

<https://doi.org/10.34142/2709-7986.2023.28.1.11>

## PROVIDING EDUCATION TO THE 1<sup>ST</sup> YEAR STUDENTS AT THE MEDICAL UNIVERSITY IN THE CONDITIONS OF MARTIAL STATE IN UKRAINE

Received: 16/02/2023

Accepted: 22/03/2023

**Alisa POPOVICH<sup>1</sup>, & Olena ALIYEVA<sup>2</sup>**



<sup>1</sup> Ph.D. in Biology, Associate Professor, Department of Medical Biology, Parasitology and Genetics, Zaporizhzhia State Medical University, Zaporizhzhia, Ukraine.

✉ E-Mail: [gennpgp@gmail.com](mailto:gennpgp@gmail.com)

 <https://orcid.org/0000-0002-9539-8431>



<sup>2</sup> Ph.D. in Biology, Associate Professor, Department of Medical Biology, Parasitology and Genetics, Zaporizhzhia State Medical University, Zaporizhzhia, Ukraine.

✉ E-Mail: [aliyeva1eg@gmail.com](mailto:aliyeva1eg@gmail.com)

 <https://orcid.org/0000-0003-1287-674X>

### ABSTRACT

*Learning is a complex creative process based on the use of modern technologies and taking into account the psycho-physiological properties of an individual. The martial law introduced significant changes in the operation mode of higher education institutions in Ukraine. Therefore, the problem of organization and implementation training in higher education institutions is very relevant in current conditions.*

*The **purpose** is the study and application of those modern forms and methods of education that would provide a sufficient level of knowledge in martial law, as well as the study of the peculiarities of student's motivation in martial law.*

© Alisa POPOVICH, & Olena ALIYEVA, 2023

**Providing Education to the 1st Year Students at the Medical University in the Conditions of Martial State in Ukraine** © 2023 by Alisa POPOVICH, & Olena ALIYEVA is licensed under **Attribution-NonCommercial 4.0 International**. To view a copy of the license, visit <http://creativecommons.org/licenses/by-nc/4.0/>

**Methodology.** We conducted a comprehensive analysis of sources about various teaching methods and generalization own experience of teaching Medical Biology in online format in Zaporizhzhia State Medical University.

**Results.** It was implemented the interaction concept of higher education students with the teaching staff and educational activity was monitored, Zaporizhzhia State Medical University introduced a remote form of education using MS Teams and the edX platform. Based on Teams, the work was carried out to create and fill in online platforms with an educational material, a content visualization with a large amount of illustrative materials, video materials, packages of test tasks in MS Forms, along with educational methods adaptation, including interactive ones, to a distance form.

Interactive distance learning means are very diverse. They include synchronous tools such as video conferencing and virtual classroom discussions, as well as asynchronous tools such as online forums and chats. Interactive distance learning means are crucial for several reasons: increasing contact, improving communication and collaboration, and contributing to a more dynamic and collaborative learning environment. While our teachers in real-time use synchronous interactive methods, asynchronous methods provide great flexibility for students regarding when and where they can participate in classes, that is especially important for students in complex real-world settings of martial law.

**Conclusions:** Distance learning in modern higher education has become a forced alternative to traditional forms despite the difficulties ensuring the educational process under challenging conditions.

Interactive means are becoming increasingly important in distance learning, as they help boost student's communication and interaction, improve collaboration, and provide greater flexibility and convenience in the distance learning process for students and teachers. Modern technologies and means will be appropriate if we take into account the students' psycho-physiological state and the degree of their motivation.

**KEYWORDS:** Distance Learning, Higher Education System, Experience, Motivation, Martial Law Conditions.

## INTRODUCTION

In the world, progress has touched all spheres of human existence without exception, including education. However, despite the fact that training programs, plans and methods change, the essence of the process remains unchanged: to raise a developed personality. Education lays the foundations for the ability to solve problems and operate with the information received. Educational processes become a mechanism for

copied with a person's difficulties while living in society. Learning using distance educational technologies is the most complex mechanism, among the most significant factors of which is the process of developing educational content and its organization – factors that are interconnected, forming a distance learning system. (Volkova, 2018; Ivanenko, 2020).

