key words: *distance learning, online technologies, educational process. quarantine, self-study.*

Сучасне суспільство не можливе без використанням інформаційно-комунікаційних технологій, які тісно інтегрувались у багато сфер нашого життя, зокрема в освіту. Особливістю сучасного етапу інформатизації вищої освіти є те, що підготовка інформаційно грамотного спеціаліста у ВНЗ є пріоритетним напрямом. Швидке впровадження інформаційних технологій в усі сфери життя сучасного суспільства потребує розробки нової моделі суспільства та системи вищої освіти, яка базується на основі інформаційно-комунікаційних технологій. Вважають, що вища освіта відповідає сучасним тенденціям світового розвитку та швидко адаптується до актуальних і майбутніх викликів сучасного світу, якщо широко використовуються сучасні електронні інформаційні ресурси, мультимедійні та мережеві технології в освітньому процесі. Якість і доступність освіти мають істотний вплив на дохід, зайнятість, розвиток, здоров'я та соціалізацію. Перехід на дистанційне навчання в умовах пандемії COVID-19 став причиною погіршення якості та доступності освіти, а також виникло багато інших освітніх проблем. У статті проаналізовано переваги та недоліки дистанційного навчання у вузі та методи вдосконалення інструментів ефективності онлайн-навчання в умовах пандемії. Розглянуто такі тренди розвитку професійно-технічної освіти: цифровізація професійно-технічної освіти та стандартизація професійно-технічної освіти. Описано впровадження методики дистанційного навчання та зміна організації освітнього процесу в університеті, враховуючи сучасні виклики, пов'язані із карантинними обмеженнями. Визначено, що впроваджені технології, є не лише вимушеним заходом у відповідь на тимчасові обмеження, а й можуть слугувати поштовхом до подальшого вдосконалення освітньої діяльності. Продемонстровано, ризики та переспективи розвитку дистанційного навчання у вузі в умовах пандемії.
Ключові слова: *дистанційне навчання, онлайн-технології, освітній процес, карантин, самостійне навчання.*

Formulation of the problem in general. Educational reform, a paradigm change in quality assurance and student-centeredness, and quarantine restrictions related to the coronavirus pandemic (COVID-19) have enlarged the need for new approaches to learning, the widespread adoption of online technologies, and fundamental changes in methodological approaches that would provide an effective combination of direct and indirect types of interaction between students and teachers. This fact has become a challenge for many higher education institutions, including NTUU "Igor Sikorsky Kyiv Polytechnic Institute".

The COVID-19 pandemic has challenged university education around the world. It transformed pedagogical activity and intensified innovative processes in the organization of education, forced to look for alternative models of cooperation between teachers and students, made distance learning to be the main educational mode. There was a replacement of interactive, personality-oriented traditional classroom learning, in which the teacher had more opportunities to explain the incomprehensible things and get a face-to-face reaction from students, to online education with maximum use of the Internet (involving various web servers, platforms, resources and social networks) [8; p. 318].

Analysis of recent research. Ukrainian scientist V.Yu. Bykov notes that distance learning technologies

are the most modern promising technologies for learning and have a decisive influence on the nature and pace of digitalization of the education system [1, p. 78]. B.M. Kukharenko agrees that distance learning is the interaction of teachers and students remotely that includes all components of the educational process via specific means of Internet technology [4, p. 23]. N.V. Morse defines information technology as a set of methods, tools and techniques used by people to implement a particular complex process by dividing it into a system of consistent interconnected procedures and operations [6, p. 28]. Klokar N. highlights the methodological foundations of the introduction of distance learning in the system of advanced training [3, p. 38]. V. Radkevych, analyzing trends in the development of vocational education, points out that the main ones are: digitalization of vocational education; standardization of vocational education [5, p. 331]. It is worth noting the important contribution made by G. Ramble in the development of theory and methodology for assessing the quality of distance education systems [9, p. 5].

Highlighting previously unresolved parts of the overall problem. In connection with the pandemic, there has been an urgent need to create new approaches to learning, wide integration and implementation of online technologies, and the use of new learning methods that would be aimed at effective interaction between students and teachers.

The purpose of the article is to reveal the transition to distance learning, noting its features and forms and methods, to identify problems and prospects for the development of distance learning in Ukrainian universities within a pandemic.

Presenting main material. It is worth remembering that today distance learning in Ukraine can be fully developed only including the following main components: regulatory framework; contingent of students; qualified teachers; training programs and courses; appropriate material and technical base (hardware and software, high-speed communication lines); financial support; developing quality criteria [2].

The quality and accessibility of education have a direct impact on income, employment, development, health and socialization. After a long period of distance learning and summer vacation, a new school year has begun. And the COVID-19 pandemic is still going on. The transition to distance learning within the COVID-19 pandemic has led to a deterioration in quality and accessibility of education and a number of educational problems as well.

Distance learning involves the organization of the educational process, when the student studies independently according to the program developed by the teacher remotely, but can be engaged in dialogue with them through telecommunications, corporate mail, etc. [7, p. 124]. Conducting classes synchronously combining them with an asynchronous learning system allows

the use of the so-called blended system of distance education, the elements of which complement each other, creating a favorable educational space for higher education. Distance learning gives students the opportunity to access teaching materials around the clock, constant support and advice from lecturers and tutors, online video lectures, virtual simulators and other technological solutions to ensure an effective learning process [11].

