

V.F. Zavizion, V.S. Kyslytsyna,
I.M. Bondarenko, O.A. Sukhoversha,
D.I. Avierin, Y.M. Khvorostenko,
M.I. Hojouj, M.H. Elhajj,
N.O. Davlietova, P.L. Suzdalev,
N.O. Cherednychenlo, T.F. Myroniuk,
A.V. Prokhach, I.N. Kichtenko,
V.E. Mashtaler, Y.V. Hrabovskyi,
K.O. Dmytrenko, K.V. Smolina,
V.V. Lohvynenko, I.V. Baranov

DISTANCE LEARNING: OPPORTUNITIES AND CHALLENGES IN QUARANTINE

SE «Dnipropetrovsk medical academy of Health Ministry of Ukraine»
Department of Oncology and Medical Radiology
V. Vernadsky str., 9, Dnipro, 49044, Ukraine
ДЗ «Дніпропетровська медична академія МОЗ України»
кафедра онкології та медичної радіології
(зав. – д. мед. н., проф. І.М. Бондаренко)
вул. В. Вернадського, 9, Дніпро, 49044, Україна
e-mail: kafedraradonco@gmail.com

Цитування: Медичні перспективи. 2020. Т. 25, № 2. С. 4-12
Cited: Medicni perspektivi. 2020;25(2):4-12

Key words: coronavirus pandemic, distance learning, academic communications, training logistics, training methodology

Ключові слова: пандемія коронавірусу, дистанційне навчання, навчальні комунікації, логістика навчання, методологія навчання

Ключевые слова: пандемия коронавируса, дистанционное обучение, учебные коммуникации, логистика обучения, методология обучения.

Abstract. Distance learning: opportunities and challenges in quarantine. Zavizion V.F., Bondarenko I.M., Avierin D.I., Hojouj M.I., Davlietova N.O., Cherednychenlo N.O., Prokhach A.V., Mashtaler V.E., Dmytrenko K.O., Lohvynenko V.V., Kyslytsyna V.S., Sukhoversha O.A., Khvorostenko Y.M., Elhajj M.H., Suzdalev P.L., Myroniuk T.F., Kichtenko I.N., Hrabovskyi Y.V., Smolina K.V., Baranov I.V. The urgent introduction of distance education into the learning process due to the COVID-19 pandemic has become a spontaneous experiment, requiring urgent decisions, effective mechanisms to implement into the educational process and analysis of ongoing educational process. The possibilities of modern digital technologies made it possible to quickly set up the information component of education and to control student's knowledge. A detailed analysis of the communication between the faculty members of the department among themselves and analysis of the features of teaching and self-education of students in the field of medical radiology and oncology based on answers and comments with using Google classroom, Socratic, Messenger Telegram, etc. was made. Issues of communicative interaction between faculty members and students, psychological aspects of distance communication, language of instruction, logistics of distance education and methodological problems are described in details. It has been suggested that distance education may be equally effective for theoretical subjects in full-time study form, but when studying clinical disciplines, the priority should be given to traditional methods of teaching, involving student's bedside training. Taking into account technical possibilities and high risk of development of extreme and emergency situations, it is suggested to introduce permanent readiness for distance education, to create all – Ukrainian distance imitation service of patients' follow-up. The importance of using the state language in training as the basis for mastering the professional Ukrainian and English language as the basis for mastering international medical experience is indicated.

Реферат. Дистанционное обучение: возможности и проблемы в условиях карантина. Завизион В.Ф., Бондаренко И.Н., Аверин Д.И., Ходжуж М.И., Давлетова Н.А., Чередниченко Н.А., Прохач А.В., Машталер В.Е., Дмитренко Е.А., Логвиненко В.В., Кислицина В.С., Суховерша А.А., Хворостенко Ю.М., Эльхажж М.Х., Суздальев П.Л., Миронюк Т.Ф., Кихтенко И.Н., Грабовский Ю.В., Смолина Е.В., Баранов И.В. Срочное внедрение дистанционного образования в учебный процесс в связи с пандемией COVID-19

