

# TECHNOLOGICAL AND METHODOLOGICAL SUPPORT OF BLENDED LEARNING IN HIGHER EDUCATION IN THE COVID-19 PANDEMIC.

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**Abstract.** The article deals with the peculiarities of technological and methodological support of blended learning in higher education in the COVID-19 pandemic. The main methodological and technological objectives and strategies of blended learning mode from a scientific and practical point of view are pointed out. The basic description of the blended learning at different historical periods is emphasized. The task of the blended learning education in the contemporary COVID-19 circumstances and its role in the implementation of the education challenges which face both teachers and students is presented. The problems of the methodological and technological support in higher educational institutions, the need for new approaches to teaching with limited number of classes is shown. The coordination of the content of educational programs, ensuring constant monitoring of the quality of education, demonstration of individual courses to potential entrants, possible commercialization of educational content are described. The technological tools implemented by higher educational establishments to provide blended learning in the educational institutions are highlighted. The dependence of the successful implementation of the discipline in a mixed format on the willingness of the teacher to adapt their approach to the presentation of material, teaching methods and understanding of the roles of teachers and students in the educational process is underlined. The application of ICT tools by the teaching staff as an essential and effective instrument to modernize the educational process is defined. Online-learning environments, namely synchronous and asynchronous ones, essential to provide blended learning, are mentioned. Different ways of interaction involved in blended learning mode are distinguished. The basic peculiarities of blended learning and high-tech instruction are pointed out. The results of the case study of the effectiveness of blended environments towards better English language learning are provided. The analysis of the strategy used in blended learning is assessed. The leading technological and methodological tools for blended environment are presented. The description of the e-learning platforms used in blended learning is provided. The basic instructions for the introduction of blended learning methods and technologies in the educational establishment, which provide and promote the development of the process of education in terms of distance learning, are provided. The creation of the technical conditions for learning, communication and interaction of students during the educational process, unification of means of interaction of subjects of study, their identification in the single virtual learning environment (VLE) are formulated. Future opportunities of the institution in the implementation of blended learning, the necessary resources to support the platform, opportunities for development and improvement are determined.

**Key words:** blended learning, COVID-19 pandemic, e-learning platforms, technological and methodological support, higher educational institutions.

## ТЕХНОЛОГІЧНО-МЕТОДОЛОГІЧНЕ ЗАБЕЗПЕЧЕННЯ ЗМІШАНОГО НАВЧАННЯ У ВИЩІЙ ОСВІТІ В ПАНДЕМІЮ COVID-19.

**Анотація.** У статті розглядається технологічне та методологічне забезпечення змішаного навчання у вищій школі в умовах пандемії COVID-19. Визначено основні методологічні та технологічні завдання та стратегії змішаного режиму навчання з науково-практичної точки зору. Основну увагу акцентовано на опису змішаного навчання в різні історичні періоди. Представлено завдання освіти змішаного навчання в сучасних умовах COVID-19 та його роль у реалізації освітніх завдань, які стоять перед викладачами та студентами. Показано основні проблеми методичного та технологічного забезпечення у вищих навчальних закладах, необхідність нових підходів до навчання з обмеженою кількістю занять. Описано узгодження змісту освітніх програм, забезпечення постійного моніторингу якості освіти, демонстрацію індивідуальних курсів потенційним абітурієнтам, можливу комерціалізацію освітнього змісту. Висвітлено технологічні засоби, які впроваджуються вищими навчальними закладами для забезпечення змішаного навчання в навчальних закладах. Підкреслено залежність успішного виконання навчальної дисципліни у змішаному форматі від готовності викладача адаптувати свій підхід до викладення матеріалу, методів навчання та розуміння ролі викладачів і студентів у навчальному процесі. Визначено застосування педагогічним колективом засобів ІКТ, як важливого та ефективного інструменту модернізації навчального процесу. Згадуються середовища онлайн-навчання, а саме синхронні та асинхронні, необхідні для забезпечення змішаного навчання. Описано різні способи взаємодії, залучені в режим змішаного навчання. Визначено основні особливості змішаного навчання та високотехнологічного навчання. Наведено результати тематичного дослідження ефективності змішаних середовищ для кращого вивчення англійської мови. Оцінюється аналіз стратегії змішаного навчання. Представлено провідні технологічні та методологічні засоби для змішаного середовища. Надано опис платформ електронного навчання, які використовуються у змішаному навчанні. Запропоновано основні інструкції щодо впровадження в навчальному закладі методів і технологій змішаного навчання, які забезпечують та сприяють розвитку процесу навчання в умовах дистанційного навчання.

