

UDC 37.018

Sergii Sharov

Dmytro Motornyi Tavria State Agrotechnological University

ORCID ID 0000-0001-5732-9980

Hanna Gladkykh

Dmytro Motornyi Tavria State Agrotechnological University

ORCID ID 0000-0003-4427-5965

Tetiana Sharova

Bogdan Khmelnytsky Melitopol State Pedagogical University

ORCID ID 0000-0002-5846-6044

DOI 10.24139/2312-5993/2021.01/295-305

BLENDED LEARNING: MODERN EDUCATIONAL TREND IN UKRAINE

The article considers the possibilities and advantages of distance learning, analyzes the means of ICT to ensure blended learning in the system of higher education. General scientific methods of analysis, synthesis and generalization of scientific literature have been used. It is noted that implementation of the educational activities in the information society and the need to continue the informatization of education has caused the advent of new learning technologies. Blended learning combines the positive properties of traditional learning, e-learning, m-learning and avoids the disadvantages of these technologies. It has been found that the effectiveness of the introduction of blended learning in the higher education process depends on a number of didactic principles and factors. It is based on the use of various software. In the future, it is planned to explore in more details the software possibilities to support the blended learning.

Key words: *blended learning, high school, students, ICT.*

Introduction. The active use of information and communication technologies (ICT) in educational activities has led to the emergence of various learning technologies (distance learning, m-learning, e-learning, etc.). Each of these technologies has its inherent advantages, features of application in the education institutions, based on the use of modern means of educational information presentation. One of the most effective means of ICT implementation in the higher education process is the use of blended learning. It involves a combination of traditional learning, information technology capabilities, the Internet and other tools. Through such combination, the quality of educational activities is achieved, a forms variety of educational material presentation is provided, opportunities for mastering the necessary competences are expanded.

As of today, blended learning has become quite relevant in the context of infection COVID-19 spreading and quarantine measures introduction in Ukraine. Under these circumstances, education institutions were forced to move to a remote or blended mode of educational process organization, changing each other depending on the situation in the regions. The use of blended learning technology has allowed education institutions to carry out educational activities in a working mode, without interrupting the process of

training future professionals. At the same time, the issues of organizing the educational process in quarantine measures conditions remain highly relevant. Primarily it relates to the ways and means of learning process organization in conditions of distance and blended learning.

Analysis of relevant research. Opportunities of blended learning for improving the educational process quality in modern conditions have attracted lots of domestic and foreign scholars' attention. V. Kremen, V. Bykov, I. Homyshyn investigated the issues of education informatization in the information society.

T. Shrol explored the meaning of "blended learning" concept and related concepts. Issues of blended learning organization in secondary school are reflected in the work of O. Kuzmenko. In the works of V. Kukharenko, H. Tkachuk, T. Shrol the models and stages of blended learning organization in a higher education institution are highlighted. The use of a systems approach in the blended learning organization is shown in the works of V. Kukharenko. V. Bolilyi studied the possibilities of MediaWiki during the organization of blended learning.

The use of blended learning while studying some disciplines was examined by D. Vasylieva (mathematics), L. Dankevych (business foreign language), O. Bezliudnyi, I. Shvetsova, O. Shcherbakova, V. Protsko (foreign language), V. Bolilyi (ICT in education), H. Tkachuk (computer science), S. Pidlasov (physics) and other scientists. At the same time, it is important to cover issues related to the use of software solutions to ensure blended learning during quarantine.

The aim of the article is to highlight the possibilities and features of distance learning in the higher education institution, analysis of information and communication technologies for the blended learning organization.

Research Methods. While conducting a research, general scientific methods of analysis, synthesis and generalization of scientific literature have been used, that revealed advantages of blended learning and peculiarities of its organization in the system of higher education.