превратилось в спонтанный эксперимент, потребовавший принятия экстренных решений, поиска эффективных механизмов реализации учебного процесса и анализа происходящего. Возможности современных цифровых технологий позволили быстро настроить информационную составляющую обучения и контроль знаний студентов. Проведен детальный анализ коммуникаций профессорско-преподавательского состава кафедры между собой и анализ особенностей обучения и самообразования студентов при изучении медицинской радиологии и онкологии на основании ответов и комментариев с использованием платформ Google classroom, Socrative, мессенджера Telegram и т.п.. Детально изложены вопросы коммуникативных отношений между преподавателями, между преподавателями и студентами, между студентами, психологические аспекты дистанционных отношений, вопросы языка обучения, логистика дистанционного образования и методологические проблемы. Выдвинуто предположение, что дистанционное образование может быть равноэффективным очному для теоретических предметов, но при изучении клинических дисциплин приоритетными должны быть традиционные методы обучения, предполагающие работу студента у постели больного. С учётом технических возможностей и высокого риска развития экстремальных и чрезвычайных ситуаций, предложено внедрить постоянную готовность к дистанционному образованию, создать украинский дистанционный имитационный сервис курации больных. Указано на важность использования государственного языка в обучении как основы овладения профессиональным украинским языком и английского языка как базы для освоения международного медицинского опыта.

In the conditions of quarantine caused by the pandemic of coronavirus COVID-19, almost the only possible option for acquiring knowledge is distance learning (DL) – a set of technologies that provide students with the bulk of educational material, interactive interaction of students and teachers in the learning process, providing students opportunities for independent work with educational materials and in the process of studies [5, 6, 7, 8]. DL provides 4 types of subjects: a student, a tutor (tutor, instructor, teacher), an organizer (plans and coordinates educational activities) and an administrator (ensures stable operation of the system, solves technical issues, monitors the statistics of the system) [3, 5].

Urgent transition to DL requires revision and modification of methodological categories: pedagogical theory, pedagogical concept, pedagogical idea, pedagogical regularity and pedagogical principles [1, 3, 4, 9, 10].

Since the duration of quarantine cannot be predicted, the idea of intensification of the independence of students' self-study in DL becomes conceptual, when the interaction between teacher and student takes place in virtual space, they are both at their computers and communicate via the Internet.

The spread of COVID-19 prompted an urgent review of the possibilities of distance learning technologies and contributed to their introduction as the main ones to ensure the continuity of the learning process in extreme conditions. SE “Dnipropetrovsk Medical Academy of Health Ministry of Ukraine” (DMA) is no exception. According to the decision of the Government of Ukraine of March 11, 2020 N 211 "On prevention of the spread of coronavirus COVID-19 in Ukraine", the order of the Ministry of Education and Science of Ukraine from

11.03.2020 N 1/9-154 on quarantine for all types of educational institutions by order N 49-OD of 11.03.2020 "On the readiness of the medical academy to take preventive measures to prevent the spread of COVID-19 cases in the city of Dnipro" and the order N 50-OD of 11.03.2020 "On the organization of the educational process in the academy to prevent the spread of coronavirus" the quarantine regime was introduced in the academy and the DL was urgently introduced [5, 11].

The purpose of the work is to analyze the experience of DL at the Department of Oncology and Medical Radiology. Identify the main problems that arise in the distant study of radiation diagnostics, radiation therapy, oncology, radiation medicine, consider the possibility of their prevention and solution.

A detailed analysis of communication between the faculty of the department using Viber-chat, analysis of learning and self-study of students of 3-6 courses of DMA in the study of medical radiology and oncology was made based on answers and comments using Google classroom, platform Socrative, messenger Telegram, etc.

