

The experience of the methodological organization of distance learning of the discipline "Human Anatomy" in a medical university in a pandemic of the coronavirus COVID-19

*Olga Kuznetsova,
Ph.D., Docent,
Kateryna Kushnarova, Ph.D.,
Juliia Demydenko,
Alexandra Kozlovska*

*Department of Clinical Anatomy, Anatomy and Operative Surgery,
SE «Дніпропетровськ Medical Academy of the Ministry of Health of Ukraine»*

Annotation. *The experience of the methodological organization of distance learning of the discipline "Human Anatomy" for domestic and foreign students of a medical university in a pandemic is analyzed and the types of presentation of discussion of the topic being studied and knowledge assessment are identified. It turned out to be effective: presenting lectures - in the form of video presentations with a demonstration on the Ytobe channel of the academy, conducting practical exercises - using Zoom online conferences and Google classroom platforms, to control knowledge - x-TLS test programs and on-line conversations through conferences Zoom.*

Key words: *distance education, distance learning methods, medical disciplines, human anatomy.*

Formulation of the problem. Today, the academic community of the educational system recognized that an important and promising direction of its development is the widespread introduction of distance learning methods based on the use of modern pedagogical, advanced information and telecommunication technologies [1].

The COVID-19 pandemic affected most countries of the world and almost all spheres of public life, and the education system was no exception. One of the ways to contain coronavirus infection is still social exclusion; its measures required the partial or complete closure of educational institutions and their associated infrastructure [2].

In the current modern pandemic, the university education system must be flexible in responding to new factors and implement the educational process, using modern information and communication technologies that allow students to go through educational programs on the job without wasting time during the school year. The creation of effective distance learning systems currently has long-term quarantine provides the accessibility of education, the acquisition of new knowledge, the ability to communicate for students and teachers, being remotely from a university, a city of study, and even outside the country.

At the same time, the experience of using certain educational formats of distance learning, which may be applicable in the work of medical universities in teaching fundamental disciplines, is of great importance.

Analysis of recent research and publications. Distance learning technology is defined as a system of methods, specific means and forms of learning, through which the content of learning is implemented [1].

In medical universities, distance educational technologies were previously used in various directions of acquiring and improving medical knowledge. For example, in postgraduate education for advanced training of medical practitioners [3], in the form of distance training for medical personnel [4], professional training and retraining of medical university teachers, for self-training of students for practical classes, passing modular controls, as preparation for a licensed integrated exam " Krok " [5] or as a method of monitoring the current or final level of students' knowledge [6], etc.

Distance education has similar goals to classical education, the content defined by current programs such as an educational institution, methods, organizational forms and means of education [7]. Conducting an analysis of teaching aids taking into account their specific features of the organization of distance learning, the following groups are distinguished [1]: paper publications, online teaching aids, computer training programs, didactic audio and video materials, laboratory distance workshops.

Emerging modern practices of transferring full-time education to the online environment or distance educational formats can be reduced to several directions [2]:

- organization of training using educational online platforms;
- transmission of educational content on television and radio channels;
- conducting classes using social networks, instant messengers and email;
- duplication of “hard” copies of educational materials and their delivery to students at home.

Moreover, among the currently existing considerable choice of tools for organizing distance learning can be used [2]:

- resources providing psychosocial support to participants in educational relationships in a pandemic;
- digital learning management systems (Google classroom, Moodle, Blackboard, Canvas);
- training applications based on mobile devices;
- programs with advanced offline functionality;
- massive open online courses (MOOC);
- self-learning services;
- electronic readers;
- programs that provide the ability to work together online (Skype, Zoom, WebEx);
- tools for creating digital educational content and numerous electronic databases of educational materials.

However, how effective any form of distance learning will be depends on the following important factors:

- 1) effective interaction between the teacher and the student, despite the fact that they are separated by distance;
- 2) pedagogical technologies used;

3) the effectiveness of the developed teaching materials and methods for their delivery;

4) feedback efficiency.

The use of distance education at the university allows you to organize student learning activities through the use of various teaching methods, various organizational forms of the educational process, but requires comprehensive information and technological support and the use of comprehensive educational and methodological support.

The purpose of the article. Among the already vast selection of methods and forms of distance learning, the priority was the choice of platforms and techniques that would allow the educational process to be carried out effectively, to present theoretical knowledge and practical skills in the discipline "Human Anatomy" in an efficient coronavirus pandemic quarantine, and to objectively evaluate the student's work.

