Applying new learning methods in medical universities in the conditions of distance learning

Shakhida Ziyaeva [1*], *Kamola* Mirzaakhmedova [1], *Abdushukur* Yunusov [1], *Gulchehra* Karimova[1], and *Rustam* Karimov[1]

[1]Tashkent Pediatric Medical Institute, 223, Bogishamol Str., 100140, Tashkent, Uzbekistan
https://doi.org/10.5281/zenodo.5593621

Abstract. This article is devoted to the application of new teaching methods in medical universities in the context of distance learning. The events of 2019 - 2020 related to the COVID-19 pandemic turned out to be not only a test for the economy of our country and its healthcare system, but also a kind of stress test for the education system. The system of higher medical education is no exception, which, in comparison with universities in other areas, faced additional difficulties. The quarantine conditions necessary to preserve the health and life of the population touched and could not but affect the medical education system. Spring semester of 2020 from March 18, in connection with measures to prevent the import and spread of a new coronavirus infection (COVID-19), training at universities in Uzbekistan was transferred to a distance format. During this period, a voluntary anonymous survey of 170 students was conducted. The distance form of the educational process is based on the principle of independent learning, in which students are distant from the teacher both in space and in time. At the same time, students have a constant opportunity to maintain constant information contact with teachers using modern Internet technologies. New forms of education are in demand at this time, as they form an extraordinary and effective approach to teaching in the subject of pharmacology. From the results of the survey it follows that the attitude to the possible use of elements of the distance learning system increases the independent training of students in pharmacology by 60 -70%. Distance learning in medical universities can be used as an alternative to traditional education in a pandemic.

1 Relevance

The changes in modern life caused by the COVID-19 pandemic dictate the need for restructuring not only in the healthcare system, but in the education system. It is known that the development of modern information technologies expands the range of educational opportunities. Consequently, the effectiveness of distance learning directly depends on the

Corresponding author: shahida63@inbox.ru

quality of the materials used and the skill of the teachers involved in the pedagogical process. Therefore, the pedagogical, meaningful organization of distance learning is a priority. To implement distance learning, the teacher must own teaching methods, assist students in mastering the capabilities of the on-line platform (conducting lectures, seminars, workshops, student scientific circle meetings, Olympiads, conferences) and the necessary software. The teacher needs to develop students' discipline and skills to comply with the deadlines for completing assignments, to carry out a timely assessment of student work. The term "innovation" has become increasingly applied to higher education. It implies a set of measures applied in higher education in Uzbekistan [8,11]. In medical universities, the training of doctors, which includes the development of various medical manipulations, the maintenance of medical records, the acquisition of communication skills and examination of the patient, etc. is carried out in the classical, full-time form of training. Skills and skills are mastered in practical training. In connection with the emerging unfavorable epidemiological situation, in order to reduce the risks of the spread of the coronavirus COVID-19, it became necessary to use new technologies in teaching university students, namely distance learning [7]. This led to the transition of all universities in our country completely to e-learning using distance learning technologies (DOT). At the Tashkent Pediatric Medical Institute, distance learning is a cognitive and social process, not a process of transmitting information over the Internet. Contact work of a teacher and a student is carried out through dialogues in real time on the Zoom cloud platform; independent work - using e-mail, social networks, instant messengers (WhatsApp, Viber, vk.com.), as well as completing tasks on the Moodle platform. Unlike many theoretical disciplines of the curriculum in the specialty "Pediatrics", "General Medicine", "Medical - pedagogical business" and "Biomedical business" (1-3 courses), the subjects taught at the departments require students to master practical skills. The current system of studying theoretical and clinical disciplines with the use of DOT should not, in our opinion, affect the quality of training of future medical specialists. This required the teachers of the departments to use innovative approaches in the educational process, especially in teaching practical skills.

2 Purpose

Acquaintance with innovative teaching methods in medical universities and their application in practice, explore the features of the use of interactive teaching methods with the use of situational tasks in working with students in the conditions of distance learning.

3 Methods and materials

In the course of this study, an analysis of domestic literature was carried out on the topic of new teaching methods and their application in teaching students of medical universities. To prepare this work, we used generalizing data concerning aspects of the organization of distance / blended learning, obtained over a long period of quarantine, by interviewing medical students.

4 Results and its discussion

Currently, there are many innovative approaches to the study of the proposed material. Training should primarily be aimed at developing students' abstract and logical thinking, assimilation and subsequent application of knowledge [7,8,12]. During this period, a voluntary anonymous survey of 170 students was conducted. The student should not only gain knowledge and master the skills that are presented to him, but also independently seek

material for subsequent assimilation and discussion with the teacher.