DL technologies using the Google classroom platform from the beginning of the 2019-2020 academic year in the test mode were used by the department in order to organize students' self-study in oncology. The Socrative platform has been used by us in the last few years in a training mode to prepare students for the “Step 2” test. We shared our experience at the academic conference of the Academy "The first experience of implementing a single model of practical training at the departments of medical and biological disciplines (results and prospects)" on January 28, 2020 and in the publication "Integration of Electronic Education

Methods in the Practice of Higher Medical Education” (Crimson Publishers) [8]. Thus, the urgent introduction of DL did not become something extraordinary for the department. However, a lot of effort had to be made to urgently supplement the classes with information content, educational video material, tasks and tests in all disciplines taught at the department (oncology, radiation diagnostics, radiation therapy, radiation medicine, clinical study of medicinal agents) for all faculties in the Ukrainian, Russian and English languages of instruction. Additional time will also be needed to train faculty members who will later take on the role of administrators.

For DL we use platforms Socrative (<https://socrative.com/>), Google classroom (<https://classroom.google.com/>), Sitetv (<https://www.sitetv.net/>), site of SE "DMA" (<https://www.dsma.dp.ua/>), site of the student’s scientific society of the department <https://onco.school.blog/>, conference service Zoom (<https://zoom.us/>) and Telegram. The YouTube platform is used to download lectures, instructions, clinical cases, etc. Operational communication and coordination of actions of faculty members is carried out through the Viber service and by phone. Telegram Messenger (<https://telegram.org/>) and telephone communication is used to coordinate students' actions.

The combination of capabilities of each service enables to successfully conduct DL in real-time, provide students with information support, monitor tasks, performing work with tests, comment on answers and guide students' actions. At the same time, the practice of distance learning has covered many interrelated issues, which we have divided into communicative, logistical, methodological.

Communication issues were divided into **educational** (between teachers, between teachers and students, between students), **psychological and linguistic**.

Communication between teachers demonstrates the following features.

The age of teachers, their usual teaching style is different and different level of computer skills respectively. The clear division of responsibilities allows to optimize pedagogical activity: preparation of materials, checking, distance keeping of gradebooks, etc.

Constant communication between faculty members of the department is necessary. Communication goes far beyond working hours, views on problem

solving often differ significantly, sometimes there is internal resistance to the performance of a particular job (sometimes up to ignoring the instruction), which leads to a feeling of psychological stress in the teaching staff. Most of the exchange of views and information takes place in Viber-chat, which allows you to practically document specific orders, opinions, comments, debates and more. Adherence to ethical norms of communication, timely transition of opinions on other topics makes it possible to reduce emotional stress, and, as a result, to find the right solution to the problem.

Communicative issues between teachers and students are based on the full understanding that students are also in unusual conditions and they need a lot of effort to harmonize the interaction with different departments, and the new organization of the educational process has its own characteristics. At the same time, acquiring new knowledge is one of the most difficult human tasks, but it is impossible to study and acquire knowledge instead of a student. It is the student who must make an effort for this, the function of the teacher is to help him in this.

Our experience of distance teaching shows such a range of communicative issues between teachers and students.

Some students register on distant services under fictitious names. This makes it difficult to identify them and takes a lot of time for teachers to correspond with the requirement to change the nickname to the real name.

DL requires constant communication with students. First of all, personal telephone numbers of teachers are used. The issues discussed are primarily logistical in nature, but often also theoretical, practical, recommendatory, etc. This takes a lot of teacher’s time. Some students, losing their sense of tact, call outside of office hours, sometimes late in the evening or even at night. The Google classroom platform provides the opportunity to communicate by correspondence through the "Stream" menu. In addition to a significant reduction in telephone conversations, such communication is available to the entire audience and therefore students' questions become thoughtful, best articulated and balanced. The teacher has the opportunity to answer at a convenient time. In addition, the dialogue is saved, if necessary, it can be viewed at any time. The negative side is the spam download of email.

Another communicative solution is to use the Telegram channel to answer students' questions, written consultations on completing assignments and

searching for additional literature, feedback. The use of messengers significantly reduces the load on the mail, but requires much more effort from the teacher to explain and argue.

Placing class schedules, calendar and thematic plans on educational platforms significantly reduces the burden on teachers. This allows students to independently orient themselves in the topic of current, missed and future classes.

