

THE INTRODUCTION OF INNOVATIVE TECHNOLOGIES IN THE REMOTE PRESENTATION OF THE MATERIAL OF PRACTICAL CLASSES IN A MEDICAL UNIVERSITY

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Annotation. *The experience of introducing innovative technologies for presenting material in practical classes at a medical university is analyzed in order to identify the best methodological approaches in further practice of distance education.*

Keywords: *distance education, practical training in a medical university, innovative technologies in higher education, modern pedagogy of higher education.*

Formulation of the problem. The current situation, which has developed under the influence of the global pandemic, has had a significant impact on the restructuring of the pedagogical process at the university. This disrupted the structure of regular education and the standard methods that we have adapted over the years. Today, the academic community of the education system recognizes that an important and promising direction of its development is the widespread introduction of distance learning methods based on the use of modern pedagogical, promising information and telecommunication technologies. [1]. The university education system should respond flexibly to new factors and carry out the educational process using modern information and communication technologies that allow students to study educational programs without leaving their location without wasting time during the academic year [2].

The challenge, however, is not only about changing the way that information is conveyed face-to-face online. The real challenge is to create a culture that supports the introduction of innovative methods that require different skills and competencies from the teacher, student, administrator, while maintaining and improving the quality of education. [3]. Professional competencies, which are mandatory in the study of medical disciplines, are laid down in the developed and licensed educational programs of the university. The competence-based approach presupposes a new role for the student in the educational process: from a passive consumer of knowledge, he must become an active creator of knowledge, capable of thinking critically, planning his independent work, showing initiative, formulating problems and finding solutions, including in non-standard situations. In the learning process, students should not only acquire certain knowledge, but also be able to apply it in a specific practical situation. Therefore, the conduct of practical exercises must correspond to it.

The modern development of information and communication technologies allows medical universities to establish an active process of distance learning [4]. At the same time, the experience of using certain educational formats of distance learning that can be applied in the work of medical universities in teaching fundamental disciplines is gaining great importance [2].

Analysis of recent research and publications. The analysis of scientific and methodological publications of recent years on the issue of distance education at the university has a double assessment, with its pros and cons. The main advantage of the authors in the articles is the following: availability. Studying remotely, you can gain knowledge from anywhere in the world wherever there is Internet: [2, 5, 6],

- flexibility. In the process of distance learning, the student masters most of the material independently. In addition, this form of education can be combined with work, given that most students combine study with work. Online study times can be adjusted to suit the work schedule [7],

- mass character. Independence from the size of the audience and the possibility of one-time training of an unlimited number of students [6],

- opportunity for people with inclusion. People with disabilities can study at a college or university, master modern, in-demand professions without leaving home, find work in the future and improve the quality of their life [8],

- saving money and time for travel. Learning remotely, a person does not depend on transport [9],

- specific knowledge. In the course of distance education, the student has limited time to communicate with the teacher, which is spared from the excesses of academic education and is maximally used to obtain specialized knowledge [10],

- the relevance of knowledge. The student, due to the additional time that has appeared, has more chances to apply knowledge in practice than the one who studies abstract information that is not applicable in real life [11, 12],

- use of interactive. Maintaining a high interest of students in learning when using interactive techniques in the educational process, new educational technologies [9],

The disadvantages of distance learning are:

- impossibility of practical training. In the case of gaining practical experience and practicing practical skills, one cannot do without the guidance of an experienced specialist, such as studying disciplines at a medical university [4, 5, 11],

- lack of control. Distance learning requires high motivation and responsibility from the student. Lack of verification and control makes it difficult to fully immerse yourself in the learning process, especially if lectures are recorded [13],

- lack of personal communication. Informal communication with teachers, senior students and classmates can form an expanded understanding of the subject, develop new ideas, gain additional knowledge and practical experience [9, 13],

- no positive "side effects". By studying remotely, the student does not receive other positive benefits of an academic education. For example, the process of taking notes of long lectures trains your writing speed, develops mechanical memory, teaches you to

isolate the most important fragments from the flow of information on the fly [1],

- narrowing of horizons. The focus only on the subjects necessary for professional development limits the development of a person's personality, since due to additional subjects, a person's outlook expands, the skills to think logically and figuratively appear [13],

- unforeseen technical circumstances. Distance learning makes the student dependent on technology. At the wrong moment, the light may turn off or the computer may fail, the Internet may be cut off right during an important online seminar [5, 13].

