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ЦИФРОВІ ФОРМАТИ ЗАСТОСУВАННЯ ТЕХНОЛОГІЙ ЗМІШАНОГО НАВЧАННЯ В ОСВІТНЬОМУ ПРОЦЕСІ ЗАКЛАДІВ ВИЩОЇ ОСВІТИ

Анотація. Стаття присвячена дослідженню потенціалу цифрового формату застосування інноваційних технологій змішаного навчання в освітньому процесі сучасних закладів вищої освіти.

Автори на основі проведеного контент-аналізу наукової літератури, вивчення практичного досвіду діяльності викладачів закладів вищої освіти, розкривають специфіку реалізації провідних ідей технологій змішаного навчання в сучасному освітньому просторі закладу освіти.



Основне завдання дослідження полягає у теоретичному аналізі сутності проблеми та визначенні особливостей впровадження змішаного навчання в освітній процес закладів вищої освіти.

У процесі роботи над дослідженням окресленої проблеми використовувався комплекс загальнонаукових методів дослідження. Теоретичні методи сприяли узагальненню та аналізу психолого-педагогічної літератури, нормативно-правової бази, визначенню ключових аспектів проблеми.

Застосування емпіричних методів наукового пізнання дало можливість оптимально застосувати методи збирання науково-дослідницького матеріалу (анкетування студентів, опитування викладачів, опрацювання нормативно-правової бази), бесіди з викладачами закладів вищої освіти щодо їхньої готовності до реалізації ідей, форм та моделей технологій змішаного навчання в освітній процес.

У статті наголошується, що сучасна система освіти повинна орієнтуватися на технології, які формують у здобувачів освіти вміння вчитися впродовж життя, оперувати й управляти інформацією, швидко приймати рішення, пристосовуватись до потреб ринку праці. Наголошується, що за традиційних форм та методів навчання здобувачі освіти, отримують інформацію пасивно, не вміють самостійно її здобувати та застосовувати у практичній діяльності.

Вказується, що змішане навчання як інструмент модернізації сучасної освіти на практиці характеризує технології, які поєднали нові педагогічні методики, що базуються на інтеграції традиційних підходів до організації освітнього процесу та технологій цифрового навчання.

Дослідники наголошують, що технології змішаного навчання виступають оптимальним інструментом цифровізації освіти, який можна розглядати як варіант оптимізації освітнього процесу в умовах воєнного стану.

Ключові слова: цифровий формат навчання, технології, змішане навчання, освітній процес, здобувачі освіти.

DIGITAL FORMATS APPLICATION OF BLENDED LEARNING TECHNOLOGIES IN THE EDUCATIONAL PROCESS OF HIGHER EDUCATION INSTITUTIONS

Abstract. The article is devoted to the study of the potential of the digital format of using innovative technologies of blended learning in the educational process of modern institutions of higher education.

Based on the content analysis of the scientific literature, the study of the practical experience of the teachers of higher education institutions, the authors reveal the specifics of the implementation of the leading ideas of mixed learning technologies in the modern educational space of the educational institution.

The main task of the research is the theoretical analysis of the essence of the problem and the determination of the features of the implementation of blended learning in the educational process of higher education institutions.

In the process of working on the research of the outlined problem, a set of general scientific research methods was used. Theoretical methods contributed to the generalization and analysis of psychological and pedagogical literature, the regulatory and legal framework, and the definition of key aspects of the problem. The application of empirical methods of scientific knowledge made it possible to optimally apply the methods of collecting research material (student questionnaires, teacher surveys, elaboration of the legal framework), conversations with teachers of higher education institutions regarding their readiness to implement ideas, forms and models of blended learning technologies in education process.