Сформульовано створення технічних умов навчання, спілкування та взаємодії студентів під час навчального процесу, уніфікація засобів взаємодії суб'єктів навчання, їх ідентифікація в єдиному віртуальному навчальному середовищі (ВНС). Визначено майбутні можливості закладу у впровадженні змішаного навчання, необхідні ресурси для підтримки платформи, можливості розвитку та вдосконалення.

**Ключові слова:** змішане навчання, пандемія COVID-19, платформи електронного навчання, технологічне та методологічне забезпечення, вищі навчальні заклади.

## ТЕХНОЛОГИЧЕСКОЕ И МЕТОДОЛОГИЧЕСКОЕ ОБЕСПЕЧЕНИЕ СМЕШАННОГО ОБУЧЕНИЯ В ВЫСШЕМ ОБРАЗОВАНИИ В ПАНДЕМИЮ COVID-19.

**Аннотация.** В статье рассматривается технологическое и методологическое обеспечение смешанного обучения в высшем образовании в условиях пандемии COVID-19. Определены основные методологические и технологические задачи и стратегии смешанного режима обучения с научно-практической точки зрения. Акцентируется основное внимание на описании смешанного обучения в разные исторические периоды. Представлены задачи образования смешанного обучения в современных условиях COVID-19 и его роль в реализации образовательных задач, стоящих перед преподавателями и студентами. Показаны основные проблемы методологического и технологического обеспечения в вузах, необходимость новых подходов к обучению с ограниченным количеством занятий. Представлено согласование содержания образовательных программ, обеспечение постоянного мониторинга качества образования, демонстрация индивидуальных курсов потенциальным абитуриентам, возможная коммерциализация образовательного содержания. Освещены технологические средства, внедряемые высшими учебными заведениями для обеспечения смешанного обучения в учебных заведениях. Подчеркнута зависимость успешного выполнения учебной дисциплины в смешанном формате от готовности преподавателя адаптировать свой подход к изложению материала, методам обучения и пониманию роли преподавателей и студентов в учебном процессе. Определено применение педагогическим коллективом средств ИКТ, как важного и эффективного инструмента модернизации учебного процесса. Упомянуты среды онлайн-обучения, а именно синхронные и асинхронные, необходимые для обеспечения смешанного обучения. Представлены разные способы взаимодействия, вовлеченные в режим смешанного обучения. Определены основные особенности смешанного обучения и высокотехнологичного обучения. Представлены результаты тематического исследования эффективности смешанных сред для улучшения изучения английского языка. Оценивается анализ стратегии смешанного обучения. Представлены ведущие технологические и методологические средства для смешанной среды. Освещены платформы электронного обучения, используемых в смешанном обучении. Предложены основные инструкции по внедрению в учебном заведении методов и технологий смешанного обучения, которые обеспечивают и способствуют развитию процесса обучения в условиях дистанционного обучения. Сформулировано создание технических условий обучения, общения и взаимодействия студентов в учебном процессе, унификация средств взаимодействия субъектов обучения, их идентификация в единой виртуальной среде обучения (ВСО). Определены будущие возможности заведения во внедрении смешанного обучения, необходимые ресурсы для поддержки платформы, возможности развития и усовершенствования.

**Ключевые слова:** смешанное обучение, пандемия COVID-19, платформы электронного обучения, технологическое и методологическое обеспечение, высшие учебные заведения.