The conditions of martial law prompted higher educational institutions to digitally

transform the educational process into a distance format, which requires the search for optimal forms of implementation of the educational process aimed at maximum interaction between the teacher and students, increasing the interest of students in cognitive activities, which in general will lead to improved learning outcomes. The purpose of our work is the study and application of those modern forms and methods of education that would provide a sufficient level of knowledge in extreme conditions, as well as the study of the peculiarities of student motivation in martial law conditions.

## METHODOLOGY

The research methods are: comprehensive theoretical analysis of sources about various teaching methods and generalization own teaching experience. The materials of the research were the manuscripts about education methodology, our experience of teaching Medical Biology in online format in Zaporizhzhia State Medical University using "The world's leading digital platform for science education Labster" and Microsoft Office 365 programs: Word, Excel, PowerPoint, OneDrive, OneNote, Teams, Forms, SharePoint.

## RESULTS

In order to implement the concept of interactive cooperation of students of higher education with representatives of professors and teaching staff and monitoring of educational activity, Zaporizhzhia State Medical University introduced a remote form of education using MS Teams and the edX platform (Zidrashko et al., 2020). On the basis of Teams, work was carried out on the creation and filling of online platforms with educational material, visualization of content with the involvement of a large amount of illustrative material, video

material, creation of packages of test tasks in MS Forms, the adaptation of educational methods, including interactive ones, to the remote format.

Interactive distance learning methods refer to various methods and technologies that allow students and teachers to communicate and collaborate in real-time or asynchronously, even if they are not physically in the same place. These methods include synchronous tools such as video conferencing and virtual classroom discussions, as well as asynchronous tools such as online forums and chats (Posolenyk et al., 2020). Our teachers used various synchronous interactive methods: video conferencing, virtual group discussions, virtual whiteboard, and live webinars.

**Video Conferencing** technology allows students and teachers to communicate and collaborate via live video, which is especially useful for virtual group discussions and group projects. The use of video conferencing was particularly relevant for the Cell section. The slide presentation on the cell structure and its particular components provided the medical students with a detailed study of it, which in turn contributed to the understanding of the mechanisms of the cell, ensuring the penetration of drugs into the cell. Video films made it possible in dynamics to study such processes as protein biosynthesis in a cell, transfer of hereditary information, and cell division.

**Virtual Group Discussion** is a method of conducting online group discussions where students and teachers can communicate and collaborate in real-time through a virtual platform.

**Virtual Whiteboard** is a method used for real-time collaboration on a shared digital Microsoft Whiteboard, allowing students and teachers to write and draw together in

real time. In Genetics classes, the use of the MS Teams whiteboard made it possible to explain the solution to the most problematic tasks and problems. For example, let's take the topic: "Methods of human genetics – Genealogical analysis." The genealogical method is based on the study of the inheritance of traits in families over a number of generations.

It is used to establish the type of inheritance of a disease or a trait. It allows you to find out whether a given trait is inherited and how it is inherited, to trace the splitting of traits in the offspring, which causes certain abnormalities in the body. Using this method, the harmful effects of consanguineous marriages were discovered (Johnston, 2003, Zaharchuk et al., 2012). The genealogical method is often used in rheumatology, dermatology, hematology and other fields of medicine.

In order to direct the educational activity in a practical direction, and to make the assimilation of the educational material interesting, aware, and active, we proposed our algorithm for studying this method, namely, in compiling pedigrees. It is carried out in several stages. First, the students were asked to compile pedigrees based on the inheritance of a single trait in their families, collecting complete information about their relatives (living or deceased) by means of a survey of family members.

Students were particularly interested in the inheritance of the following traits in their families: eye color, hair color, and left-handedness. Having drawn up their genealogy, they found out which traits or hereditary diseases are transmitted in their families, found out from whom the existing traits were obtained, made assumptions about the inheritance of one or another trait in their future families. This line of work greatly interested students in studying issues related to the topic, and

also distracted them, at least for a while, from the harsh realities of martial law.

After checking the work, the teacher pointed out the most common mistakes, as well as those that need special attention. Students actively discussed the mistakes made, offering their options for their elimination. Next, on a shared digital Microsoft Whiteboard, all students of the group, in order to consolidate their knowledge, were asked to analyze several tasks for drawing up genealogies. Such an approach to the study of one of the most important methods of human genetics provided a complete understanding of this very complex and time-consuming method and created a basis for its further use as needed.