Outline of the main material. The first problem that we encountered in the early days was the availability of the necessary technical support for the distance learning process at home with teachers and students, namely:

1) differences in the availability of communication channels, especially for some of the foreign students who left the country to their homeland, or for domestic students who returned to the countryside, where the uninterrupted bandwidth of communication channels is not always maintained;

2) the need for working equipment with certain technical characteristics (compatibility, smooth operation) and technical means (video cards, video cameras, microphones, headphones, etc.) for those distance projects that were planned for use;

3) installation of the necessary software, comparable with existing computer systems for teachers and students;

4) the cost of telecommunication services, since much free software requires either a limited time or a one-time installation;

5) the willingness of teachers to master one or another digital learning technology;

6) the time of mastering the programs of remote presentation of material.

The solution of these issues was carried out in the initial consultation with specialists of the Academy's technical services, but to a greater extent, in the course of problems arising, in the teachers' contact with each other and with students, acquaintances, people around them, through information received through the Internet and social networks.

The next, and one of the most time consuming, was the issue of preparation of teaching materials. First of all, the existing ones were involved:

1) guidelines for lectures, practical exercises, independent work for students and teachers;

2) the availability of textbooks, teaching aids for students;

3) workbooks for students for independent work and work in practical classes;

4) presentation of lectures;

5) a list of questions for the teacher to control the level of assimilation of the material, independent work of students, students' own self-control;

6) test tasks, situational tasks.

Despite the presence at the department of a large methodological base of the above materials, their use was applied in the form of proven teaching methods of the discipline "Human Anatomy" for full-time education of domestic and foreign students. Correspondence forms of training for all specialties taught at the department (except for "Pharmacy" for domestic students) did not exist since the creation of the university. In this regard, in the early days, the development and search of materials for conducting online lessons and online conferences for practical classes, creating videos and presentations for lectures, creating content for practical classes and for students to work independently was carried out and searched. This took up most of the teacher's extracurricular personal time.

In the future, over the next weeks, teachers worked out the rhythm and forms of presentation, preparation and conduct of lectures and practical exercises, control of students' knowledge, discussed the principles for submitting the topics of the next lesson. The fact that at the department the course "Human Anatomy" was taught for a large number of specialties - "Medicine", "Dentistry", "Ergotherapy. Physical rehabilitation", "Pharmacy", "Clinical Pharmacy". At the same time, training for students is conducted in Ukrainian, Russian, English and French. As a solution to this issue, the department staff was divided into groups, each of which in preparation for the next lesson was engaged in its own direction - linguistic or by profession. So, the groups of teachers for the specialties were determined:

- 1) "Medicine" for French-speaking students;
- 2) "Dentistry" for French-speaking students;
- 3) "Medicine" for English-speaking students;
- 4) "Dentistry" for English-speaking students;
- 5) "Medicine" for foreign Ukrainian-speaking students;
- 6) "Medicine" for Ukrainian students;
- 7) "Pharmacy" for Ukrainian full-time students;
- 8) "Pharmacy" for Ukrainian part-time students;
- 9) "Clinical Pharmacy" for foreign Ukrainian-speaking students;
- 10) "Ergotherapy. Physical rehabilitation" for Ukrainian students.

It should be noted that it was possible to cooperate between groups of teachers when a lesson was being developed for one specialty, but different language forms of instruction.

A separate methodological format was a group with a French-language form of training. This form of training exists at the academy only for the second year, so those teachers who developed the methodological basis for conducting distance learning in the discipline faced the expense of a large amount of personal time for their preparation. Qualitatively prepared work required the teacher to have a deep methodological study of this type of classes in French, as it was necessary to provide for preliminary training of students on the topic of practical classes, including the provision of a methodology for conducting a practical class in online mode.

Would like to note the fact that the teacher's work in the remote mode received another additional hourly load. This was due to the receipt and processing of students' emails with homework, on consulting and personal questions, answers to them, as

well as to phone calls and messages sent through various forms of social connections and networks. In the process of distance learning, new models of social interaction between students and teachers appeared, established social networks existing in this framework were broken, teachers had to get involved in the process of communication with students in the evening, late, on weekends and holidays.

When organizing distance learning, an important condition is the relationship between the activities of the teacher and students on issues of knowledge assessment. During the test on-line control, the presence of an error becomes immediately clear and the student does not have a question about the assessment. Evaluation of written works performed as answers to questions is difficult for objective reasons, given that a student can, without having worked enough material independently, find the correct answer through Internet information, communication with his fellow students or specialists. In the same form, there is the question of evaluating written work in workbooks. The solution to the assessment problem in this case is partly subjective, and the assessment is set according to the criterion: the accuracy and brevity of the answer to the question, the clarity and literacy of the filling of the workbook.