### *I Introduction*

Education is not just a basic human right. This is a fundamental right on which the realization of all other human rights depends directly. Education is a global common good, the most powerful driver of progress towards all 17 Sustainable Development Goals, and the foundation for a just, equitable, inclusive and peaceful society. When education systems collapse, the task of building a world and a prosperous and productive society becomes impossible. The COVID-19 pandemic has caused the largest disruption in education systems ever, affecting almost 1.6 billion students in almost 200 countries and on every continent. The breakup of educational institutions has affected more than 90 per cent of the world's student population, with 99 per cent in low- and lower-middle-income countries. The crisis is exacerbating pre-existing inequalities in education, preventing a significant proportion of the most vulnerable children, young people and adults from continuing their education. In addition, educational losses threaten to engulf future generations and undo decades of progress. Moreover, the disruption of the educational process has and will have serious consequences beyond the education system. At the same time, it should be noted that the crisis has served as an incentive for innovation in the field of education. Innovative approaches are used to ensure the continuity of education and training, from radio and television broadcasts to the provision of home study kits.

For the first time the integration of various forms of education was announced by C.J. Bonk and Ch. R. Graham in the book "Blended Learning" in 2006. [1] At present the application of different types of distant learning is

explored by modern scholars, namely Shahabadi, Hung, Lu, Zare, Fryer and Bovee who investigated the development of the theoretical and practical background of distance learning and classified its modes. [16], [8], [12], [17], [4]

Online learning environments are divided into a triad of synchronous, asynchronous and blended learning ones. Special attention of this study is focused on the technological and methodological support of blended learning in higher education in the COVID-19 pandemic. The aim of the paper is to specify the peculiarities of blended learning in the framework of technological and methodological aspects in order to master methods, define strategies and set objectives of active practice in obtaining knowledge, distinguish the ways of its structuring and introduce the theoretical, experimental and methodological levels of the research.

## ***II Materials and Methods***

The research material is based on the works of domestic and foreign scholars in such fields as theory and practice of blended learning. The main research methods are: theoretical (analysis of scientific literature on blended learning), empirical (questioning, testing, conversation, pedagogical observation, pedagogical experiment).

Even before the pandemic, the world's population faced significant difficulties in realizing the right to education as a fundamental human right. Despite near universal enrollment in education in most countries, a huge number of children—more than 250 million—were out of school and almost 800 million adults were illiterate. The task of funding education even before COVID-19 was extremely difficult. As of early 2020, the funding gap for Sustainable Development Goal (quality education) in low- and lower-middle-income countries was estimated to be a staggering almost \$150 billion annually due to the COVID-19 crisis, this funding shortfall will increase by about a third.

The COVID-19 pandemic has caused the largest educational disruption in history and has already had a near-pervasive impact on students and educators around the world and on preschools, secondary schools, technical and vocational education and training institutions, universities, adult learning institutions and centers advanced training. By mid-April 2020, the pandemic had affected over 90 percent of students, that is, 1.58 billion children and young people (from preschoolers to university students) in 200 countries around the world.

The ability to respond to education breakup is highly dependent on the level of development: for example, in the second quarter of 2020 in countries with a low human development index, 86 percent of students actually dropped out, while in countries with a very high human development index, the figure was only 20 percent.

With the increased fragility of education system, a break during the academic year will disproportionately affect the most vulnerable students who do not have the right conditions to continue learning at home. There is growing concern that, without proper support, these students may never return to institutes and universities. This will exacerbate pre-existing inequalities and could reverse progress towards Sustainable Development Goals, as well as exacerbate the current educational crisis and further destabilize the socio-economic situation of refugees and displaced people.

In higher education, where distance learning has mostly taken the form of broadcasting recorded lectures and working with online platforms, some universities have suspended their work indefinitely due to the lack of information technology (IT) infrastructure for both students and teachers. In addition, the question of how to streamline the work programs for the term and for the academic year remains unanswered, since some disciplines could be successfully taught remotely, while this was not possible for other subjects.

The need for new approaches to teaching with limited number of classes remains a problem for a large part of the educational community. At the same time, such requirements for higher education as accessibility and inclusiveness, flexibility for certain categories of applicants who work, have children, etc., individual trajectory of the applicant's training, introduction of dual education are distinguished to be the urgent ones. These issues are impossible without the widespread introduction of online technologies, fundamental changes in approaches to the organization of education in educational institutions and in each subject, in particular the role of offline classes and their effectiveness. Changes must take place, because this is not a temporary solution, but an opportunity to improve, to move to a new level of quality of education.