Results. Modern information society is characterized by the ongoing development of ICT and their introduction into the education system. The properties of the information society include increasing the weight of information as a strategic resource, increasing its impact on human activities, formation of the information sector of the economy. Development of education informatization is a relentless process that affects the nature of educational activities and formation of a new generation of young people. The external manifestation of the education informatization is globalization of telephone communication, network technologies, television systems, new means of communication appearance

(Homyshyn, 2016). As a result, mobile technologies, mass open online courses, distance learning systems, etc. are now used in education institutions successfully. All of them implement unique approaches to the organization of the educational process in higher and secondary school, provide for improving of education quality. At the same time, the traditional educational system remains in higher education, that provides for the work of teachers and students in the classroom, the practical skills attainment in real conditions, personal communication between participants in the educational process.

It should be noted that the processes of modernization of the education content are actively underway now. The reasons for these changes are the peculiarities of the information society, increasing the requirements for the training of future professionals, introduction of a competence-based approach, etc. Given this, the technologies used for training of future professionals improve the quality of educational activities significantly (Tkachuk, 2017) and prepare students for professional activities in the information society.

One of the promising areas of the educational process organization using ICT is the blended learning usage. It allows combining traditional learning, distance learning, e-learning, m-learning to carry out educational activities in the classroom and beyond. In other words, it is an educational process that takes place both online and in the classroom, taking into account the independent training of students. In this case, it is possible to use the advantages of e-learning, to supplement the possibilities of the traditional form of learning (Murashchenko, 2017), to ensure the flexibility of the educational process in modern conditions.

According to O. Korotun (2016), blended learning is based on the following scientific approaches:

- competence-based approach considering blended learning as a means of forming students key and professional competences;
- personal approach allowing to develop the personality comprehensively based on its individual characteristics;
- activity approach aiming at organizing educational and cognitive, independent and communicative students' activities;
- systems approach considers blended learning in the form of a multilevel and complex system changing dynamically according to current situations.

Since March 12, 2020, the educational process occurs in a mixed form in Ukraine. The reason for such training was the COVID-19 pandemic, which affected not only secondary schools but also higher and vocational education institutions. Today, blended learning has become a very effective means of implementing educational activities during the quarantine. The main feature of this form of the

educational process organization is the integrated use of various traditional and e-learning technologies (Sikora, 2016). This combination allows:

- to ensure greater openness of education and transparency in the system of students' academic achievements assessment;
- to involve different types of student motivation (Shrol, 2016);
- to increase the level of students' independence in the process of mastering the discipline, they have to control the time, place, and pace of educational activities independently;
- to provide the opportunity for the student to study at a suitable time (Bolilyi, 2017);
- to increase the level of students and teachers' information culture;
- to diversify the forms of educational material introduction through the use of powerful digital and multimedia capabilities of ICT;
- to maintain live communication with a teacher and students.

Blended learning is available to all students, including those with special educational needs. It provides for the organization of individual (individual tasks, consultations, conversations) and group (webinars, conferences, forums) work of students. It is appropriate to use blended learning in laboratory and practical classes, within acquiring the theoretical information (Sikora, 2016). On the other hand, the use of ICT allows creating an electronic educational environment, filling it with educational materials (Bolilyi, 2017), means of monitoring and analysis of students' academic achievements.

According to O. Kuzmenko, in the process of blended learning it is possible to achieve an appropriate allocation of time between classes and independent work, taking into account individual characteristics of students and their educational interests. This training aims to diversify the methods of work and types of tasks with educational materials, as well as to ensure the autonomy of each student (Kuzmenko, 2017). Blended learning stimulates development of students' skills for self-education (Korotun, 2016), increases the ability to search for the necessary information independently, expands opportunities for communication between participants in the educational process.

It should be added that blended learning has certain application limitations, which are related to the weak Internet, outdated hardware, and software. Of course, these shortcomings can be addressed over time, provided appropriate funding and administration of the education institution understand the importance of modernizing the educational process. Noted deficiencies, of course, can be addressed over time, provided appropriate funding and understanding by

the education institution administration the importance of the educational process modernization.

