Features of the organization of postgraduate education of doctors in wartime conditions in Ukraine

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Abstract: Difficult wartime conditions in Ukraine made adjustments to the organization of the educational process of medical institutions, including postgraduate education of doctors. The modern educational program at the postgraduate stage is aimed at improving theoretical and practical skills of trainee doctors, increasing their readiness for independent professional activity, deepening knowledge of the chosen specialty, and sharing experience. The article describes the advantages and disadvantages of online training of doctors, highlights the possibilities of using modern information technologies in the organization of postgraduate education of doctors. Information is provided about modern information and communication technologies that can be used in conducting online classes for doctors at the postgraduate stage of training, such as simulation technologies, workshop, gamification, others. The integration of digital transformations into the educational process expands the possibilities of delivering educational material in wartime conditions, but requires self-improvement from teachers regarding the ability to apply modern information technologies.

Keywords: postgraduate medical education, distance learning, information technologies

1. Introduction

Difficult wartime conditions in Ukraine made adjustments to the organization of the educational process of medical institutions, including postgraduate education of doctors. At the same time, the issue of the quality of training of doctors has acquired special significance, since due to the need for long-term rehabilitation and recovery of persons affected by hostilities, an increase in the burden on the medical system is observed. Under martial law, the optimal form of organization of educational. The distance learning models developed during the coronavirus pandemic are useful - they play an increasing role in the modernization of medical education [1]. Many applicants for higher education as a result of threats to life, hostilities and temporary occupation of certain territories were forced to move within Ukraine or abroad. Online classes allow doctors to learn no matter how far away they are from the school. Also, a feature of distance learning in wartime conditions was the need to comply with safety rules in situations where an air raid alarm is heard during online classes. In such cases, classes are suspended in order for everyone to move to a safe place. The use of remote methods minimizes the interruption of learning and can provide daily support to students in acquiring new knowledge, helps listeners overcome psychological stress during martial law [2].

2. Object and subject of research

In such a situation, educational institutions faced the need for operational decisions on how to organize the educational process and how to combine traditional and innovative models and technologies to organize the interaction of all its participants. Many experienced teachers needed training to obtain information about modern information pedagogical technologies and the possibilities of their application. In this direction, it is important to note the value of the help of specialized pedagogical departments of higher educational institutions that conduct appropriate training courses for teachers [3].

The study of information about the advantages and disadvantages of online training of doctors, the possibility of using modern information technologies in the organization of postgraduate education of doctors is an actual topic of research of scientists and the purpose of our article.

Distance medical education made it possible to continue the educational process in the crisis conditions of the present, made it more flexible and adaptive to the realities of the present. At the same time, the very paradigm of education is changing - a significant role is given to methods of active self-education, distance educational programs using information technologies [4].

Realizing that applicants for education can stay in shelters for a certain time, to study each educational topic, it is advisable to store the relevant materials in the cloud environment on the Google Classroom platform of the educational institution: lecture notes, video studies, presentations with examples of practical tasks, individual test tasks to verify the assimilation of the material of each topic, recommended literature, reference material, etc [5].

The modern system of higher education in our country is characterized by the active introduction of the latest information and communication technologies in the educational process. At the same time, for the effectiveness of the educational process, it is necessary to establish stable feedback, thanks to which the teacher will have information on the level of theory assimilation, as well as on knowledge, skills and skills in advanced training courses [6].

The implementation of distance education in the conditions of martial law in Ukraine contributed to the increase in the level of responsibility and self-awareness of medical education students: doctors at the post-graduate stage of education independently choose a topic and join online trainings, courses, webinars, master classes, etc. A strong motivation to improve one's knowledge and disciplinary skills while studying is quite important. Educational communication teacher-doctor-listener today goes to a new level, which involves constant involvement in joint activities during the lesson [7].

Therefore, it was distance learning that enabled doctors to quickly and qualitatively improve existing knowledge and skills, continue to acquire new knowledge, and raise their professional level.

Acquiring new knowledge and skills, practically useful and used in work in the era of information society, significantly expands the opportunities for self-realization and contributes to the career growth of doctors.

The modern educational program at the postgraduate stage is aimed at improving the theoretical and practical skills of trainee doctors, increasing their readiness for independent professional activity, deepening knowledge of the chosen specialty, and sharing experience.

The main advantages of distance education in today's realities are self-discipline, self-improvement, territoriality, mobility, accessibility, technology, interactivity, security, flexibility, and the development of creative abilities.

The advantages of distance learning technologies are as follows: guaranteed quality of learning is available to everyone; the possibility of studying at the place of residence; saving time and financial costs; use of modern information systems: educational social networks, e-mail, electronic libraries, computer conferences, webinars, virtual conferences, master classes, online knowledge assessment, testing; direct contact with well-known domestic and foreign specialists: telemedicine, video conferences, telephone consultations, online training; knowledge archiving.