It is often necessary to comment on students' answers. Individual comments are usually visible only to teachers and students. But students share the information with each other, which often leads to duplication of answers. An experienced teacher notices this and, accordingly, may lower the grade. Obviously, individual comments are not always appropriate, or they should be of a purposeful nature, without a specific hint or explanation, the best way is to draw the student's attention to a particular scientific source, after studying which he will be able to find the right answer. Comments through the "Stream" menu are more rational, but only after the task has been assessed and the grades have been sent to the students.

Tasks that require knowledge of laboratory standards, anatomical structures, etc., those tasks to which 100 percent of students gave the correct answer do not require comments. Whether the task needs to be commented on if only a few students answered incorrectly, should be decided by the teacher, based on his experience.

Instead of answering, students sometimes put a copy of a text they found on the Internet, sometimes without even removing advertising information from it.

The issue of academic decency in general is urgent in the context of DL. Therefore, checking texts for plagiarism, especially when it concerns an abstract or coursework, is necessary. Thus, in some groups, the originality of the text is less than 20%, and in some cases 1-2%. At the same time – no references to sources of information. No less important is the problem of transferring term papers to the next groups.

In each academic group there is at least one student who does not complete certain tasks on time or regularly. Most students warn in advance about the impossibility of timely work performing, but there is a certain group of students who do not consider it necessary to inform about the delay. They usually do not respond to emails from teachers, and in some groups that are not diligent, group leaders often do not even respond to calls from teachers and become active only after the interference from the dean's office.

In the oncology course, students' answers are accepted only when in printed form, which greatly facilitates verification. At the same time, in radiation diagnostics and radiation therapy courses, it is required to write the answer on paper with its subsequent photographing and placing the photo in a Google class. This greatly complicates the work of teachers, because the photo is not always of high quality, handwriting is often illegible. Photos take up a lot of memory on Google Drive, which can lead to the need to expand it for a fee.

In traditional full-time education, certain relations are established between the student and the teacher, which are manifested by likes, dislikes or neutral attitudes. The monitor screen depersonalizes both the student and the teacher. The relationship is completely formal, only on the basis of texts written by students or teachers. However, sometimes a student (but maybe a teacher?) can provoke a conflict with his careless or specially compromising records. Sometimes students complain about low grades in this way, knowing that their answers are copied off or incorrect. The art of the teacher should be manifested in the maximum of pedagogical diplomacy in order to smooth out the conflict, moreover, so that the student also draws a useful conclusion from this conflict.

One of the features of communication in student groups is the exchange of answers. Yes, during quarantine every day we face a problem when 2-3 or more students have exactly the same answers, sometimes they are distinguished only by the language of instruction (Ukrainian and Russian). The reason is the exchange of answers between students. It seems that students just share questions with each other, each of them is looking for an answer to one or two questions, and then exchange with each other. Then, to avoid plagiarism, everyone writes the answer in their own words. Otherwise, it is difficult to explain how almost the entire audience correctly answers a rather complex question, and even if there is some inaccuracy, it is repeated from answer to answer.

There is a lot to be said about the **psychological problems of communication** in educational institutions, but there exists a problem that is crystallized separately and cannot be ignored – the problem of violation of subject-subject relations of participants in the educational process. Among these, the issue of deviant excesses on the part of students is relevant. In our practice, we came across incorrect answers that had nothing to do with the question, aggressive comments, sometimes extremely offensive to the teacher. It was difficult to survive such behavior

without unnecessary emotions, but we managed to keep our moderation and the students apologized for their behavior.

The language problem is a separate and extremely relevant aspect of communication. The need for fluency in the state language and the Ukrainian medical professional language is not discussed [6]. Professional language is formed during studies in higher education institutions. Ukrainian students often prefer the Russian language both in life and in their studies. This pattern is observed in distance learning. Without denying the importance of knowing a foreign language, we do not lower the score for the answers in Russian, but we try to have a dialogue in Ukrainian, even when students answer the task in Russian.