During blended learning, the educational process should be provided not only by the administration of the education institutions, but also by teachers. As rightly noted by V. Kremen, V. Bykov, the effectiveness of education informatization depends on the quality of software products, the availability of guidelines for the use of modern technologies, information culture of teachers and students (Kremen & Bykov, 2014). It is the scientific and pedagogical workers who, with the correct planning of lectures, seminars, video meetings, can motivate students to study, help them to master the educational material better.

On the other hand, an important condition for the effectiveness of blended learning is a high level of information culture of students, who must be fluent in modern technology (Homyshyn, 2016). Each student's personal responsibility related to his/her own educational trajectory can be controlled by parents and teachers, but the educational priorities should be determined personally.

As a result, it is necessary to prepare teachers and students for learning in new conditions, to teach them new strategies and rules of conduct within video conferencing, online communication, etc. According to V. Kukharenko, teachers should form in students a sense of success, because they are responsible for their educational activities. Factors influencing formation of a successful specialist include constructive communication between a teacher and students, well-structured distance learning course, quality educational content, timely feedback (Kukharenko, 2015), formation of clear regulations for attending classroom and online classes, drawing up control measures (Shrol, 2016) and others.

An important factor in high quality blended learning is the optimal ratio of e-learning during independent activity (Gladkykh, 2020) and work in the classroom. The share of e-learning/traditional learning selection depends on the specific situation, subject, regulations of the education institution. A competent combination of traditional and e-learning will provide a personalized learning process based on the powerful capabilities of ICT and individual learning capabilities of students.

According to H. Tkachuk (2017), the effectiveness of blended learning introduction in the educational process depends on compliance with a number of didactic principles, including the principle of activity (formation of competences based on knowledge in the process of practical activity), consciousness and activity (use of techniques and tools to enhance students' mental activity), friendly environment (communication organization using Internet technologies, including conferences, chats, forums), taking into

account the individual characteristics of applicants (facilitation in the selection and implementation of the individual educational trajectory) and the principle of visual aids, which will provide an opportunity to master the training material better and form the necessary competences.

A no less important factor in the blended learning successful organization is creation of a single information space, that means a set of information and communication resources, traditional and innovative forms of learning (Kuzmenko, 2017). In the high school educational process, this task is implemented using various software: learning management systems, mass open online courses, educational electronic resources, software for video communication, instant messaging, social networks, blogs, etc. Such diversity allows to make the electronic learning environment high quality and multifaceted, and to provide operative communication between educational process participants.

In accordance with the noted above, the mixed form of the educational process during the quarantine involves independent work at home and work in classrooms. An effective practice for providing e-learning is to use learning management systems (LMS), in particular the Moodle system. As a rule, distance learning platforms contain the necessary theoretical information for students, tasks for seminars, laboratory classes, means of control (Pavlenko et al., 2019) and others.

Our own practical experience has shown that on the Moodle platform you can communicate with students through the organization of video conferencing, tests and exams in real time. In this environment, students can use educational materials, take tests. Setting up test control units allows to set the number of attempts, deadlines, the number of points for each task. In the case of a laboratory or seminar assignment, students can download the document to the system to check it and view the result in an electronic journal.

A system in terms of consistent implementation of seminar and control tasks will ensure obtaining particular course learning outcomes by students. This makes the educational process more transparent and understandable for all participants in the educational process.

Certainly, the constant students' work on the distance learning site requires downloading by teachers lectures and seminars, control units, and questions for self-study in time. At the same time, all students and teachers must be registered in the system to benefit from it. Besides, prompt feedback between students and faculty should be provided. It is usually implemented through timely verification of submitted tasks, answers to questions in chat or via e-mail.

Mass open online courses (MOOCs) can be used as an additional source of knowledge. Their main feature is to ensure the principle of open education, mass character (Vakaliuk, 2018), free of charge for some online courses. They allow you to choose any direction and carry out self-education. Today there are both English-language (Coursera, edX, Udacity) and Ukrainian-language (EdEra, Prometheus, OUM) online platforms, which contain courses in various fields. MOOCs contain a lot of quality content and allow you to obtain a certificate in case of full course completion and passing control tests.