Distance (or online) technologies are the basis for the interaction of the subjects of the educational process in both blended learning and distance learning. In distance learning, the indirect interaction of subjects through online technology is crucial. This type of education is defined by the Law of Ukraine "On Education" as a separate form of education - distance. Blended learning is an approach, a pedagogical and technological model, a methodology that, along with online technology, is also based on direct interaction between students and teachers in the classroom.

The example of the world's leading universities shows that quality education is possible with a significantly smaller number of off-line classrooms than in Ukrainian educational institutions. [15] But this requires the competent use of online technologies with appropriate methodological approaches that provide an effective combination of direct and indirect forms of interaction between students and teachers in the form of blended learning.

In addition to the advantages of studying certain subjects, the comprehensive introduction of blended learning in educational institutions will also provide:

coordination of the content of educational programs;

ensuring constant monitoring of the quality of education;

demonstration of individual courses to potential entrants, possible commercialization of educational content.

As the views on blended learning, on the methods of applying online technologies in general differ significantly, generalized recommendations on the optimal approaches in the organization of blended learning, its methodological and technological component are offered in this study.

Successful implementation of the subject in a blended format depends primarily on the willingness of the teachers to adapt their approach to the presentation of material, teaching methods and understanding of the roles of teachers and students in the educational process. It should be noted that digital literacy (the ability to use online technologies and master new ones) is the basis of four key competencies needed by teachers to work in blended learning, namely:

technology integration, as the ability to effectively combine online learning with off-line learning;

data usage, as the ability to use digital tools to monitor activity and efficiency to manage student progress;

personalization, as the ability to create a learning environment that allows students to achieve their own goals, pace and / or way of learning.

Online interaction, as the ability to establish effective online interaction with students and students among themselves. [6]

Simple introduction of technologies in traditional teaching can make the educational process somewhat more adapted to modern requirements, but will not change its effectiveness fundamentally. Such training can be called high-tech or teach-rich instruction. Understanding blended learning as a model of learning that provides students with certain elements of control over the study of material and the ability to personalize learning, opens up much broader prospects.

The basis for the effective use of blended learning is the technological readiness of teachers, students and educational institutions, as well as thorough methodological training of each subject, choosing the optimal model of the learning process, designing a learning scenario as a sequence of actions and experience, only off-line classes and independent work of students. Qualitatively implemented blended learning significantly improves the educational process. Technological solutions are able to ensure the availability of materials, the possibility of constant support of students, the convenience of controlling the learning process, automation of part of the teacher's work. Methodological approaches provide students to be involved in the learning process, mastering the material, effective interaction between subjects of study, personalization of learning. [13]

Regarding blended learning models, it should be noted that there is no universal model. Most scholars distinguish four well-known models of blended learning, such as:

rotation model (consisting of station-rotation, lab-rotation, flipped-classroom and individual-rotation models) ;

flex model;

self-blend model;

enriched-virtual model.

But this division into four basic models is not the only one, and the classification is quite variable. Basic approaches to the implementation of any model of blended learning are important, and the specifics of each discipline and individual pedagogical approaches of the teacher create the preconditions for the formation of their own effective models. [3]

When planning activities, it is necessary to transform the usual types of activities into forms of interaction of subjects of study, which can be carried out synchronously and asynchronously, as well as organized independent student activity. It's advisable to move away from the traditional division into lectures, seminars, laboratory classes, practical training and plan activity which can be conditionally belong to one of two categories:

contact hours - involving direct interaction of participants in the learning process with each other in the classroom;

online activities - involving the indirect interaction of participants in the learning process with each other and with the content in the classroom or outside it through online technology.

The level of detail of the structure of the discipline, the effectiveness of combining different activities of the student in both categories depends on the pedagogical skills and experience of the teacher. Online activities can be:

synchronous (when everyone is connected at the same time, such as a webinar, video conference, etc.);

asynchronous (when each participant in the process performs activities at different times, such as chat, forum, etc.).