Most of the faculty members of the department to some extent speak English, but the number of teachers who are fluent in the international language of instruction is still limited. Therefore, in the case of students with English as the language of instruction, the main burden falls on this limited group of teachers.

The analysis showed a number of **logistical** features that should be taken into account.

The “Google classroom” service requires the creation of a separate account, as the operation of even one class is accompanied by a large amount of correspondence via email, spam all email and creates problems with finding letters that do not relate to classes. A huge flow of information quickly fills Google's drive, which may soon raise the question of buying more space.

Prior to the introduction of the quarantine regime, the department created a textbook on oncology, which was almost ready for final editing. To provide the educational process in oncology with own methodological material, the sections of the manual were urgently edited, reformatted from .docx to .pdf and in the form of separate booklets placed in Google classes in accordance with the topics of classes. Relevant links have been created for useful resources that are freely available on the Internet. We also have e-textbooks that are not freely available on the Internet, mostly in English, and are used in learning process at the world's leading medical universities. In order not to infringe copyright, we have placed them in the telegram channel, which can be accessed by only one link, posted on the website of the student's scientific society of the department.

DL technologies differ depending on the organization of classes.

Thus, classes for the of students 3rd year are held in a double period during the academic semester/year, in 4th-6th year students – in cycles from 3 to 9 academic days, depending on the course and subject.

In the 3rd year of study there is a need for constant rapid replenishment of educational and control content in Ukrainian, Russian and English throughout the period of distance learning for different faculties that differ in subject (“Radiation Diagnostics” and “Radiation Therapy”, as well as “Radiology” for dental faculties). At the same time, 33 academic groups study in the 3rd year, each lesson takes place according to the schedule once in 2 weeks. Faculty members who assess the knowledge of the third-year students must simultaneously control academic performance of about 1,000 students. This has led to one of the main problems that arise in the quarantine regime – an acute shortage of time in case of overloading teachers involved in DL.

In senior courses, classes of full value are created, which can be duplicated from cycle to cycle. However, two consecutive cycles in oncology have shown that each subsequent cycle must have at least some differences from the previous one, as some students copy the materials and can pass them on to other student groups. The latter, in turn, use the received material as answers. A slight change in the conditions of clinical tasks (age, sex of the patient, comorbidities, drugs used, questions of evidence-based answers) complicates the exchange of information. This practice is justified in several groups of students studying oncology.

The work is complicated due to students who do not complete tasks on time, and those who missed lessons in the previous semester, before quarantine. Due to the isolation restrictions, it became impossible to obtain a dean's office permission, and by order of the academy, students were allowed to complete missed classes without a document. To do this, we have created separate classes. Alternatively, the student can join the current topic in the group studying currently. At the same time, maintaining contact with “debtors”, monitoring their academic achievements, assigning additional tasks adds work to the teacher and takes away the teacher's time.

The use of test cases reduces the shortage of time and workload on teachers, but we cannot refuse from the tasks that require logical conclusions or the application of medical background to solve.

In order to objectify assessments, educational services that allow students to control their knowledge (Google classroom, Socrative) should be appropriate, configured so that students do not see the correct answers and do not see each other's answers.

When creating and programming test tasks, it is important, in addition to the correct answer, to add at least 4 distractors, to include modes of mixing tests and answers.

Medical education involves the work of students, especially senior ones, at the patient's bedside, followed by writing a medical history or protocol of follow-up of the patient. The department has created an electronic protocol of follow-up of the patient, maximally adapted to the protocol of follow-up, which is used in state examinations, but given the oncological component. We plan to create a video with a demonstration of patients, history taking, examination, diagnostic procedures. The sudden introduction of quarantine regimen has deprived us of such an opportunity, so we do not currently have our own video content with the follow-up of patients. We use the MedSims service of the MedScape platform for distant simulation of follow-up of patients for English-speaking students. Its advantage is that, in addition to the clinical situation, the student receives additional materials in the form of instructions, explanations, etc. It remains to resolve the issue of the dicency of English-speaking students, as we often find copying an explanation and using a copy is presented as an answer. Unfortunately, we do not have the like Ukrainian-language, or at least Russian-language content, English-language content for Ukrainian students remains still difficult for perceiving.