The above characterizes the method of "problem learning" [17,3]. It is based on a combination of inductive and deductive methods of organizing mental activity with immersion in the root of the problem and the definition of consequences and goals. Problem methods are methods based on the creation of problem situations, active cognitive activity of students. The essence of the method consists in finding a solution to the questions posed, requiring the systematization of knowledge, the ability to think logically and abstractly. The main link in problem learning is the modeling of a problem situation. This term is understood as a mental state of intellectual difficulty that appears in a student when, when solving a certain problem, he is not able to explain a new fact with previously available knowledge or to perform an already known action in the same way. The purpose of problem learning, in addition to mastering the foundations of the sciences, is the process of developing the creative and cognitive abilities of students [14,17].

The staff of the Department of Pharmacology have many years of experience in using situational tasks in the framework of practical training. However, in the conditions of distance learning, the relevance of using this form of work has increased. At the same time, the possibility of placing tasks and answers on the MOODLE platform contributes to a personality-oriented approach to students, allowing them to work at a comfortable pace, present answers in a convenient form, stimulate the creative process and cognitive activity.

The updated bank of situational tasks developed by us allows students to systematize the acquired knowledge, developing imaginative and logical thinking. Students are invited to fill in tables, depict answers to individual questions in the form of pictures and diagrams, and illustrate their answer with examples. One of the tools for the implementation of the competence-based approach in mastering the disciplines of pharmacology is the use of tasks formulated in the form of problem situations, for the solution of which the student needs to show personal qualities with the involvement of relevant knowledge and skills on the topic under study. The specified type of situational tasks is widely used by us in the framework of teaching pharmacology. After oral analysis of the topic in accordance with the control questions, students are invited to apply the knowledge gained to solve the clinical situation. In the course of active cognitive activity, the student needs to choose the optimal method, justify his decision, reflect the stage-by-stage progress of the study and its results, explain the features of the choice and transportation of the material under study, propose measures for the treatment and prevention of the alleged disease. At the same time, all situational tasks offered to students are maximally adapted for each subject. The above type of work implements a contextual approach by strengthening the practical orientation of training, integrating the knowledge gained with the future professional activity of a doctor, which becomes especially relevant in the context of distance learning. The need to find a well-grounded solution, the development of creativity, the practical application of the acquired competencies confirm the undeniable pedagogical effectiveness of situational tasks. It seems important to note the value of the application of this educational technology, both for consolidating the acquired knowledge, and for their verification and control. Here is an example of the application of the methodology of problem learning - a method of situational learning that allows you to formulate a specific problem in the form of a task, urging students to look for ways to solve it in the form of competition. This method is mainly used in clinical departments.

A group of students (11-13 people) is divided into 3-4 subgroups. Each subgroup is given a situational task that describes a patient with a specific disease. The task describes: the patient's complaints, the circumstances and time of the onset of the symptoms of the disease, the dynamics of the patient's condition, the data of the studies conducted. The subgroup has a goal: to make and argue for the diagnosis, solve the problem with hospitalization, carry out urgent measures and diagnostics using the methods proposed by

the students, and also determine the doctor's tactics. Upon completion of the work, one of the students of each subgroup reports to the teacher the result of the work done, the rest of the students listen to the speaker, can make adjustments or ask him questions. The teacher can help by asking leading questions, making references to literature. The discussion ends with a summary. Problem-based learning forms the skills of self-learning and selforganization, raises the level of a serious attitude towards obtaining professional knowledge and skills, as well as the individual qualities of a doctor [1,2,10]. Active learning is also widely used now. This method is based on active thinking and practical activity in the process of studying the educational material. It is aimed at logical reasoned analysis, correct formulation of speech, discussion and provision of arguments. Active learning is subdivided into non-imitative and imitative methods. Imitation methods are methods based on imitating the actions of professional activities.