An additional benefit of online learning is the ability to ask and answer questions anonymously, potentially encouraging further participation by those who would not be so active in stationary lectures [8].

In the conditions of distance education, the implementation of practical skills is particularly difficult. When performing practical classes, it is not advisable to refuse full-time training, since the student's skills and abilities on a specific medical topic are not enough for full mastery of knowledge. But in wartime, in order to combine theory with practice, it is advisable to compose algorithms for performing certain skills and methods for examining patients in digital format.

Students of medical educational institutions can acquire practical skills during distance learning with the help of clinical tasks, online simulators, mobile applications, telemedical consultations for real patients, clinical conferences.

In the conditions of distance education, simulation programs come to the rescue - (for example, "standardized patient"), with the help of this program, doctors can practice therapeutic or surgical practical skills with a hypothetical patient, a "virtual patient history" should also be used.

The advantage of simulation technologies is the fact that a student of medical education can practice practical skills without harming the patient's health by performing the required number of manipulations. A teacher at a medical educational institution can offer students cases of clinical and situational problems, simulations of certain complex clinical situations, in order to study practical material [9].

When conducting practical skills, it is possible to use game practices - gamification. Also, doctors can participate in the online examination of patients in real hospitals.

In a practical online lesson, students, together with the teacher, analyze a certain clinical example, systematize and consolidate the studied theoretical material on the topic being studied. Doctors express their views on certain issues of the topic and gain experience in making decisions in similar clinical situations. when checking practical tasks on the relevant topic. A common way to check the acquired knowledge after passing the theoretical and practical classes provided by the program is the preparation of a test control, and pre-examination testing is the admission to the exam.

A positive assessment of the correct answers when checking control tasks on the relevant topic helps to strengthen faith in one's own professional capabilities, motivates for further self-improvement.

One of the main tasks of education in the conditions of the development of the information society is to teach students to use modern information and communication technologies.

Among the specific means of Internet technologies and other means involving interactivity, priority is given to developmental learning in comparison with traditional technologies.

Developmental training is an organized process of activity of education seekers, during which there is an independent (or with the help of a teacher) understanding of educational material, creative application of it in practice (in non-standard conditions) and conscious memorization for further reproduction. Interactive learning, as the main component of developmental learning, is a way of organizing the learning process, which involves constant active interaction of all its participants [10].

Usually, at the postgraduate stage of training of doctors, training groups have a small number of people, so modern interactive technologies for teaching "small" groups can be applied during seminars or practical classes. Among such technologies: cooperative learning, technologies of collective - group learning, technologies of situational modeling, technologies of processing discussion issues. Each of the methods has its own characteristics: corporate training includes the development of communication skills, positive interdependence, the development of personal reflection, individual and group responsibility, processing and analysis of the results, aimed at the assimilation of the material by all group members [11] .

The technology of collective - group learning includes discussion of the problem in a general circle, brainstorming (brainstorm), Brownian motion, situation analysis (Case-method), problem solving.

Technologies of situational modeling include simulation or situational games, playing out the situation by roles.

Techniques for processing debatable issues include the PRESS method (which develops the ability to formulate opinions on a debatable issue in an expressive and concise form in a concise and argumentative manner), "take and change a position", a continuous scale of opinions ("Continuum", "Endless chain") [12].

The concept of "Workshop" is an educational event (on a par with a seminar, training, course, internship) at which participants gain knowledge independently. "Workshop" is a new innovative active technology of group work, which is based on intensive group interaction aimed at obtaining dynamic knowledge, that is, an educational process in which everyone takes an active part and during which participants learn a lot about each other. The main criteria of the workshop are a dynamic learning environment based on observing the sequence of learning micro-blocks, intensive group interaction of all learning subjects, high motivation of participants, activation of critical thinking, discussion and tolerance. The role of the teacher who organizes the workshop is reduced to the structuring of the material, the selection of tasks and questions to deepen educational motivation, active independent activity of students.

The main functions and strategies of a successful Workshop are the implementation of new ideas in the projects of doctors, ensuring an interactive part of the class, improving interaction in groups, increasing the motivation of both the organizer and the participants, increasing interest in the subject, developing competencies among students, etc.

Conducting the Workshop is based on a relaxed atmosphere, familiarization of the participants with the goals, encouragement and independence, relevant practical information, changes in the pace of activity and work style [13].

Depending on the goal and the expected result, it is possible to use different models in the Workshop: discussion club, team building, workshop, brainstorming, marathon. These models differ in structure, form of implementation, amount of time, methods of setting tasks and solving them.