**Live Webinars** involve a presentation, usually a lecture or seminar, delivered to a remote audience over the Internet. Online classes – conferences were introduced at the medical and biological departments to increase students' motivation level (Syrtsov et al., 2021). For this, students receive tasks on the lesson's topic, creatively work on them and prepare reports and presentations. The teacher selects the best works and publishes a list of student speakers in the group channel.

These students present their works during the class, with the teacher's and other students' active participation (Fig.1). This training format stimulates students to a creative approach to the educational material and activates interest and desire to make their report or presentation better than others. Synchronous methods provide a sense of immediacy and closeness, which helps to create a more exciting and interactive learning process (Zidrashko et al., 2020; Syrtsov et al., 2021). However, they also require all participants to be available at the same time, which in some cases, has limitations.

**Figure 1**

Online Class-Conference on Medical Biology in Microsoft Teams



Asynchronous interactive methods do not require the simultaneous availability of all participants. The following asynchronous methods are used in the educational process at the departments of medical and biological disciplines of ZDMU.

**Online forums and whiteboards** are virtual platforms that allow students and teachers to communicate and collaborate on group projects by posting and responding to messages. This can be done anytime, providing a more flexible communication schedule. Online forums are used in the learning process for various purposes, such as group discussions, group projects, and peer review.

Asynchronous methods provide great flexibility for students and teachers regarding when and where they can participate in classes, which is especially important for students in the complex conditions of modern martial realities. They are valuable because they give students the opportunity to think and reflect on the material before posting their feedback, which significantly improves their learning outcomes. At the same time, these methods cannot provide the same

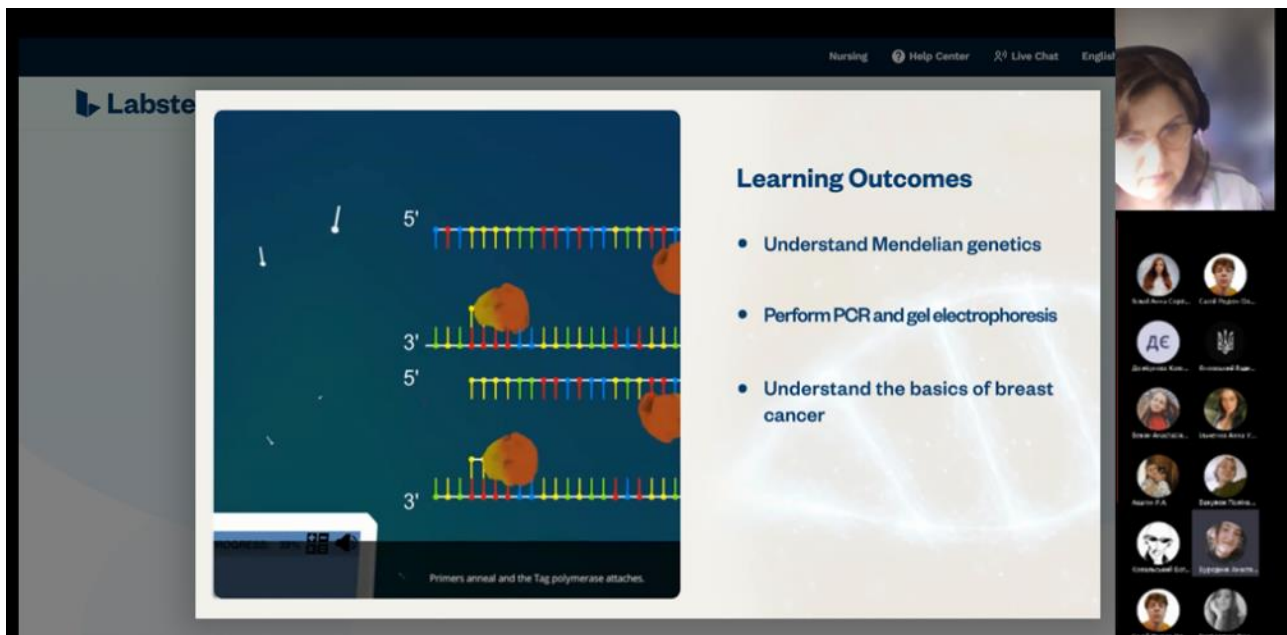
sense of immediacy and closeness that is achieved with synchronous methods.

In martial law conditions, the most expedient in education are those methods that involve different forms of communication in the groups of student-teacher, student-student. Therefore, most methods used in teaching the subject "Medical Biology" include elements of communication with students, although not live but at least through a computer screen. The profession of a doctor requires the development of communication skills.