For the sake of teachers' convenience and to ensure timely checking of a large array of answers, we recommend that students present answers to the questions before 4 p.m. on the current day of the class. As the student has the right to check his/her answers and correct them by the specified time, we recommend not to put marks until 16.00, or at least not to confirm them. Realizing that there may be good reasons why a student did not have time to answer questions on time, we leave classes open, and students who have a "debt" are reminded of the need to complete tasks through comments in the Stream menu (students receive email letters with reminder). To ensure the possibility of working in classes at a convenient time for them, we open them in advance.

Obviously, due to the increased workload, some online services may be less stable than usual. Thus, in the work of the Socrative service more often than before, communication breaks during testing, take place due to this students have to re-enter the service, register and take the test.

During the quarantine period, the DMA website was subjected to Ddos attacks several times, which

for some time made it impossible for students to work through the "Distance Learning" menu. Because for distance learning we have chosen services on global platforms (Google) which are more resistant to such attacks, own server and domain for the work of information site of the student's cancer research society, we did not have such problems.

In developing distance learning, we faced with a number of **methodological** issues.

Bringing domestic educational programs to the world's leading ones also provides a similar base of information resources, tests, tasks, training programs, evaluation approaches.

We have already talked about the information part of Google classes. Despite the limited access of students to primary paid resources, there are still doubts about the absolute legality of such access.

Most of the tests and tasks for students were taken from the international electronic resources IFOM, USMLE, the European School of Oncology, etc. For Ukrainian- and Russian-speaking students they are translated into Ukrainian or Russian, respectively, and for English-speaking students, they are presented in the original. Some of the tasks were created by us on the model of foreign ones.

Translations and own created materials sometimes require additional editing, to which we try to connect the entire staff of the department. This hides the risk of distorting the essence of the test or task, so we resort to such actions only in case of ambiguity of the translation or the meaning of the material translated.

The most pressing problem for us in creating classes was the complexity of the tasks. The usual approach to teaching disciplines was based on the thesis that we train a family doctor/general practitioner, who must navigate in the general situation, to conduct examination and treatment, screening and prevention sufficiently standard for family medicine/general practice, and if it is necessary to use highly specialized technologies, patients are referred to specialized clinics. The search for information materials, tasks and tests in international educational bases has shown that body of knowledge that a student must assimilate while studying the discipline, goes far beyond what is accepted in our country. The practice of working with students and interns, further communication with doctors of the general medical network show a fairly low level of survival of knowledge acquired while studying at the academy. Thus, in our opinion, strengthening of requirements for mastering the broadened scope of information seems quite justified, and the search for

information to solve a complex problem leaves imprints in the student's memory and will be useful to him/her in the future.

A significant number of training resources are available in English, often freely available or free, although registration is required. The position of the department is that students should use these resources without translation into Ukrainian or Russian. In addition, the use of English-language primary sources in parallel with the study of subjects contributes to the development of professional English. Sometimes we face with opposition from students who claim that they are not obliged to use in a foreign language because they study in Ukraine and must be provided with Ukrainian-language or Russian-language sources. It should be noted that there is a large number of information sources in Russian in free access, and references to several of them are available in the classes we have created.

In the most of the classes we have created video lectures (both of our own production and from the Internet) or links to video lectures (including <https://www.sitetv.net/>). As the analysis shows, the average duration of watching a lecture does not exceed 6 minutes, and the content of the audience is quite low (from 8 to 20%). You can add to the video class questions that students can answer only by watching the lecture, but this approach does not guarantee presence of the student, and may encourage him to seek alternative and not always correct sources of information.