In medical universities, distance learning technologies were previously used in various areas of acquiring and improving medical knowledge. For example, in postgraduate education to improve the qualifications of medical practitioners [14], in the form of remote trainings of medical personnel [15], for professional training and retraining of teachers of a medical university, for self-preparation of students for practical training, passing modular controls, as preparation for the licensed integrated exam "STEP" [16] or as a method of monitoring the current or final level of knowledge of students [17]. However, conducting practical classes in a medical university has a special specifics and distance education makes its own adjustments to their methodological approach [2].

The purpose of the article was the desire to share the experience of remote presentation of material in practical classes from the discipline "Human Anatomy" for domestic and foreign students at the Department of Clinical Anatomy, Anatomy and Operative Surgery Dnipro State Medical University, to identify successes and mistakes, to implement the best experience in the further practice of introducing innovative educational technologies in a medical university.

Outline of the main material. The development of innovative activities is an important area of modern world education. The main goal of innovative forms of teaching is to increase the level or quality of education, additional development of the learner and the learner. The time has come when the question of transferring training to personal computers, tablets, smartphones and other electronic devices has become a reality. Electronic technologies are, first of all, active forms of education, which are widely introduced into the learning process today.

The innovative activity of the university is the introduction of new forms and methods of educational technologies. The widespread use of electronic educational resources in the pedagogical process is an important segment for a medical university as well. In-depth study of thematic material by medical students dictates the need for the use of modern electronic technologies, which make it possible to provide full and free contact with vast volumes of reference data, monitoring changes in the content of the material in accordance with new scientific achievements of the world scale.

Today at the Dnipro Medical University, along with the academic basic form of education, various interactive options for presenting material are used, based on the use of new technical capabilities and licensed computer programs, interactive teaching methods, smart technologies, and the like. A new form of presentation of material in practical classes on "Human Anatomy" at the Department of Clinical Anatomy, Anatomy

and Operative Surgery is the use of the interactive panel SMART Boards, an interactive display that allows you to:

- 1) create a presentation by the speaker during his speech, "here and now", дает возможность демонстрировать учебный материал,
- 2) make written comments over the image on the screen,
- 3) write with a marker.

At the same time, everything written on the interactive whiteboard is transferred to students, stored on magnetic media, printed, sent by e-mail to be absent from the class.

To maximize all the properties of SMART Boards interactive whiteboards, software has been created (SMART Notebook, Bridgit, SynhronEyes).

New educational technologies for teaching material in practical classes on "Human Anatomy" is the development of content for each topic and their playback on modern Smart-TVs with universal remotes, which have access to the Internet connection and provide the opportunity to maximize the visualization of material, provide interactive media, conduct surveys and control the student's independent work.

The electronic version of the content of the practical lesson has a number of advantages over the traditional oral presentation of the material:

- 1) frees students from the need to record the material presented by the teacher by providing them with the full text of the practical lesson,
- 2) thanks to this, it creates the possibility of meaningful perception by students of the key provisions of the topic,
- 3) provides each student with the opportunity to work on the material at an individual optimal pace.

For remote practical training, the classrooms of the department are equipped with projectors, screens, laptops with the possibility of direct presentation of educational films, presentations, visual images, etc. It is the norm to conduct practical exercises using multimedia formats made in Microsoft Power Point software packages.