The article emphasizes that the modern education system should focus on technologies that form the ability of students to learn throughout life, to operate and manage information, to make quick decisions, and to adapt to the needs of the labor market. It is emphasized that according to traditional forms and methods of education, students receive information passively, they do not know how to independently acquire it and apply it in practical activities. It is indicated that blended learning as a tool for modernizing modern education in practice characterizes technologies that combine new pedagogical methods based on the integration of traditional approaches to the organization of the educational process and digital learning technologies. Researchers emphasize that blended learning technologies are an optimal tool for digitalization of education, which can be considered as an option for optimizing the educational process in the conditions of martial law.

Keywords: digital format of education, technologies, blended learning, educational process, education seekers.

INTRODUCTION

The problem formulation. The coronavirus pandemic and the full-scale war against our country have significantly limited the ability of education applicants to physically attend educational institutions and thus pushed educators to find new forms and effective formats of organizing education. And if during the COVID pandemic the main task was to limit physical contact in order to minimize the spread of the virus, then in the conditions of war, teachers are faced with the task of making the educational process safe without losing its quality.

The forced transition of the education system to distance learning has become a quite serious test and challenge for all parties of the educational process. Teachers and education applicants had to master innovative digital resources and adaptive educational digital technologies in a fairly short period of time. It is also necessary to develop their own digital competencies and communication skills in a short time and to form on their basis digital culture and information literacy, which is one of the leading competencies of a person of the 21st century.

Under certain conditions, distance learning with innovative blended learning technologies is recognized as one of the priority directions for modernizing the educational process in modern educational institutions. And the years of the pandemic and the conditions of martial law accelerated and determined the irreversibility of the changes that were brewing in the system of both school and higher education. The established competencies, developed tools and selected resources for organizing the educational process in a blended format do not lose their popularity beyond certain limitations and social challenges.



The rapid increase in the amount of information and the development of digital technologies are often assessed as challenges by the scientific community, the media, and society as a whole. However, their development has expanded and changed the modern educational space, providing teachers with new opportunities to apply them at all levels of education to solve a variety of pedagogical tasks.

RESEARCH AIM AND TASKS

The aim of the article is to reveal the specifics of the implementation of the ideas of blended learning technology in the modern educational space of an educational institution based on the content analysis of scientific literature, studying the practical experience of teachers of higher education institutions.

RESEARCH METHODS

Research methods: a set of general scientific research methods was used to organize the study. Theoretical: contributed to the generalization and analysis of psychological and pedagogical literature, regulatory framework, which helped to identify key aspects of the problem; empirical: methods of collecting research material (questionnaire of students, surveys of teachers, study of the regulatory framework), interviews with teachers of higher education institutions concerning their readiness to implement ideas, forms and models of blended learning technologies in the educational process.

Analysis of scientific research. The theoretical aspect of the introduction of blended learning into the educational process is reflected in the works of V. Kukharenko, O. Rafalska, N. Rashevskaya, O. Spirin, Y. Tryus, and others. The problem of blended learning and the methodology for implementing blended learning are presented in the works of A. Andreev, V. Bykov, N. Korsunskaya, O. Tykhomyrov, E. Toffler and others.

At the end of the twentieth century, a number of foreign scholars (C. Bonk, C. Greikham, M. Khorn, H. Stucker, S. Laster, G. Otte, S. Zorg, etc.) worked on expanding the essence of the concept of "blended learning".

RESULTS OF THE RESEARCH

The introduction of martial law in Ukraine on February 24, 2022, as a result of Russia's military aggression, made it impossible to organize the educational process in the traditional face-to-face format in both general secondary education and higher education institutions, and in accordance with the requirements set out in Article 571 «State guarantees in the conditions of martial law, emergency or state of emergency» of the Law of Ukraine «On Education» (2022, as amended), higher education institutions switched to distance form of education applying blended learning technologies, which, as noted above, is «the safest for its participants» (Law of Ukraine «On Education», 2022, as amended).

Blended Learning is the original name of the concept of «blended learning». It was first introduced into the scientific practice of corporate and higher education by the American Interactive Learning Center in 1999, when it began producing software intended for teaching involving Internet resources. As for the direct interpretation of the verb "blend," there is no unanimity among scholars working on this issue.