A database of test keys or so-called ideal answers to questions should be created to speed up the checking of tasks. At the same time, the teacher who checks the task should focus on the correct answer and adequately evaluate the logic of medical thinking of students. It should be noted that test questions IFOM, USMLE are very difficult to find online, you need to use paid platforms, but they do not give explanations as for correct or incorrect answers, and usually only indicate the correct distractor. Therefore, such tests require finding arguments for the correct answer, and for this purpose we use the latest textbooks edited by Kaplan – medical to prepare for these tests,.

CONCLUSIONS

1. The practice of teaching in extreme conditions has shown that DL can be equally effective in full-time education for theoretical disciplines. At the same time, studying in a higher medical educational institution, and, in particular, in a clinical department, has a practical part, where the student must

contact patients, master medical skills and manipulations. Therefore, distance learning of clinical disciplines cannot replace education in its traditional form.

2. Analysis of the experience of DL in conditions of high epidemiological danger, which entails significant psycho-emotional stress in society, showed a number of problems that need to be considered and, as a rule, quickly solved, including communication between staff members, communication between teachers and students (up to the violation of subject-subject relations), communication between students, logistical and methodological problems. Adequate and constant monitoring of problems, a calm, emotionless, responding to changes in the situation and communicative problems arising, are the key to a calm and quality DL.

3. Hundred-per-cent DL, as a forced action, can be used only in extreme situations. In the case of long-term use, this type of training can lead to a decrease in student motivation, burnout and loss of interest in the teaching activities of teachers. "Live" communication, dialogue, the opportunity to work in the practical conditions of the clinic is much more conducive to the education of future generations of medical practitioners. At the same time, the gained experience will be an excellent support for extra-curricular work of students.

4. A situation requiring the emergency use of DL can occur anytime, anywhere and for any reason. Educational institutions need to be prepared for this at any time. Modern technological capacities enable to create educational content of full value. Given the possible occurrence of emergencies that may require the immediate use of distance learning, DL programs and technologies should be ready for use, regardless of the conditions in which the school operates (peace or war-time situation, natural or man-made security, etc.).

5. There is an urgent need to create a Ukrainian distance service to simulate the follow-up of patients by the example of MedSims.

6. The use of the Ukrainian language in teaching, Ukrainian textbooks translated into Ukrainian from world sources, own methodological developments and lectures, clinical cases from own experience, own videos should become a pedagogical principle that forms national consciousness, develops language competence; instills a respectful attitude to the achievements of Ukraine in medicine. The use of English-language textbooks and other English-

language educational content contributes to the broadening knowledge of both teachers and domestic and foreign students, allows mastering the achievements of world medical science.

Conflict of interest. The authors declare no conflict of interest.

REFERENCES

1. Havrilova LH, Katasonova YI. [Theoretical aspects of the introduction of distance learning in Ukraine]. *Osvitolohichniy diskus*. 2017;1-2(16-17):168-82. Ukrainian. Available from: <http://od.kubg.edu.ua/index.php/journal/article/view/433/362>
2. Gladush VA, Lysenko HI. [Higher school pedagogy: theory, practice, history: textbook. way]. Dnepropetrovsk: LLC "Royal Print"; 2014. p. 417. Ukrainian.
3. [Distance education. Higher Education. Information and analytical portal about higher education in Ukraine and abroad]. Ukrainian. URL: <http://vnz.org.ua/dystantsijna-osvita/pro> (дата звернення 17.04.2020)
4. Дистанційна освіта: навчальні заклади, які надають можливість навчатись віддалено. Ukrainian. Available from: <https://mon.gov.ua/ua/osvita/visha-osvita/distancijna-osvita>
5. Korbut OH. [Distance learning: models, technologies, prospects. The latest educational technologies in the context of European integration: materials X international. scientific-practical conf. Kyiv, January 14, 2015]. Kyiv: KPI; 2015. Ukrainian. Available from: <http://confesp.fl.kpi.ua/ru/node/1123>
6. Kraievska HP. [Ukrainian language as a means of professional communication of physicians (current problems of modern medical terminology)]. Vinnytsia; 2016. p. 48. Ukrainian. Available from: <https://dspace.vnmu.edu.ua/bitstream/handle/123456789/422/мова%20проф...pdf?sequence=1&isAlloved=y>
7. Yagupov VV. [Pedagogy as a science. Subject and object of pedagogy. Pedagogical theory and practice]. Pedahohika: Textbook. manual. [Internet]. Kyiv: Lybid; 2002. p. 560. Ukrainian. Available from: https://eduknigi.com/ped_view.php?id=34
8. Avierin D, Zavizion V, Bondarenko I, Hojouj M, Prokhach A. Integration of Electronic Education Methods in the Practice of Higher Medical Education. *Novel Practices in Medical Study*. 2020;1(1). NPMS.000501.2020.
9. Five Standards of Effective Pedagogy. [Internet]. Available from: <https://www.tolerance.org/professional-development/five-standards-of-effective-pedagogy>
10. Riahi S, Riahi A. The Pedagogy of Higher Education: How to Evaluate the Quality of Training in Morocco to Improve it. *International Journal of Engineering Pedagogy*. 2018;8(1):92-108. Available from: <https://doi.org/10.3991/ijep.v8i1.7984>
11. [Internet]. Available from: <https://www.dsma.dp.ua/>.