It should be mentioned that the organization of blended learning is impossible without the use of an e-learning platform that contains a learning management system LMS ( Learning Management System). It is estimated that there are more than 700 LMS platforms on the market, most of which specialize in corporate learning. Some of them have advanced features, which simplifies the re-profiling of content for external audiences. In addition to commercial solutions, there are open source platforms on the market (for example, Moodle, Sakai, Litmos, Claroline, DotLRN, BrainCert, Open edX, Canvas, etc.).

Technological support is an area of direct responsibility of the educational institution, which should provide teachers and students with appropriate, equal working and learning conditions, including the following tasks, namely: choose a training platform and integrate it with internal information systems; provide reliable Internet access; provide teachers with the necessary software.

To create the same technical conditions for learning, communication and interaction of students during the educational process, unification of means of interaction of subjects of study, their identification is necessary single virtual learning environment (VLE). The content management system (CMS) creates equal conditions for teachers for the necessary means of creating educational materials, their preservation, improvement.

Management of the process of blended learning at the level of the unit, educational program, educational institution is impossible without a single learning management system (LMS). All these components are part of a single learning platform. It is important to distinguish between learning platforms and support services. Therefore, it is strongly recommended to introduce a single educational platform in the educational institution, and the choice should be treated very carefully. This choice will largely determine future opportunities of the institution in the implementation of blended learning, the necessary resources to support the platform, opportunities for development and improvement.

Each choice requires the cost of establishing and maintaining learning platform. You can develop your own platform; choose a free product (if possible); purchase a ready-made solution. Development of your own solution can be implemented only if you have the appropriate human resources. The advantage of this approach is the maximum adaptation of the platform to the needs of the educational institution. But such an approach is very complex and long, creates a significant dependence of further development and improvement of the platform on the development team. Developing your own system is not recommended in case when there is no positive experience of use and development of educational platforms.

The main criteria for choosing a training platform are:

reliability and stability - the degree of platform resistance of various unauthorized interventions, hacking attempts and other destructive actions, to different modes of operation and user activity; the maximum number of simultaneous active user connections, technical support from developer, compliance with network security standards, theft of personal data;

cross-platform - learning platform should not be tied to any operating system or medium highlights.

Users apply standard tools without download additional modules, programs. Availability mobile application and / or adaptive interface;

modularity and scalability – essential to expand the number of users who are learning and add functionality through programs and training courses, use of the training platform as an aid training and control;

availability of technical and user documentation, materials for self-learning to work on the platform;

ergonomic use- potential negative attitude towards technology that seems cumbersome.

Learning technology must be intuitive. In the training course should contain menu that allows to move from one section to another and communicate with a teacher, multimedia (the possibility of using both not only text, hypertext and graphic files, but also audio, video, gif- and flash-animations, 3D-graphics of various file formats, formulas and graphs);

cost - consists of the cost of the system itself, as well as spending on its implementation, support, modernization, renewal, staff training, course development and support;

the possibility of integration with existing internal and external information services and systems.

Commercial platforms of well-known developers are mostly reliable and proven solutions with their own features that will need to be adapted. The advantages are the right level and consistent customer support, regular updates, security and reliability guarantees. The disadvantages of these solutions are the high cost, regular license fees, increasing the number of users, the secrecy of the software code of the platform for development by third parties or their own developers. It should be clearly understood that the established academic traditions of the educational institution will have to be transformed in accordance with the rational logic of such a platform.

To implement the platform based on Open Source (free) solutions is the most natural choice for most educational projects, based on the cooperation of many developers which allows to combine the experience of a large number of teachers and volunteer programmers in the development and improvement of the platform. This approach is similar to a conditional constructor, when it is possible to compose your own modular solution from your own and others' developments. The disadvantages are: native risks of using a large number of software solutions from different developers, their consistency with each other and with the real needs of the educational institution. Despite the openness and freeness of the platform code, its installation, configuration, adaptation and support require appropriate resources.