Depending on the relationship between the participants in the roles they perform in the presence of competition, these methods are subdivided into play (business games, design) and non-play (analysis, problem solving, CBL-method) methods [2,6]. Active learning includes: testing, quizzes, presentations, role and business games, interactive lectures, a round table, as well as a game method that allows you to use knowledge and, applying it, act in various simulated situations [1,4]. Let's analyze active learning using the example of the "case studies" method. This method is used to develop professional skills. The basis is a task that contains data on blood tests, sputum, biochemical studies, X-rays, etc. Students analyze the data, determine deviations from the norm, which allows them to determine symptoms and syndromes. This method allows you to move from professional knowledge to the independent application of professional skills, forms the student's understanding of intersubject connections. It can also be noted that the use of visual examples in teaching significantly improves understanding and assimilation of the material, and also creates a positive emotional environment. Non-imitative methods are actively used in lectures. Students prepare reports with a presentation on the topics studied, which allows students to master the skills of speaking in front of an audience, as well as the skills of finding and selecting relevant and interesting information on a given topic [13]. CBL (CaseBasedLearning) is an active, imitative, non-play method that allows future doctors to develop a competency-based approach to diagnosis and treatment. Based on the students' ability to find signs and combine them into clinical syndromes based on the clinical situation. To solve the clinical situation, students are required to jointly analyze the situation, look for problems, evaluate clinical and laboratory examinations and establish the leading syndrome in the patient.

The meaning of the method is to develop the student's skills to find ways and knowledge of solving a particular problem [13, 5]. The gameplay may only outwardly seem like a harmless child's game, but if directed into the mainstream of medicine, it will acquire a different character. The first to investigate the question of the application of the game in learning was the Dutch scientist J. Huizing. In his opinion, the game gives freedom, it is not a task, not a duty, not a law. The game creates a kind of ease and lightness, which helps to distract from the routine learning process. Didactic games are built on the principle of self-learning, that is, students initially collect and analyze information, and then make a decision. Here are several ways to implement the gameplay [9]. "Who is more?": Students are divided into groups, then they are given a certain disease, the group that lists the most symptoms wins. "Choose me": students are offered several images from which they need to choose the manifestation of a specific disease. "Save me": students are divided into pairs, one of them makes complaints, imitates ailments, symptoms, and the second must identify the disease and provide appropriate assistance. "Information Blocks": Students are encouraged to make a diagnosis based on their medical history.

The information is read out as a diagnostic process, that is, not completely. After each

block, students discuss the information received and determine in which direction to move on. "Algorithm of the immune response": each student is given a badge that says: antigen, antibody, macrophage, plasmacyte, etc. Students are invited to play a scene of the immune response. These games are optional, and each teacher can come up with their own types of games. It should be said about such an innovative technology as a thematic crossword puzzle.

Many teachers have already appreciated this method, believing that it contributes to the formation of logical thinking, helps students express their thoughts in a simple and understandable form. Compilation of a crossword puzzle is aimed at developing students' intellectual and professional qualities. Having studied the discipline, the teacher invites students to compose a crossword puzzle to consolidate the material they have passed. In the course of this work, it is advised to refer to scientific and educational literature. A crossword puzzle is a methodological tool used to consolidate theoretical material in the process of solving it. They allow you to transform "boring" topics, as in the process of solving students feel free. This technique stimulates cognitive activity and interest in the subject. When compiling a crossword puzzle, you need to take into account such points as its compliance with the content of the basic program and the ease and brevity of the wording of questions and answers. In order to increase the productivity of students' work, approaches to the solution should be diversified: some of the crosswords are given individually, and some are given collectively. This allows you to assess the success of each student individually and teamwork skills. This method involves students in an active learning process, contributes to the development of communication skills, as well as team work skills [15]. Technological method "Pedagogical workshop for building knowledge".

This is a non-standard method of building knowledge, based on creating a creative atmosphere, comfortable conditions that will help develop the student's communicative and creative abilities, motivation for learning, interest in learning. The purpose of this method is to create a creative product, which is based on the student's search for information when referring to scientific and educational literature. Consider an example of this method: searching for a specific disease in works of fiction. Students are immersed in a literary search for a work that describes a given disease. Reconstruction allows you to create a general picture from unrelated episodes, that is, a clinical situation. This is followed by the presentation of the created product in the form of a presentation. Viewing creative results takes place in one lesson and allows you to present one clinical situation from several sides, as well as to consider the dynamics of the issue over time. During the discussion, participants can ask questions and discuss possible solutions, thus becoming active participants in this process.

The result is a "gap", that is, a new vision of the object, during which the clinical situation acquires a realistic color. This method allows the student to develop from the cultural side, to consolidate the passed material, to acquire the skill of independent search, systematization of knowledge [18]. The introduction of simulation centers is also an innovative direction. Mannequins, robots with built-in sensors contribute to the successful development of skills. There are also simulation machines that help students develop operational skills [16]. There are an infinite number of approaches to learning. First of all, you need to interest the student in active work and show him the effectiveness of his activities. If the student sees the result, he will be interested in active work. Unfortunately, there are some difficulties in applying such innovative methods as insufficient motivation of teachers, insufficient involvement and willingness of students to take initiative.