Organizing blended learning, the powerful features of the Internet can be used, including virtual social networks and blogs. These tools allow communication with each other, sharing text files, multimedia, solving educational problems, and ensuring interaction between participants in the learning process (Protsko, 2019). At the same time, students within the interaction develop social (Sharov, 2020), communicative, and informative competences, considered today as the key competences of modern professionals.

Various video conferencing software resources (Zoom, Skype, Google Meet) are used to provide an online communication between the teacher and students during control activities, lectures, consultations. The choice of software usually depends on the teacher and students' desires. Sometimes a specific software is regulated in the relevant orders and directives at the level of the education institution.

It should be noted that you should be prepared well for a webinar or video conference. Moreover, this process may consist of several stages (Golubeva et al., 2020): preparation of training or demonstration materials; development of the sequence of the material presentation, determination of the time of the webinar and its notification to the students (if this lesson was not planned according to the schedule); development of tasks for students during the webinar (individually or in groups). In our opinion, it is very difficult to conduct a video lecture without preparation, if the goal is to educate students and motivate them to further master the discipline.

While organizing blended learning, software tools for sending instant messages (Viber, Telegram) proved to be good. It is possible to create various groups with their help: academic group, dean's office and heads of departments, teachers, employees of correspondence department, etc. Such operational communication will allow to inform students about changes in the organization of the educational process in time, to carry out instructions and orders of the management quickly, to provide high-quality blended learning.

There are certain requirements to ensure the transparency and effectiveness of control measures during blended training in the period of quarantine. Since control does not always take place in the audience, this process must be carried out by means of remote communication. It should be noted that there is a significant number of technological solutions for the organization of control measures. These can be text or test tasks in the Moodle system, taking exams online using Zoom, face-to-face control measures with compliance quarantine restrictions.

Transparency of students' academic achievements assessment (current assessments and control measures) is achieved through the use of electronic journals (Kukharensko, 2015), located on the Internet or within the electronic educational environment of the education institution. The use of electronic journals will allow all participants in the educational process to view the results of students' learning activities (Korotun, 2016). In addition, with the help of an electronic journal you can easily generate reports on control measures (examination and certification information, the journal of current assessments).

Conclusions. Thus, nowadays blended learning has become highly relevant due to the introduced quarantine measures caused by the COVID-19 virus. At the same time, blended learning as technology has many advantages over e-learning and the traditional form of teaching. In fact, it combines the advantages of these education forms and eliminates their disadvantages.

The effectiveness of blended learning introduction in the educational process of higher education depends on a number of didactic principles and factors. An adequate level of information culture of students and teachers, their readiness to conduct classes in this form, appropriate software should be provided. In addition, organization of blended learning at the level of school management and teachers plays an important role.

In the future, it is planned to explore in more detail the possibilities of different software to support blended learning.

REFERENCES

- Болілий, В. О., Копотій, В. В. (2017). Реалізація ідей змішаного навчання засобами вікі-курсів. *Наукові записки. Серія: Проблеми методики фізико-математичної і технологічної освіти*, 4 (11), 14-19 (Bolilyi, V., Kopotiy, V. (2017). Implementing ideas of blended learning by means of wiki-courses. *Proceedings. Series: Problems of methods of physical-mathematical and technological education*, 4 (11), 14-19).
- Вакалюк, Т. (2018). Добір масових відкритих онлайн курсів для використання в підготовці бакалаврів інформатики. *Науковий вісник Мелітопольського державного педагогічного університету імені Богдана Хмельницького. Серія: Педагогіка*, 1, 128-133 (Vakaliuk, T. (2018). Selection of mass open online courses for use in the preparation of bachelors of computer science. *Scientific Bulletin of Melitopol State Pedagogical University. Series: Pedagogy*, 1, 128-133).