The teacher's setting of the final results of the student's homework on the topic of practical classes in points, adopted by the methodological commission of the department and the academy, was carried out in the group's electronic journal, where everyone with access could see their grade. Such an electronic journal at the academy is relevant and has existed for two years. The points for the work done were duplicated in the Google classroom training platform for those groups who worked in it.

In the practice of teaching the discipline "Human Anatomy" at the Department of Clinical Anatomy, Anatomy and Operative Surgery of the Dnipropetrovsk Medical Academy, the following organizational forms of training function: lectures, workshops, seminars, independent work.

The main purpose of the lectures is the formation of an indicative basis for students to successfully master the educational material. The specificity of distance learning determines lectures in real time (on-line), or in continuous time (off-line) using television and video conferencing. We settled on creating off-line video lectures using the Power Point 2010 program with a demonstration on the Academy's YouTube channel. It is important that lectures in this form can be broadcast through any type of video or telecommunication, and the student has the opportunity to study the material at any convenient time, as well as the ability to repeatedly listen to the most difficult to digest section.

For groups of French-speaking students, additional distance lectures were held using the Zoom program online, using text materials on the topic, with expanded content due to additional material and subsequent consultation of the students with the teacher via e-mail, Google classroom and Viber-communication.

In the course of organizing a distance practical lesson in the discipline "Human Anatomy", we were faced with the fact that it is difficult for students to obtain practical skills in these conditions, since there is no form of visualization of the structure of organs and systems, the student's direct interaction with anatomical preparations. For the first time in the practice of a medical university, it became

necessary to develop forms of explanation of those topics where it would be necessary to show the location or structure of organs or their structures on anatomical models, mock-ups, imitations, wet preparations. To solve this problem, a search was made for ready-made films and videos, as well as 3D programs of anatomical structure, which offered a demonstration of three-dimensional images and their explanations. Unfortunately, most of the free anatomical materials, films and programs have an insufficient academic level, the same ones that contain the information necessary to reveal the topic need to be paid. In addition, the search for such material requires more than one hour of search, sometimes a day, which is another personal load for the teacher.

As a result, the methodology of the practical training was reduced to several areas:

- 1) Creation of visual content with diagrams, drawings and designations of the anatomical structure and topography of organs signed on them.
- 2) Use of textbooks, manuals, guidelines, links to a lecture course.
- 3) Presentation of available videos on the topic of the lesson.

Two forms of communication were used - Google classroom, Google-mail, at the choice of the teacher and student, but the decision was made for the group as a whole.

Domestic and English-speaking students stopped on Google-mail, French-speaking students on the Google classroom platform. The disadvantage in the work system of both formats was the insufficient memory capacity for storing voluminous students' work, which included not only test items, answers to questions, but also drawings from workbooks, which sometimes included more than 20 photographs of the transferred work in one letter. Given that quarantine time is already 6 weeks today, the number of emails and their volume are large, it was necessary to increase Google mail addresses. From the practice, it is recommended to create one email for each group of students. So it will be easier to authorize the student and not to compare in a large volume of letters of the student and the group in which he is studying.

In the distance learning system, the success of training to a greater extent depends on the degree of student independence, involves a large amount of independent work with educational literature, training programs, educational resources, and information databases, since it is not always possible to master the necessary material during the video lecture period. It is important that the student in the process of distance learning learn to acquire knowledge independently, using a variety of sources of information, be able to work with this information using various methods of cognitive activity and at the same time be able to work at a convenient time for him.

As part of a controlled independent work, students were given tasks to answer questions on the topic being studied, fill out a workbook with diagrams and drawings, solve test tasks and situational.

Unfortunately, negative points were also indicated here. Firstly, the discipline "Human Anatomy", being fundamental, is taught in the first year of a medical university.

Students of this age category (to a greater extent - domestic) have only left because of the desks of secondary schools, colleges, lyceums and the issue of independence is very acute for them. Therefore, often the written works of Ukrainian students were similar, with the same mistakes or contained Wikipedia's rewritten material, without sufficient study of the necessary amount of material on the topic of the lesson. And questions on the content of the topic they rarely had. Unfortunately, in this case there can be no objective assessment of the student's knowledge, his independent work.