The effectiveness of self-study, more than other forms of education, depends on the ways of providing educational materials, monitoring work and contact with the teacher. Therefore, first of all, the development of this type of education was due to the introduction of the latest information technologies and means of communication. An important structural element of distance learning is the training of graduates who must have a high level of educational self-motivation, persistent, purposeful – and, therefore, have a basic level of education and skills of independent work. Preparatory work with students was conducted in the deans' offices of the respective faculties, the peculiarities of the mixed type of distance learning were pointed out, special attention was paid to the means of communication.

Teachers in Ukraine began introducing distance learning technologies, including blended learning, not so many years ago. At NTUU "Igor Sikorsky Kyiv Polytechnic Institute" effective distance learning has been created and is well established to reveal the potential of the student, taking into account both individual and universal needs. Therefore, the process of developing qualitative free educational space and training of teachers as specialists in their specialty, as well as in the field of information technology is extremely important. Since 2000, the Ukrainian Center for Distance Learning at NTUU "Igor Sikorsky Kyiv Polytechnic Institute" has been operating.

Blended learning is currently one of the promising areas of using information and communication technologies (ICT) in education. Thus, blended learning can be considered a kind of distance learning or its continuation, the main difference lies in the obligatory "live" communication of students with each other and with the teacher. Within blended learning, there are both face-to-face and distance technologies in a certain proportion, which allows you to use the advantages of both types of education, eliminating almost all of their disadvantages. An increasing number of people are striving to get an education with minimal time losses, as the fast pace of life leaves less and less time for learning in classrooms [10, p. 343].

According to scientists, the psychological and pedagogical problem is becoming important in modern conditions. It is due to the fact that each teachers have been refining their methodological materials for several years of work, which are developed individually on the basis of their own pedagogical and scientific and methodological experience and are their intellectual property. The distance course is set in

Distance Learning System "Moodle" or other video hosting, which makes it public not only for students but also for other users [1, p. 78].

Considering the quarantine restrictions and short deadlines, the most important elements of the organization of a mixed type of distance learning are the material and technical base and financial support. These two components in combination with the trained graduates and teaching staff create a holistic base of qualitative organization of educational process during the pandemic.

According to the study, 86% of Ukrainian teachers did not have significant experience in using online education tools, so universities provided teachers with skills to use these tools, create or transfer courses online and organize learning by issuing instructions, creating channels on YouTube, Telegram, Facebook groups, instructions for designing syllabus courses for blended learning, etc. But an important problem was the increasing workload on teachers, in particular, additional time to master the skills of using digital technologies in education, developing or transferring their courses to distance education systems, their regular updating, supplementation and communication with students. Yes, it should be noted that the time spent on communication with students has increased, since explaining the task in writing (or adding a description to the online course) is longer than in the classroom, as well as possible additional individual questions from students, and correspondence with them also expands working hours of teachers. In addition, the reason for irregular working hours was the need to develop classes in a new format and find additional materials. At the same time, some universities maintained a mixed format of education, thus, along with working online teachers had to work in the classrooms as well.

One of the main goals of the study is the determination of differences between the distance and "classroom" learning. This research includes monitoring teachers' and students' opinion on organized distance learning, which was given by the lecturers of the NTUU" Igor Sykorsky KPI" before the quarantine of 2020 through preventive measures against spread of the COVID-19.

Peculiarities and benefits of distance learning. Today, dozens of Ukrainian universities offer distance education which has a number of features and advantages over traditional types of education (full-time and part-time):

– continuity of education or ability to study any time according to an individual schedule;

– accessibility of educational resources for mass involvement of all segments of the population in the educational process;

– cost-effectiveness or providing quality training based on minimal financial costs and energy costs;

– mobility or the opportunity to study at another faculty in parallel or study by correspondence.

During quarantine the flexibility and extensive tools of distance education allow the use of its technologies in off-line learning (testing, monitoring the level of skills acquisition), in combination with distance learning (online tutorial instructions, teleconferences), and as well as a separate type of training organization (web course, training). Using the latest tools, all necessary learning resources (textbooks, manuals, teaching materials, pedagogical software, etc.) are stored in a single cloud accessible storage.

Disadvantages of distance learning. However, the use of distance learning has some disadvantages that need to be eliminated in one way or another, if it is possible:

– errors in access to remote resources which can lead to loss or damage of data;

– complexity of monitoring the independence of task performance;

– the complexity of motivation and control over the timeliness of tasks through the allocation of most of the educational material for self-study;

It should also be noted that the following communication restrictions should be taken into account in distance learning:

– a certain isolation of the student in the virtual academic group;

– restrictions that hinder the development of group communication, group unity;

– technical means of group communication activities of the teacher and the student create an artificial and defective, in the traditional sense, communicative space;

– difficulty in summarizing and concisely arguing one's position during the learning process, especially in chats and videoconferences.

Conclusion. The use of distance learning as the main type of education during quarantine has shown to general public its advantages and disadvantages. It should be noted that in general, distance learning, despite its novelty for most subjects, has been able to replace traditional learning at the university effectively. In our opinion, distance learning in the future will not be able to substitute the conventional off-line education completely, but its benefits should continue to be used in traditional learning, because it has proven its pedagogical effectiveness. However, it should be noted that training in recent months has shown the unwillingness of educational institutions to conduct mass distance learning, lack of a unified systematic approach to its technical and educational support, lack of electronic textbooks and materials, limited educational platforms for training, ignorance of many educators, inability to work remotely. Thus, we can predict certain trends in distance learning, such as increasing the number of mass open distance learning courses, developing distance learning programs, integrating ICT into the distance learning process, combining the benefits of distance learning with

classical education, monitoring the achievements of higher education not only in Ukraine, but all over the world and further use of this experience.

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