Workshop as an innovative technology is aimed at reorganizing consciousness by bypassing standard, standardized models and patterns of everyday thinking, which, as a rule, determine the entire dynamics of the mental process, images of perception of reality and behavioral stereotypes.

The workshop is an effective educational technology for mastering new knowledge and skills, which are necessary for the formation of the professional competence of modern doctors. The workshop helps to develop clinical thinking, to develop the ability to approach the diagnosis in a reasoned manner and to choose the optimal treatment strategy for a specific patient. The Workshop creates opportunities for the formation of various competencies in modern trainee doctors [14].

In order to increase the motivation of students to learn new material, elements of gamification should be introduced into the educational process. Gamification is one of the trends in modern education, the use of game practices and mechanisms in a non-game context to involve users in solving problems. Gamification differs from other game formats in that its participants are focused on the goal of their real activity, and not on the game as such; that is, gamification is related to the game through certain rules, tasks and goals, with the achievement of a certain professional level during the game. Game elements are integrated into real situations to motivate specific forms of behavior in given conditions. At the same time, listeners can feel a sense of satisfaction from the process of victory.

Another interpretation of the term gamification is a form of service bundling, where one service is reinforced by another, which is based on the rules of the service system, which provides feedback to the user. Its purpose is to request user needs. The result and goal of introducing such a game shell into medical education is not only an increase in motivation or interest in learning, but also a systematic change in the behavior of all participants in the educational process in general.

Gamification is a method of increasing learning efficiency. There are three forms of gamification: the competition becomes a game motivation, where simple and clear rules are used, the progress of each team is shown on the screen of the online interactive board; the "no winner" game, during which learners learn casually, becomes a pleasant process; the goal is visualized, the visibility of the results of the students' teams increases [15].

The creation of test tasks helps students with different types of information perception to better learn the educational material. Visuals with a leading visual channel are helped by bright pictures with models, schematic images, and video materials from training classes to perceive information and remember it. At the same time, associative memory is activated. It is important for audiophiles to hear the sound accompaniment of video slideshows that are downloaded from various information channels. Digital (discrete), in which the digital channel is the leading one, will be interested in solving logical problems, application tasks, etc., to increase motivation. And kinesthetic people with a leading body-sensitive channel are interested in interacting with information by touching the gadget screen.

The main aspects of gamification include a dynamic component - the use of scenarios that require the user's attention and his actions (reactions) in real time; the mechanical component - the use of script elements that are characteristic of the game process - virtual awards, points, statuses; aesthetic component – creation of a general game impression, which promotes emotional involvement, social interaction – use of techniques that ensure interaction between users characteristic of games. Gamification is a method of influencing human behavior based on the use of game elements. By transforming experience through games, it overcomes social and psychological limitations, enabling the release of human potential [16].

The project method (project technology) is a way of achieving a didactic goal through a detailed development of a problem (technology), which culminates in a practically tangible result. The modern project technology of training at the post-graduate stage of training of doctors is focused on the integration of actual knowledge, its application and acquisition of new ones.

In the conditions of project learning, the main attention is paid to the contextualization of the content block, which involves: maintaining a branched system of connections (between new ideas and previous knowledge, between concepts and everyday life), emphasis on methodological aspects (the ability to apply knowledge in practice).

In conditions where there is a permanent update of the content of educational disciplines in connection with the appearance of new software and hardware tools that are used at the postgraduate stage of education in the training of doctors, the advantages of project-based training are its adaptability and flexibility, the possibility of applying it to students with different initial levels of training. It is important that the application of project-based learning corresponds to the concept of continuous education and can be implemented at all its levels, using projects of different durations and levels of complexity [17].

The typology of projects is divided into research, creative, game (role-playing), informational, practice-oriented. Project technology can be one of the promising learning technologies that can be used in the training of applicants at the post-graduate stage of education and will contribute to the creative self-realization of future specialists, increase motivation for acquiring knowledge, and development of intellectual abilities [18].

The breakthrough of modern digital technologies is virtual reality systems that are already being introduced in the world of medical education [19].

Thus, the use of interactive learning methods and strategies of critical thinking will increase the motivation of doctors-listeners to obtain knowledge, the ability to consciously comprehend their professional skills and the ability to make professional decisions.

3. Prospects for further research development

Promising is the further search for optimal combinations of forms, means and methods of training, pedagogical technologies for the introduction of such models of mixed learning, which will fully provide a quality environment, returning Ukrainian doctors who were forced to go abroad during the hostilities. And this is a significant contribution both to national competitiveness in the information era and to partnership with the European Higher Education Area.

4. Conclusions

So, the integration of digital transformations into the educational process expands the possibilities of delivering educational material in wartime conditions, but requires self-improvement from teachers regarding the ability to apply modern information technologies.

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