СПИСОК ЛІТЕРАТУРИ

1. Гаврілова Л. Г., Катасонова Ю. І. Теоретичні аспекти впровадження дистанційного навчання в Україні. *Освітлогічний дискурс*. 2017. Т. 16-17, № 1-2. С. 168-182. URL: <http://od.kubg.edu.ua/index.php/journal/article/view/433/362>
2. Гладуш В. А., Лисенко Г. І. Педагогіка вищої школи: теорія, практика, історія: навч. посіб. Дніпропетровськ: ТОВ «Роял Принт», 2014. 417 с.
3. Дистанційна освіта. Вища освіта. Інформаційно-аналітичний портал про вищу освіту в Україні та за кордоном. URL: <http://vnz.org.ua/dystantsijna-osvita/pro> (дата звернення: 17.04.2020).
4. Дистанційна освіта: навчальні заклади, які надають можливість навчатись віддалено. URL: <https://mon.gov.ua/ua/osvita/visha-osvita/distancijna-osvita> (дата звернення: 17.04.2020).
5. Корбут О. Г. Дистанційне навчання: моделі, технології, перспективи. *Новітні освітні технології в контексті Євроінтеграції*: матеріали X міжнар. наук.-практ. конф. (Київ, 14 січня 2015), Київ: КПП. URL <http://confesp.fl.kpi.ua/ru/node/1123> (дата звернення: 17.04.2020).
6. Краєвська Г. П. Українська мова як засіб професійного спілкування медика (актуальні проблеми сучасного медичного термінознавства). Вінниця, 2016. 48 с. URL: <https://dspace.vnmu.edu.ua/bitstream/handle/123456789/422/мова%20проф...pdf?sequence=1&isAlloved=y>
7. Ягупов В. В. Педагогіка як наука. Предмет і об'єкт педагогіки. *Педагогічна теорія і практика*. Онлайн-бібліотека освітньої та наукової літератури. URL: https://eduknigi.com/ped_view.php?id=34
8. Avierin D., Zavizion V., Bondarenko I., Hojouj M., Prokhach A. Integration of Electronic Education Methods in the Practice of Higher Medical Education. *Novel Practices in Medical Study*. 2020. Vol. 1, No. 1. NPMS.000501.2020.

9. Five Standards of Effective Pedagogy. URL: <https://www.tolerance.org/professional-development/five-standards-of-effective-pedagogy> (дата звернення: 17.04.2020).

10. Riahi S., Riahi A. The Pedagogy of Higher Education: How to Evaluate the Quality of Training in

Morocco to Improve it. *Inter. Journal of Engineering Pedagogy*. 2018. Vol. 8, No. 1, P. 92-108. DOI: <https://doi.org/10.3991/ijep.v8i1.7984>

11. URL: <https://www.dsma.dp.ua/> (дата звернення 11.04.2020).

The article was received
2020.04.22