The communicative competence of a doctor begins to form in the process of studying at a medical university and continues later in the process of independent professional communication with patients. Studying the discipline "Medical Biology", we conceded this factor and used some mechanisms for acquiring communication skills. One of these mechanisms was a method the "simulation of situations" that was applied based on the innovative educational platform of virtual laboratories and interactive science "Labster" (Fig.2).

**Figure 2**

*Using Labster Simulations in Online Medical Biology Classes*



We try to discuss various problematic issues, instruct students to prepare short presentations and demonstrate them in practical classes. When studying many topics, we use various interactive methods. Most often, we use the discussion method, which ensures the vigorous activity of the students and promotes the development of their cognitive thinking and interest. The discussion form of conducting the class requires the search for cause-and-effect relationships, the formation of which creates a basis for establishing the correct diagnosis, which is the main work of a doctor.

If a problem to be solved is announced, all students participate in its discussion through collective reflection – “brainstorming”. We also used this method when solving genetic problems, allowing individual students to present their results, followed by their discussion. Here is an example of an interactive test that requires a detailed group discussion and helps form the student’s clinical thinking: “Autopsy of a newborn boy

revealed polydactyly, microcephalia, cheiloschisis and uranoschisis as well as hypertrophy of parenchymatous organs. These defects correspond with the description of Patau’s syndrome. What is the most likely cause of this pathology?” During the brainstorming session, students are motivated to learn because the focus is on reaching a rational consensus in which every opinion counts.

When studying the topics of the “Medical Parasitology” section, the “case method” was used, based on learning by solving specific tasks – situations that allow applying theoretical knowledge to solving practical tasks. (Yermolenko, 2022). Based on the test results (which are offered) and knowledge of the life cycles of parasites, students learned to make the correct diagnosis and recognize parasitic diseases.

Students were offered a detailed description of an actual situation that could happen to a person. “The gynaecologist was examining a patient and found symptoms of genital tract inflammation. A smear from the vagina contains piriform protozoa with a spine,

flagella at their front; there is also an undulating membrane. What disease can be suspected?" It was necessary to establish a human disease based on knowledge of the morphology of the parasite, its localization, symptoms and test results. It was also necessary to decide whether it was necessary to carry out any further research for the final correct diagnosis. The discussion in the group helped to understand this real situation. In general, this method is especially relevant in the education of medical students and not only during the war.

The most effective in teaching medical biology, in our opinion, are online methods that combine visibility and student interaction.

## DISCUSSION

Distance education is one of the most modern in the higher education system and has significant advantages: mass, the ability to study anywhere and at any time, and accessibility for people with disabilities. The researchers emphasize the potential for developing the student's self-organization, planning skills and responsibility for their learning (Ivanenko, 2020; Prybylova, 2017; Smulson, 2012). However, modern technologies and the listed methods will be appropriate if the psychophysiological state of students and the degree of their motivation are taken into account. Students should be motivated to participate in the learning process (Nalyvaiko, & Lykhoshvai, 2021).

Many scientists (Heckhausen et al., 2010; Lakhmotova et al., 2022) have studied the problem of learning motivation. It has always been and remains relevant. Its relevance increases significantly during the period of martial law. The complex socio-economic situation that has developed in martial law conditions is

accompanied by mental and moral discomfort.

Interruption of the educational process in the event of the activation of the air raid sirens or other warning signals, stabilization and emergency power outages, poor or absent Internet, strenuous emotional state and psychological problems of students due to the war, the difficulties of temporary study and stay abroad still prevent a normal education. The most crucial thing in this situation is to provide psychological support for students. The question arises of the formation of positive motivation for learning during martial law, which consists of the perceived need for independent acquisition of knowledge, high-quality preparation for classes, and the desire for constant self-improvement (Yakimova, 2010).

Specialist research shows that using interactive teaching methods allows not only significantly increase students' ability to acquire knowledge and skills but also to improve the level of formation of positive personal abilities (Kazmirenko et al., 2013). On the question of what exactly made it possible to distract from thoughts about the war, the majority of our students (73%) noted that the stimulus was precisely learning and involvement in joint work.

For the teacher, the results of the questionnaire are essential for analyzing the features of students' motivation for educational activities in order not to lose contact with their students and to create favourable conditions for strengthening students' motivation to study in general and especially during the military aggression of the Russian Federation against Ukraine.