### ***III Results***

Professional training of highly qualified specialists in the agrarian sector of national economy is carried out in Sumy National Agrarian University for more than 40 years. The graduates of the university are provided with educational and qualification bachelor's and master's levels. Students of all specialties of the institution study

English, German and French. They are taught, Foreign Language (professional purpose), Profound Foreign language (business course) and Business Foreign Language. The purpose of training is to implement the essential communicative competence in situational and professional in both oral and written forms. The main objectives of the subjects mentioned above are to get practical experience of foreign languages in different types of communication including the number of topics important for professional activity; to acquire recent information on specialty using foreign sources and many others.

To train highly experienced and competitive specialists who have deep professional background, progressive technological training while studying at the university and fluent foreign language, is the aim of the university. Students are given a chance to make a choice among full-time, part-time or distance learning. Strict quarantine terms made the university implement different ways of distance learning, including a/synchronous and blended ones, and create online learning environment.

Establishing the current practices of blended learning/teaching in the English language, this study evaluates the effectiveness of blended learning towards technological and methodological provision of blended learning in terms of COVID-19 pandemic at Sumy National Agrarian University (SNAU).

There were four groups of students of SNAU who participated in this study: those who learn Profound English (PE) and the ones who attend Business English (BE) course. The observation of communication and performance lasted for about 3 months (Fall 2020) and 2 months (Spring 2021). The number of active students, who were involved in PE and BE was 300 and 200 respectively. It is a qualitative study. Much data and information as for students' responses was collected. To assess the advantages and disadvantages strengths and weaknesses of blended learning, this study was aimed to address the following research question: "Name three positive and three negative characteristics of blended learning".

Figure 1 presents the most popular strengths of blended learning mentioned by the students. Figure 2 demonstrates some negative aspects blended learning pointed out by the students.

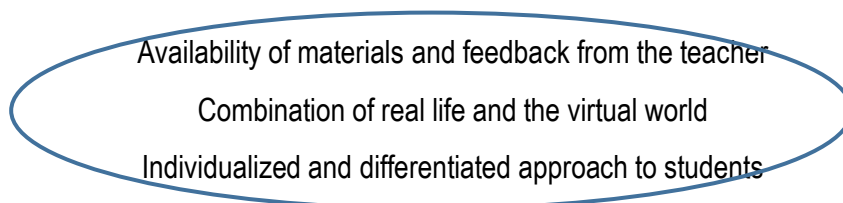


Figure 1. Strengths of blended learning

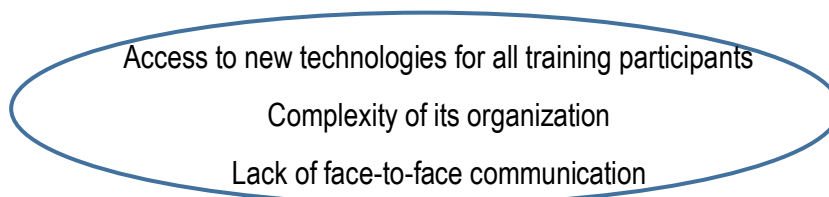


Figure 2. Negative aspects of blended learning

Hence, the responses of the students to the question whether English language can be better learnt in blended learning is very interesting: 30% of the participants said that they prefer blended learning as a combination of on-line and off-line studying taking into account the circumstance we live in, whereas 70% of the students responded negatively.

These results show a psychological aspect of the willingness 30% of the respondents to talk to or see the teacher and a wish to interact both directly and indirectly without immediate assistance and feedback from the teacher and fellow students. However, 70% of the students are ready to work in their traditional classrooms. Students'

opinions clearly demonstrate that in the contemporary circumstances they can accept blended learning as a way to master the language.

#### ***IV Discussion***

No studies can describe the features of learners and design characteristics as predictors of benefits of a planning evaluation research to establish the effectiveness of blended learning. Guskey stressed that planning assessment can be used before the implementation of any innovation, permitting planners to establish the needs, taking into consideration context materials, characteristics of a participant and getting basic information. [7]

Kenney and Newcombe compared the effectiveness of grades and came to the conclusion that blended learning had higher average score than the non-blended learning environment. [9] Garrison and Kanuka evaluated the potential of blended learning and distinguished an increase in course rates to be completed, enhanced retention and enlarged student satisfaction. [5] Demirkol and Kazu suggested to establish the discrepancy between academic outcomes, grade differences and gender discordance but no vivid differences between the comparison groups were found. [2]