The test programs MyTestX Student are used to test the student's knowledge and their objective assessment. Automatic grading, the ability to adjust time limits for passing the entire test or thinking over each question, using not only questions and answers, but also illustrations of questions with pictures eliminates the teacher's subjectivity. From the selected category, a question is added to the test randomly, while both the order of the questions and the answer options can be randomly mixed, which makes it difficult to cheat and memorize. The program provides for a "teaching mode", when after each answer to an error, the student can see the correct option. The test results of students can be displayed to the teacher on a server from a computer network, and also allows you to work remotely.

Workplaces for teachers for practical classes are provided with modern technical means - PC monoblocks, system units and monitors with Web-cameras, combining the possibility of conducting classes with students in a distance learning form, providing access to information via the Internet to prepare for practical classes and lectures, to find the necessary teaching materials. Both faculty teachers and students use various

search engines in preparation for practical exercises, such as electronic reference books, electronic dictionaries, electronic libraries, etc. In the process of updating the studied discipline with a remote submission of material in a practical lesson, the following interactive technologies are used: electronic presentations, online magazines, Internet resources, websites.

Video and audio materials, multimedia technologies make it possible to more clearly reflect the content of the sections of the material being studied.

The use of electronic video presentations is an innovative step in the remote conduct of practical classes on "Human Anatomy" at the Department of Clinical Anatomy, Anatomy and Operative Surgery. This presentation of the topic can be viewed several times, focusing on important points, mastering or repeating difficult material, preparing for seminars or studying topics for self-study.

Interactive methodological support for conducting a practical lesson is provided by licensed programs of the Microsoft Office package, 3D electronic atlases (for example, Netter Interactive Atlas Of Human Anatomy, Lippincotts Illustrated Q and Neuroscience), which contain:

- 1) 3D models of macro- and microscopic anatomy,
- 2) 3D animations and training videos,
- 3) encyclopedic reference information: the name of the structures, their Latin terms and classification by anatomical groups, detailed definitions and descriptions,
- 4) the ability to choose among popular images and create your own.

This allows the student to gain not only technical knowledge, but also to develop spatial imagination, model the structure, and work out practical skills close to clinical situations.

In the organization of distance learning courses at the Dnipro Medical University and at the Department of Clinical Anatomy, Anatomy and Operative Surgery, the Moodle educational platform was used, which has various options for the formation and presentation of educational material, knowledge testing and monitoring progress. In the practice of teaching the discipline "Human Anatomy", the following types of opportunities provided by the Moodle LMS are used:

- 1) placement of curricula and discipline programs,
- 2) teaching aids, as well as links to the teaching materials of the department and materials that are freely available on the Internet;
- 3) presentations of interactive lectures;
- 4) questions, test tasks, both training and control;
- 5) current information and two-way communication between the teacher and the student.

For constant communication with students during remote practical classes, Viber, Skype communication systems are installed on the teachers' PC-workplaces. Smart messengers Telegram, WhatsApp, social networks Facebook, Facebook Messenger, Instagram are used.

Unimpeded access to the Internet and all its resources from any device is provided

using a cable and wireless network in classrooms, teachers' offices and corridors of the department by a common Internet connection network of Dnipro Medical University.

Conclusions. We agree with Goh, P. and Sandars, J. [11] is that solving the current problems of distance learning in a medical school may ultimately lead to an improvement in the learning environment in the future. The use of new interactive methods of distance education, according to our experience gained in distance practical training, will allow:

- organize distance learning activities of students of a medical university in the context of a competence-based approach to studying disciplines,
- to form and develop creative abilities, the desire for constant self-education,
- individualize the educational process by determining for each student the optimal volume and content of educational material, as well as the rate of its assimilation and the selection of teaching methods, depending on the personal characteristics of the perception of information.

Based on the experience gained, it cannot be said that distance learning at a medical university provides students with a complete mastery of practical skills, but on the other hand, it provides the teacher with tools to search for various methods of interactive learning, readiness for constant self-development.

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