Understanding the motivation and behaviour of students at such critical moments in life enables the teacher to

plan seminars, lectures and practical-laboratory complexes aimed at achieving the desired results. Scientists have proven that the student learns well what is presented as a subject and as the goal of his activity. (Derbeyova, 2012; Lakhmotova et al., 2022).

### CONCLUSIONS

Distance learning in modern higher education has become a forced alternative to traditional forms but cannot fully replace them. It helped, despite the difficulties, to continue the educational process in martial law conditions.

In distance learning, interactive methods are gaining more and more importance, as they provide students increase communication and interaction as well as improve cooperation, which are the essential components of the future profession – medicine.

In martial law conditions, the most expedient training methods are those that involve various forms of communication in a group. Modern technologies and the listed methods will be appropriate if we take into account the psychophysiological state of students and the degree of their motivation.

---

### CONFLICT OF INTERESTS

The authors declare that there are no conflicts of interest regarding the publication of this paper.

### FUNDING

The authors declare that this study received no specific financial support.

---

### REFERENCES

- Derbenyova, A. (2012). *Everything about Motivation*. Basis.
- Heckhausen, J., Wrosch, C., & Schulz, R. (2010). A Motivational Theory of Life-Span Development. *Psychological Review*, 117(1), 32–60. <https://doi.org/10.1037/a0017668>
- Ivanenko, Yu. (2020). Distance Learning as a Means of Developing Self-Organization of Students. *Collection of Scientific Works "Problems of modern psychology"*, 49, 60–83. <https://doi.org/10.32626/2227-6246.2020-49.60-83>
- Johnston, J., & Thomas, M. (2003). Summary: The Science of Genealogy by Genetics. *Developing World Bioethics*, 3(2), 103–108. <https://doi.org/10.1046/j.1471-8731.2003.00064.x>
- Kazmirenko, V. (2013). Basics Of Cognitive Psychology of Communication. Index-LTD.
- Lakhmotova, Yu., Shkrabyuk, V., & Tsapko, A. (2022). Motivation for Distance Education of Students of Higher Education Institutions in the Conditions of Marital State. *Current Issues of Humanitarian Sciences: Pedagogy*, 55(2), 198-200. <https://doi.org/10.24919/2308-4863/55-2-31>
- Nalyvaiko, O., & Lykshoshvai, K. (2021). Quality of Professional Psychologist Training in Online Space. *Educational Challenges*, 26(2), 75-89. <https://doi.org/10.34142/2709-7986.2021.26.2.07>
- Posolenuk, L., & Vydroynyuk, O. (2020). The Use of Interactive Teaching Methods and the Development of Distance Education of Doctors at the Ternopil National Medical University under Quarantine Conditions. *Medical Education*, 4, 80–84. <https://doi.org/10.11603/me.2414-5998.4.11666>



- Pribylova, V. (2017). Problems and Advantages of Distance Learning in Higher Educational Institutions of Ukraine. *Problems of modern education*, 4, 27-36. <https://periodicals.karazin.ua/issuededu/article/view/8791>
- Sirtsov, V., Makeeva, L., Alieva, O., Popazova, O., Zidrashko, G., & Pototska, O. (2021). Author's technology "Organization of Mixed and Distance Learning of Domestic and Foreign Medical Students in the Course of Histology, Cytology and Embryology". In *The Experience of Implementing a Mixed Form of Education at ZDMU, the Trajectory of Development and Its Place in the System of higher medical education: proceedings of the Educational and Methodological Conference, May, 26, Zaporizhzhia* (pp. 19-20). ZDMU.
- Smulson, Y. (2012). *Distance Learning: Psychological Foundations*. Imex-LTD.
- Volkova, N. (2018). *Interactive Learning Technologies in Higher Education: Educational and Methodological Manual*. Alfred Nobel University.
- Yakymova, L. (2010). *The Use of Active Teaching Methods in Forming The Professional Language Competence of Students*. PH Personal.
- Yermolenko, A. (2022). *Interactive Learning Technologies: Electronic Training Course*. BINPO.
- Zaharchuk, O., Pishak, O., Kryvchans'ka, M., Kadelnyk, L., Khomenko, V. (2012). Importance of a Pedigree Method at modern stage of Anthropogenetics Development. *Integrativna Anthropology*, 2(20), pp. 53-57.
- Zidrashko, G., Sirtsov, V., Alieva, O., Gromokovska, T., Tavrog, M., Popko, S., Makeeva, L., & Popazova, O. (2020). Experience of Implementing Distance Learning at the Department of Histology, Cytology and Embryology under Quarantine Conditions. In *Proceedings of the scientific and practical conference "Theory and practice of modern morphology" November 4-6, Dnipro* (pp.34-35). DDMU.
- Zidrashko, G., Sirtsov, V., Alieva, O., Pototska, O., Tavrog, M., & Popko, S. (2020). Application of the Microsoft Teams Program in Distance Learning of ZDMU under Quarantine Current Issues of Distance Education and Telemedicine. In *Proceedings of the All-Ukrainian Scientific and Methodical Conference, November 19-20, Zaporizhzhia* (pp.105-106). ZDMU.