Study demonstrates the failure of students to continue their online education (as well as blended one) in some cases because of the lack of family support or increased workload leading to learner dropout, including little time for study. In addition, the dependence of student interaction with instructors and their willingness to continue education via blended should be taken into consideration. In Greer, Hudson and Paugh's study as cited in Park and Choi, family and peer support for learners is important for success in online and face-to-face learning. [14]

Park and Choi investigated the organizational support as means to significantly predict learners' stay and success in online courses. They underlined the fact that sometimes employers do not want to reduce learners' workload during study. At the same time supervisors are interested in job-related learning for employees to advance and improve their skills.

The research of Kintu and Zhu described the possibility of blended learning in a Ugandan University and examined whether student background, such as family support, social support and management of workload, and student characteristics, namely: self-regulation, attitudes towards blended learning, computer competence and were basic factors in such learner outcomes as motivation, satisfaction, knowledge construction and performance. [10]

Morris and Lim have highlighted learner and instructional peculiarities influencing learning outcomes in blended learning. But they do not have much in common with such contextual variables of blended learning aspect as innovative pedagogy which involves the implementation of educational technologies. [12]

#### ***V Conclusion***

Blended learning allows the flexibility to respond to a variety of life circumstances affecting individuals, educational institutions and society as a whole. Without abandoning traditional forms of education, yielding high results, blended learning in parallel uses the latest achievements in order to modernize, intensify and individualize the educational process.

Among the indisputable advantages of this model of education is the skillful use of the combination of real life habitual for young people and the virtual world. In this regard, the importance of mastering digital technology by educators for successful curriculum development blended learning should be emphasized.

Opinions about a radical change in the role of the teacher and the role of the student in learning; instead of "teacher" and "tutor", the terms "facilitator", "coordinator", "intermediary", "curator", "teacher-organizer", etc. are increasingly used; mixed teaching methods, not only empowers students with knowledge, but also teaches them how to navigate in traditional and e-learning environments; listing the advantages of modern blended learning, we will name individualized and differentiated approach to students compared to traditional classroom teaching, when the teacher is forced to focus on the average student, ignoring his individual needs.



Research results show improved performance in blended learning because the availability of materials and feedback from the teacher increases, skills of independent problem solving are developed. Students gradually become subjects learning process, independently alternating the components of the mixed model according to individual schedule.

Among the disadvantages of blended learning, we can name the complexity of its organization on the scale of a large university. General schedule for all departments based on a coordinated blended learning model within large organizations is a difficult task. Mixed format of studying one or a number of subjects are also not easy to fit into the general schedule.

Another important disadvantage is related to the technical aspects of the implementation of mixed training based on access to new technologies for all training participants. Access to a significant part of the educational process in the network infrastructure higher education institution is possible if all participants have sufficiently expensive tools. It is important to emphasize that technologies and digital tools are in constant development, so modern education should provide for the possibility of incorporating all new forms and resources into already developed curricula.

The growing spread of new technologies in the information society inevitably leads to deep and rapid changes in all areas of life. The education sector is actively introducing new tools to improve the effectiveness of learning, and also seeks to comprehend ongoing changes at the conceptual level. The limitations of any one educational model are becoming more and more obvious; there is an urgent need for modern technologies that open up new opportunities, there is a spontaneous process of combining different approaches to learning. In the teaching of foreign languages in the context of a reduction in the classroom loads of teaching methods are expanded by introducing virtual learning environments.