To date, several approaches to the interpretation of the essence of blended learning have been distinguished in Ukrainian and foreign scientific literature. For example, E. Smyrnova-Trybulska calls it «hybrid», J. Moonen – «flexible», N. Rashevskaya – «mixed», and B. Shunevych – «combined learning» (Stryuk A., 2015).



Figure 1. Approaches to interpreting the essence of blended learning

The innovations that are being implemented today in the process of mastering academic disciplines in higher education institutions include the use of various learning models and technologies.

In particular, when teaching professional disciplines, teachers, methodologists and pedagogical staff describe the concepts, analyze the advantages and disadvantages of the proposed systems, share their experience of introducing blended learning technologies into the educational process through the prism of such innovative types of learning as: learning in a virtual classroom using massive open online courses, with options for combining synchronous and asynchronous learning formats, self-directed learning, cloud-based and mobile learning, gamified learning, digital storytelling, cooperative learning, project learning, etc.



The modern education system should focus on technologies that develop education applicants' ability to learn, process and manage information, make quick decisions, and adapt to the requirements of the labor market. As practice shows, traditional forms and methods of education teach students passively, without being able to acquire information on their own and apply it in practice.

That is why today one of the priorities of the state, as set forth in the Law of Ukraine «On the National Informatization Program», is the development of modern information technologies in all spheres of public life for the purpose of increasing production efficiency, creating a nationwide network of information support for the life of the state, forming a system of national information resources, and integration of Ukraine into the global information space. The national program of informatization determines the specifics of the implementation of state policy in the field of informatization to meet the needs and development of the information society, the introduction of information, communication and digital technologies (Law of Ukraine «On the National Informatization Program», 2022).

The technology of blended learning has no specific authorship and was formed mostly spontaneously, as a result of numerous attempts to change the existing methods and forms of organizing the educational process. This spontaneity and multifactorial nature of blended learning development causes difficulties in its thorough analysis.

In 2006, the first fairly precise definition of blended learning appeared in the article Bonk, C., & Graham, C. «Handbook of Blended Learning», which reflects its main features: "Blended learning is a learning system based on a combination of face-to-face learning and learning through various computer tools» (Bonk, C. J., & Graham, C. R., 2012).

In our opinion, it is interesting to define blended learning as «a formal education technology according to which an education applicant learns one part of the material online, partially independently managing his/her time, place, way and pace of learning, and the other part of the material is studied in the classroom together with the teacher» (Bonk, C. J., & Graham, C. R., 2012). At the same time, all activities during the study of a particular subject are logically interconnected and, as a result, the student acquires relevant competencies and gains a holistic practice-oriented learning experience.

The technology of blended learning is based on the involvement of Internet resources in the educational process in order to ensure the personalization of learning, which includes control of applicants for education by time, place, program and pace of their learning. Let's elaborate on the characteristics of these elements:

- **TIME:** the educational process is no longer limited to one lecture or practical lesson, day of study or academic semester.
- **PLACE:** the educational process goes beyond the classroom or even the educational institution.
- **PROGRAM:** The educational process becomes more adaptive and personalized, involving the use of those methods and learning materials that best meet the cognitive needs of students.
- **TEMP:** variations in the speed of completing tasks are allowed; students work at their own pace, spending as much time as necessary to develop certain skills and abilities and fully master the material.

For a better understanding of the specifics of blended learning technologies, it is worth highlighting the following main components of blended learning technologies:

- face-to-face learning (traditional classroom format with a form of teacher/student interaction)
- digital learning (online work of a student and a teacher using the latest computer technologies) (Tsyunyak O., Rozlutska G., 2021).

The outlined components function in a constant interconnection, forming a single whole, which gives grounds to assert that blended learning technology is a holistic system the components of which interact harmoniously under the condition of the competent methodological organization.