---

**АНОТАЦІЯ / ABSTRACT** [in Ukrainian]:**ЗАБЕЗПЕЧЕННЯ НАВЧАННЯ СТУДЕНТІВ 1-ГО КУРСА МЕДИЧНОГО УНІВЕРСИТЕТУ В УМОВАХ ВОЄННОГО СТАНУ В УКРАЇНІ**

Навчання – це складний творчий процес, заснований на використанні сучасних технологій та врахуванні психофізіологічних властивостей особистості. Запровадження воєнного стану внесли суттєві зміни у режим роботи закладів вищої освіти в Україні. Тому проблема організації і реалізації навчання у закладах вищої освіти є дуже актуальною в сучасних умовах.

**Метою** нашої роботи є вивчення та застосування тих сучасних форм та методів навчання, які б забезпечували достатній рівень знань, а також дослідження особливостей мотивації студентів в умовах воєнного стану.

**Методи.** Проведено комплексний аналіз джерел про різні методи навчання та узагальнення власного досвіду викладання медичної біології в онлайн-форматі в Запорізькому державному медичному університеті.

**Результати.** Для реалізації концепції інтерактивної взаємодії здобувачів вищої освіти з представниками професорсько-викладацького складу та моніторингу навчальної активності у Запорізькому державному медичному університеті запроваджена дистанційна форма навчання з використанням MS Teams та платформи edX. На основі Teams була проведена робота зі створення та наповнення он-лайн платформ навчальним матеріалом, візуалізації контенту із залученням великої кількості ілюстративного матеріалу, відеоматеріалу, створення пакетів тестових завдань у MS Forms, адаптації навчальних методик, у тому числі інтерактивних, до дистанційного формату.

Інтерактивні методи дистанційного навчання дуже різноманітні. Вони включають синхронні інструменти, такі як відео конференції та обговорення у віртуальних класах, а також асинхронні інструменти, такі як онлайн-форуми та спілкування у чатах. Інтерактивні методи дистанційного навчання важливі з кількох причин: підвищення комунікації між студентами і викладачами; краще спілкування та співробітництво; допомога створення більш динамічного та спільного навчального середовища.

Якщо синхронні інтерактивні методи використовуються нашими викладачами в режимі реального часу, то асинхронні методи забезпечують велику гнучкість для студентів з погляду того, коли і де студенти можуть брати участь у заняттях, що особливо важливо для тих студентів, які перебувають у складних умовах реалій військового стану.

**Висновок.** Дистанційна освіта в закладах вищої освіти стала вимушеною альтернативою традиційним формам і, не зважаючи на труднощі, забезпечила повноцінний навчальний процес у складних умовах. Інтерактивні методи набувають все більшого значення у дистанційному навчанні, оскільки вони допомагають підвищити комунікацію та взаємодію студентів, покращити спілкування та співпрацю студентів і викладачів, а також забезпечують більшу гнучкість та зручність дистанційного навчального процесу для студентів та викладачів. Сучасні технології та перелічені методи будуть доцільними, якщо врахувати психофізіологічний стан студентів та рівень їхньої мотивації.

**КЛЮЧОВІ СЛОВА:** дистанційне навчання, система вищої освіти, досвід, мотивація, умови воєнного стану.

**CITE THIS ARTICLE AS (APA style):**

Popovich, A., & Aliyeva, O. (2023). Providing Education to the 1<sup>st</sup> Year Students at the Medical University in the Conditions of Martial State in Ukraine. *Educational Challenges*, 28(1), 139-148. <https://doi.org/10.34142/2709-7986.2023.28.1.11>