Regarding French-speaking students, their activity (in on-line and off-line communication, asked questions on the topic of the lesson, desire to know more) was significantly higher. Apparently, having been limited in movement, in a poorly familiar environment, far from relatives and friends, those foreign students who stayed in the city used all the extra time to master new knowledge and complete the tasks received.

This opinion was formed in relation to those students who sent their completed work and contacted.

Any learning process ends with knowledge control. In the distance education system, there are a number of methods for obtaining a picture of students' knowledge; they are used in the system of studying various disciplines. But for medical schools, where practical skills are one form of assessing knowledge, this section of the control falls out. Therefore, it is possible to evaluate only the theoretical preparation of a student in mastering such types of disciplines as "Human Anatomy". From our experience in using various methods of monitoring the student's current knowledge of the voiced discipline, one can use written works that the student will send to Google-mail or to the Google classroom — questions, tests, situational tasks, work performed in the workbook. However, the most accurate assessment will be on-line communication with the student or the solution of test items in a limited time period.

Conclusions. Based on the experience gained in the organization of the educational process and the use of certain distance learning methods of the discipline "Human Anatomy" for domestic and foreign students, the Department of Clinical Anatomy, Anatomy and Operative Surgery of the Dnipropetrovsk Medical Academy applied the comprehensive use of available methodological developments and new technologies of digital education.

It turned out to be effective:

1) presentation of lectures in the form of voiced video presentations with a demonstration on the Academy's YouTube channel, Power Point presentations with the layout on the Google classroom platform and via Google mail;

2) during practical training - using the Zoom on-line conference program to study complex topics that are difficult for the student to master during their independent work, as well as the Google classroom and Google mail programs for off-line communication and the presentation of theoretical material in the form of developed content;

3) for the organization of independent work - a list of questions, test tasks and situational tasks, filling out a workbook;

4) as a method of monitoring the knowledge gained - written works sent to Google classroom and via Google mail, x-TLS test programs with a limited response time, conversations through Zoom on-line conferences.

As it turned out, in the process of distance learning, new models of social interaction between teachers and students were quickly built up through the means of communication Viber, Telegram, WhatsApp, Facebook, Messenger, Instagram.

Requiring attention, additional time and preparation were questions:

- 1) technical and methodological readiness for distance learning;
- 2) rethinking learning as an important social practice;
- 3) test on the ability of teachers to rapid digitalization;
- 4) cooperation at all levels of university activity;
- 5) convincing students of the need for self-learning;
- 6) the possibility of an objective assessment of student knowledge.

It is hoped that this form of training in medical universities is only a temporary factor that limits us to quarantine measures in the context of the COVID-19 coronavirus pandemic, and in the future it will allow us to return to the classical forms of training in medical universities, based on a huge scientific and methodological base, but already using new information technologies of the modern world, new social communications of teacher and student.

References:

1. Andreev A.A., Soldatkin V.I. (1999) Distance Learning: Essence, Technology, Organization. M. MESI, 196.
2. Zenkov A.R. (2020) Education in a pandemic: what does the crisis show? URL: <https://www.imemo.ru/news/events/text/obrazovanie-v-usloviyah-pandemii-chto-pokazivaet-krizis> [in Russian].
3. Kalininskaya A.A., Morozova Y.V., Levanov V.M. (2017) Distance education in dentistry: organization and economic efficiency. Bulletin of Avicenna. 19 (2): 183-188.
4. Orlov O.I., Mamonova E.Y., Levanov V.M. (2016). Organizational issues of distance training of medical personnel of remote health centers for emergency medical care. Journal of medical Scientific Research. Saratov. 12 (4): 617-619.
5. Boychuk T.M., Gerush I.V., Khodorovsky V.M. (2012). Experience of introduction of information and communication technologies in the educational process of Bukovyna State Medical University [Materials of educational and scientific conf. «Implementation of new technologies in the credit-module system of organization of the educational process in the VM (F) NZ III-IV accreditation levels» Ternopil, April 15, 2012]: 15-17.
6. Goncharova N.G., Kirsanova O.V., Svetlitsky A.O. (2014). Implementation of Distance Learning Models in Higher Medical Institutions [Materials of Scientific Conference. "Topical issues in pharmaceutical and medical science and practice"]. 1 (14): 93–96.
7. Mikhalchenko M. (2001) Education and science: search for new paradigms of modernization. Higher education in Ukraine. 2: 14–23.

8. Distance learning solutions. (2020) UNESCO. – URL:
<https://en.unesco.org/covid19/educationresponse/solutions> [in English].