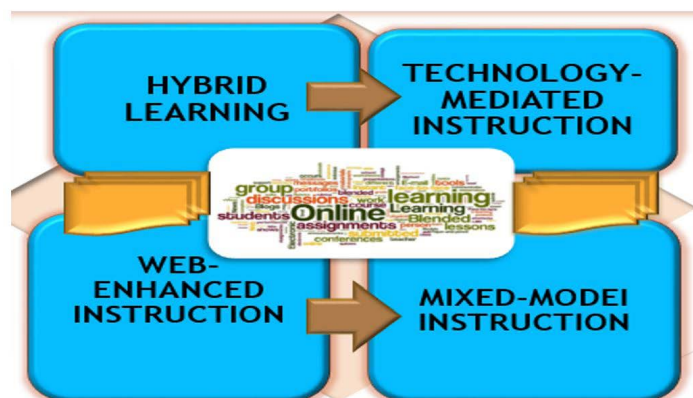


Figure 2. Types of blended learning technology

In general terms, blended learning is an innovative learning technology in which part of the cognitive activity of students takes place in the classroom under the direct guidance of a teacher, and the other part takes place outside the pedagogical process, and is carried out independently when working with relevant digital resources, electronic and media learning tools.

Usually, experts understand blended learning technologies as a hybrid form of education, which is defined as a cross between online and offline formats. Blended learning technology is not a universal tool for learning activities, but it can be



considered as Blended learning technologies offer several options for «mixing educational forms» and types of learning for the modern educational process. These include:

- the process of combining full-time and distance learning;
- combining different learning formats within one group (based on face-to-face learning with the use of distance learning technologies and various forms of work with electronic resources, online courses, etc.)
- a combination of independent learning and cooperation in the classroom;
- mixing basic educational content (textbooks and educational materials) with external materials (electronic resources).

The modern education system should focus on technologies that develop education applicants' ability to learn, process and manage information, make quick decisions, and adapt to the needs of the labor market. As practice shows, using traditional forms and methods of education, students receive information passively, are unable to process it independently, as well as to apply it in practice. The most popular in Ukraine under martial law is the practice of combining full-time and distance forms of study with the use of blended learning technologies.

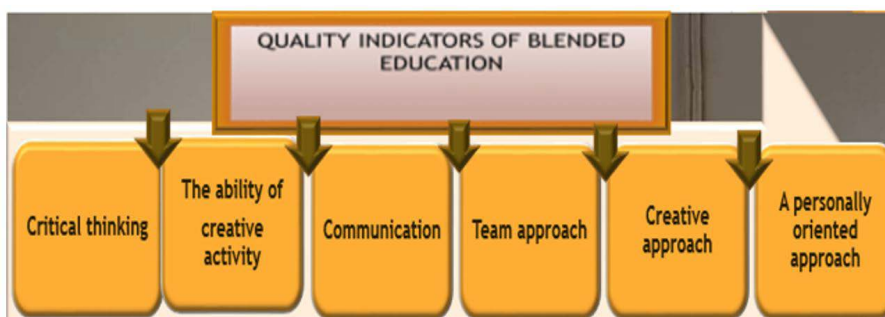


Figure 3. Indicators of the quality of blended learning.

Blended learning technologies can use both off-the-shelf digital resources and those created by teachers themselves. In this case, it is better to give preference to integrated resources that combine educational content and tools for organizing the educational process (Nykorak Ya., 2023).

Blended learning technologies are a priority form of education in modern educational institutions. This learning format provides undeniable advantages for both teachers and students.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

Blended learning allows you to optimize the teacher's time and increase the efficiency of the learning process as a whole. At the same time, the student becomes an active participant in the educational process, able to build an individual learning trajectory based on his or her own needs.

This contributes to the formation of a competent specialist who is competitive in modern conditions. Prospects for further scientific research are associated with the problems of training teachers to implement blended learning in the educational process.

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