- Гладких, Г. В., Шарова, Т. М. (2020). Організація самостійної діяльності здобувачів вищої освіти засобами ІКТ. *Педагогіка формування творчої особистості у вищій і загальноосвітній школах: зб. наук. пр.*, 2 (69), 70-74 (Hladkykh, H., Sharova, T. (2020). Organization of individual activities of higher education applicants with the using of informational and communicational technologies. *Pedagogy of formation of creative personality in higher and general education schools*, 2 (69), 70-74).
- Коротун, О. В. (2016). Методологічні засади змішаного навчання в умовах вищої освіти. *Інформаційні технології в освіті*, 3, 117-129 (Korotun, O. (2016). Methodological bases of blended learning in the higher education. *Information technology in education*, 3, 117-129).
- Кремень В. Г., Биков В. Ю. (2014). Інноваційні завдання сучасного етапу інформатизації освіти. *Сучасні інформаційні технології та інноваційні методики навчання у підготовці фахівців: методологія, теорія, досвід, проблеми*, 37, 3-15 (Kremen, V., Bykov, V. (2014). Innovative tasks of the modern stage of informatization of education. *Modern information technologies and innovative teaching methods in training: methodology, theory, experience, problems*, 37, 3-15).
- Кузьменко, О. (2017). Змішане навчання як інноваційна форма організації навчального процесу в школі. *Наукові записки Тернопільського національного педагогічного університету імені В. Гнатюка. Серія: Педагогіка*, 3, 140-147 (Kuzmenko, O. (2017). Blended learning as an innovative form of teaching and learning at school. *Scientific notes of Ternopil National Pedagogical University named after V. Hnatiuk. Series: Pedagogy*, 3, 140-147).
- Кухаренко, В. (2015). Системний підхід до змішаного навчання. *Інформаційні технології в освіті*, 24, 53-67 (Kukhareno, V. (2015). System approach to the blended learning. *Information technology in education*, 24, 53-67).
- Муращенко, Т. В. (2017). Змішане та дистанційне навчання як спосіб доступу до якісної освіти. *Відкрите освітнє е-середовище сучасного університету*, 3, 283-287 (Murashchenko, T. (2017). Blended and distance learning as a way of access to quality education. *Open educational e-environment of a modern university*, 3, 283-287).
- Сікора, Я. Б. (2016). Реалізація змішаного навчання у вищому навчальному закладі. *Науковий вісник Ужгородського університету. Серія: Педагогіка. Соціальна робота*, 2 (39), 236-239 (Sikora, Ya. (2016). Implementation of blended learning in higher educational institution. *Scientific Bulletin of Uzhhorod University. Series: Pedagogy. Social work*, 2 (39), 236-239).
- Ткачук, Г. (2017). Змішане навчання та особливості використання ротаційної моделі у навчальному процесі. *Інформаційні технології в освіті*, 4 (33), 143-156 (Tkachuk, H. (2017). Blended learning and features of the use of the rotation model in the educational process. *Information technology in education*, 4 (33), 143-156).
- Хомишин, І. Ю. (2016). Принцип інформатизації освіти в умовах глобалізації суспільства. *Вісник Національного університету «Львівська політехніка». Серія: Юридичні науки: збірник наукових праць*, 850, 123-128 (Homyshyn, I. (2016). Principle of informatization of education in the conditions of globalization of society. *Herald of the National University «Lviv Polytechnic», Series: Law Sciences*, 850, 123-128).
- Шроль, Т. С. (2016). Змішане навчання як нова форма організації ІКТ-освіти. *Оновлення змісту, форм та методів навчання і виховання в закладах освіти*, 13 (1), 166-170 (Shrol, T. (2016). Blended learning as new form of organization of ICT education. *Updating the content, forms and methods of teaching and education in educational institutions*, 13 (1), 166-170).