## References

1. Bonk, C., Graham, C. (2006). *The Handbook of Blended Learning: Global Perspectives*. Local Designs, Wiley, 585. URL: [https://books.google.com.ua/books/about/The\\_Handbook\\_of\\_Blended\\_Learning.html](https://books.google.com.ua/books/about/The_Handbook_of_Blended_Learning.html) (accessed 04.01.2021).
2. Demirkol, M., Kazu, I. (2017). *Effect of blended environment model on high school students' academic achievement*. The Turkish Online Journal of Educational Technology, 13(1), 78–87.
3. Fink, L. (2018). *A Self-Directed Guide to Designing Courses for Significant Learning*. URL: <https://tinyurl.com/zmschsm>
4. Fryer, L., Bovee, H. (2018). *Staying motivated to e-learn: Person- and variable-centered perspectives on the longitudinal risks and support*. Comput. Educ., 120, 227–240. <https://doi.org/10.1016/j.compedu.2018.01.006>.
5. Garrison, D. R., & Kanuka, H. (2016). *Blended learning: Uncovering its transformative potential in higher education*. Internet and Higher Education, 7(2), 95–105.
6. Graham, C. et al. (2016). *4 Skills Essential for Effective Blended Teaching*. URL: <https://www.blendedlearning.org/4-skills-essential-for-effective-blended-teaching/>
7. Guskey, T. R. (2018). *Evaluating Professional Development*. Thousand Oaks: Corwin Press. <https://us.corwin.com/en-us/nam/evaluating-professional-development/book9582>
8. Hung, M., Chou, Ch. (2015). *Students' perceptions of instructors' roles in blended and online learning environments: A comparative study*. Computers and Education, 81, 315–325. <https://doi.org/10.1016/j.compedu.2014.10.022>.
9. Kenney, J., Newcombe, E. (2017). *Adopting a blended learning approach: Challenges, encountered and lessons learned in an action research study*. Journal of Asynchronous Learning Networks, 15(1), 45–57. <https://files.eric.ed.gov/fulltext/EJ918218.pdf>
10. Kintu, M., Zhu, C. (2016). *Student characteristics and learning outcomes in a blended learning environment intervention in a Ugandan University*. Electronic Journal of e-Learning, 14(3), 181–195. <https://eric.ed.gov/?id=EJ1107126>
11. Lim, D. H., Morris, M. L. (2019). *Learner and instructional factors influencing learner outcomes within a blended learning environment*. Educational Technology & Society, 12(4), 282–293. [https://www.researchgate.net/publication/279556336\\_Learner\\_and\\_Instructional\\_Factors\\_Influencing\\_Learning\\_Outcomes\\_within\\_a\\_Blended\\_Learning\\_Environment](https://www.researchgate.net/publication/279556336_Learner_and_Instructional_Factors_Influencing_Learning_Outcomes_within_a_Blended_Learning_Environment)
12. Lu, H., Chiou, M. (2019). *The impact of individual differences on e-learning system satisfaction: A contingency approach*. Br. J. Educ. Technol., 41, 307–323. <https://doi.org/10.1111/j.1467-8535.2009.00937.x>,
13. Maxwell, C. (2017). *What Blended Learning Is — and Isn't*. URL: <https://www.blendedlearning.org/what-blended-learning-is-and-isnt/>
14. Park, J.-H., & Choi, H. J. (2019). *Factors influencing adult learners' decision to drop out or persist in online learning*. Educational Technology and Society, 12(4), 207–217. <https://www.learnlib.org/p/74987/>

15. Romanovska, O., Romanovska, Yu., Romanovskyi, O. (2020). *Dosvid vyshchoi osvity Spoluchenykh Shtativ Ameryky KhKh–KhKhI stolit. Knyha 4. Osoblyvosti akademichnoho (universytetskoho) pidpriemnytstva u SShA druhoi polovyny KhKh — pochatku KhKhI stolit: navch. posib.* — K.: Vyd-vo NPU im. M. P. Drahomanova, 2020. — 240 s. <https://www.concordia.edu.ua/uk/2020/06/16/romanovska-o-o-romanovska-yu-yu-romanovskyi-o-o-dosvid-vyshhoyi-osvity-spoluchenykh-shtativ-ameryky-hh-hhi-stolit-4/>
16. Shahabadi, M. M., Uplane, M. (2015). *Synchronous and asynchronous e-learning styles and academic performance of e-learners.* *Procedia - Social and Behavioral Sciences*, 176, 129–138. DOI: 10.1016/j.sbspro.2015.01.453.
17. Zare, M. (2016). *Multi-criteria decision making approach in E-learning: A systematic review and classification.* *Appl. Soft Comput.*, 45, 108–128. <https://doi.org/10.1016/j.asoc.2016.04.020>.



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