5 Conclusions

From the results of the survey it follows that the attitude to the possible use of elements of

the distance learning system increases the independent training of students in pharmacology by 60 -70%. New forms of training are in demand at this time, as they form an extraordinary and effective approach to training in pharmacology. This is important for the future profession of a doctor, since a highly qualified specialist must be able to independently work with the material and be interested in finding it, as well as correctly apply the knowledge gained.

References

1. S.R. Abzalova, et al., Journal of Psychosocial Rehabilitation, **24(1),** 928-936 (2020)
2. S.R. Abzalova, New aspects of teaching pathological anatomy. Academy, **7(46)** (2019)
3. E.S. Ananyeva, V.A. Bykova, Novosibirsk: SibAK, **7 (42),** 29-33 (2014)
4. N,V. Agranovich, A.B. Khojayan, O.V. Agranovich, et al., International Journal of Experimental Education, **12(2),** 255-256 (2016)
5. R.E. Bakirova, S.D. Nursultanova, L.E. Muravleva, et al., Modern problems of science and education, **3** (2018)
6. T.V. Barakhovskaya, A.V. Shcherbakova, Sib. honey. zhurn. (Irkutsk), **7**, 21-22 (2010)
7. V.A. Zhurbenko, E.S. Sahakyan, International Journal of Applied and Fundamental Research, **11(1),** 164-164 (2016)
8. I.M. Ibragimov, *Information technologies and means of distance learning: textbook. manual for stud. universities* (Academy, M., 2005)
9. M.A. Kamaliev, A.M. Shakhieva, A.N. Nubakyt, Bulletin of KazNMU, **2(4),** 210-212 (2014)
10. E.M. Mokhov, A.M. Morozov, V.A. Kadykov, et al., Modern problems of science and education, **1,** 112 (2019)
11. S.K. Nazarova, et al., Annals of the Romanian Society of Cell Biology, 339-347 (2021)
12. L.B. Osipova, Modern problems of science and education, **5,** 723 (2014)
13. E.G. Ogoltsova, O.M. Khmelnitskaya, *Formation of active learning as a means of developing the cognitive activity of students, Development of the quality of higher professional education in modern conditions.* Materials of the regional scientific and practical Internet conference, 129-133 (2009)
14. M.G. Romantsov, I.Y. Melnikova, Medical education and professional development, **1 (19),** 88-94 (2015)
15. S.O. Ryspekova, T.A. Zhumakova, D.D. Zhunistaev, et al., International Journal of Applied and Fundamental Research, **5(2),** 340-342 (2017)
16. E.V. Soboleva, O.V. Peshikov, M.V. Peshikova, N.M. Shlepotina, Bulletin of SMUS74, **1(16),** 34-36 (2017)
17. D.K. Khursanova, D.A. Usta-Azizova, O.Y. Abdullaeva, Young scientist, **8,** 374-376 (2017)
18. S.D. Yavorskaya, M.G. Nikolaeva, T.A. Bolgova, T.I. Gorbacheva, Modern problems of science and education, **4** (2016)
19. Зияева, Ш. Т., et al. "Антиоксидантная активность гиполипидемического препарата фирутас." Вестник Казахского Национального медицинского университета 5 (2014): 183-187.
20. Хасанов, Х. З., Жумаев, О. А., Акбарова, М. С., & Сабиров, Ш. Ю. (2017). Результаты хирургического лечения лекарственного устойчивого туберкулеза легких при различных сроках антибактериальной подготовки. Молодой ученый,

(16), 97-100.

21. Аскарьянц, Вера Петровна. "Современное преподавание медико-биологических дисциплин в медицинском ВУЗе." Современные научные исследования и инновации 4 (2016): 502-509.
22. Абдурахмонова, Н. Х., Ю. К. Джаббарова, and Х. З. Турсунов. "КЛИНИКО-ПАТОЛОГОАНАТОМИЧЕКИЙ АНАЛИЗ ПРИЧИН ПЕРИНАТАЛЬНОЙ СМЕРТНОСТИ ПРИ ВРОЖДЕННЫХ ПОРОКАХ РАЗВИТИЯ." Врач-аспирант 43.6.3 (2010): 382-389.
23. Кадырова, Асалат Азизовна, and Юлдуз Касымовна Джаббарова. Железодефицитные анемии беременных. Медицина, 1983.