- Golubeva, T. et al. (2020). Video Conferencing and Webinars: Integration of Online Tools in Traditional Forms of Educational and Scientific Activities. *International Journal of Advanced Trends in Computer Science and Engineering*, 9 (4), 4235-4240.
- Pavlenko, O. et al. (2019). Implementation of the distance learning by Moodle platforms in the process of future philologists training. *Engineering and Educational Technologies*, 7 (3), 106-121.
- Protsko, V. (2019). Blended Learning: a New Technological Era in EFL Teaching. *Innovation in education*, 9, 219-224.
- Sharov, S. (2020). Analysis of the impact of social networks on youth socialization. *Virtus*, 46, 129-131.

РЕЗЮМЕ

Шаров Сергей, Гладких Анна, Шарова Татьяна. Смешанное обучение: современный образовательный тренд в Украине.

В статье рассматриваются возможности и преимущества дистанционного обучения, осуществляется анализ средств ИКТ для обеспечения смешанного обучения в высшей школе. Были использованы общенаучные методы анализа, синтеза и обобщения научной литературы. Отмечается, что реализация образовательной деятельности в условиях информационного общества и необходимости продолжения информатизации образования вызвала появление новых технологий обучения. Смешанное обучение сочетает положительные свойства традиционного обучения, e-learning, m-learning и избегает недостатков этих технологий. Установлено, что эффективность внедрения смешанного обучения в образовательный процесс высшего учебного заведения зависит от ряда дидактических принципов и факторов. Оно основано на использовании разнообразного программного обеспечения. В перспективе предполагается более детально исследовать возможности программного обеспечения для поддержки смешанного обучения.

Ключевые слова: смешанное обучение, высшая школа, студенты, ИКТ.

АНОТАЦІЯ

Шаров Сергій, Гладких Ганна, Шарова Тетяна. Змішане навчання: сучасний освітній тренд в Україні.

У статті розглядаються можливості та переваги дистанційного навчання, особливості його організації, здійснюється аналіз засобів інформаційно-комунікаційних технологій для забезпечення змішаного навчання у вищій школі. Були використані загальнонаукові методи аналізу, синтезу та узагальнення наукової літератури.

Зазначається, що реалізація освітньої діяльності в умовах інформаційного суспільства та необхідність продовження інформатизації освіти викликала появу нових технологій навчання. Виявлено, що blended learning є перспективним напрямом упровадження інформаційно-комунікаційних технологій в освітню діяльність. Сьогодні змішане навчання стало основним засобом реалізації освіти в карантинних умовах, які викликані вірусом COVID-19. Воно поєднує позитивні властивості e-learning, m-learning та уникає недоліків цих технологій. Виявлено, що змішане навчання дозволить зробити освітній процес більш відкритим та прозорим, заохотити студентів до самостійної навчальної діяльності, підвищити рівень інформаційної культури викладачів та студентів, підготувати їх до професійної діяльності в умовах інформаційного суспільства.

З'ясовано, що ефективність упровадження змішаного навчання в освітній процес закладу вищої освіти залежить від низки дидактичних принципів і факторів. Важливими задачами в цьому аспекті є оптимальний розподіл часу на самостійну та аудиторну роботу, підготовка викладачів та студентів до змішаного навчання,

створення єдиного інформаційного простору закладу вищої освіти. Виявлено, що для забезпечення змішаного навчання використовуються системи дистанційного навчання, масові відкриті онлайн курси, програмні засоби для організації відеоконференцій, обміну миттєвими повідомленнями, соціальні мережі, блоги та ін.

Отримані результати дозволять більш ефективно організувати змішане навчання за допомогою різноманітного програмного забезпечення. Вони стануть у нагоді викладачам, які зможуть підвищити власну педагогічну майстерність та інформаційну культуру. У перспективі передбачається більш детально дослідити можливості різного програмного забезпечення для підтримки змішаного навчання.

Ключові слова: *змішане навчання, вища школа, студенти, ІКТ.*