



## THE ROLE OF DIGITAL TECHNOLOGIES IN IMPROVING THE QUALITY OF HIGHER MEDICAL EDUCATION

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### ABSTRACT

*This article describes the further development of the higher medical education system, the importance of digital technologies in increasing the efficiency of the higher medical education system, and the positive possibilities of information technologies in various fields of education.*

Currently, the medical education of our republic faces a number of problems, including the increase in the number of students, changes in their requirements for teaching methods, and the need to reduce the gap between theory and clinical practice. In addition, there is an increasing focus on patient safety, ethical issues, increasing responsibilities of health care workers, high level of professional skills required, and rapid development of treatments and methods. All this requires adaptation of educational programs to international standards using existing educational tools.

Today, there is an acute shortage of highly qualified specialists in the field of medicine. Therefore, it is natural that one of the main directions in the field of higher medical education is the need to significantly strengthen the practical direction of training highly qualified specialists, while maintaining the appropriate level of theoretical knowledge. The introduction of innovative educational technologies into the educational process determines the demand for highly qualified specialists capable of increasing the competitiveness of healthcare in the Republic of Uzbekistan.

It is necessary to teach graduates of medical universities integrated theoretical and clinical knowledge, skills, help in mastering high medical technologies and the formation of social adaptability in the future doctor, application of theoretical knowledge in practice. Through the implementation of these tasks, students will be able to develop strong motivational relationships, deep specialization, realize intellectual and personal potential, and train a mature medical worker.

The task of the pedagogue of the medical university is to clearly organize and effectively manage the independent activities of students, that is, to define tasks, to correct the ways to



solve them, to record and evaluate the results of student efforts. If a student does not learn to learn independently, then he will not become a good doctor who can correctly analyze his work and make a critical observation. But today, despite all our efforts, graduates of medical universities do not have practical skills to work on high-tech, innovative equipment.

Often their knowledge is limited only to theory. Only a number of young doctors can improve their skills in foreign clinics or educational institutions, because their costs are quite high. Doctors must constantly apply the acquired skills. Traditional forms of medical education do not provide complete safe and effective training before the doctor is actively working with patients. In addition, the current forms of monitoring the level of competence of doctors are inconsistent or insufficient. In practical lessons, the student should not just repeat the memorized text, but learn to solve practical problems.

The task of students is to study independently with the help of a teacher - trainer and consultant. First of all, it requires the student to understand his goals and values in terms of motivation: what do I want to learn and why? It is also important to understand intellectual and cognitive aspirations - it is important to acquire conceptual knowledge, norms and methods of activity: I can learn, I know exactly what and how to do. However, it is necessary not only to use innovative teaching technologies, but also to achieve concrete results that students can demonstrate through them. In order to solve all these accumulated problems, it is necessary to widely introduce the simulation teaching system in medical education from the higher educational institution to the stage of continuous education. It is known to everyone that many medical universities and leading clinics in the world, where students practice and improve the qualifications of doctors, have installed robotic patients with simulation equipment and technical characteristics as close as possible to the real patient. They have introduced a system of assessing the level of students' knowledge and accrediting doctors in all fields. With the help of simulators, it is possible to bring practical skills to the level of automation, to avoid harming the health of patients.

A simulation is an imitation of the execution of a real process or the operation of a system over a period of time. Simulation is used in many settings, such as performance optimization technology simulation, security design, testing, training, education, and video games. In the process of theoretical and clinical training of medical specialists, skills such as interpersonal communication, clinical reasoning and planning are also used. Constant practice and simulation are necessary to master and improve technical-psychomotor skills and interpersonal communication skills, which allows students to bring the technique of performing these skills to the level of automaticity. The use of simulation techniques and methods in medical education is called simulation teaching in medicine.

Simulation Centers or Clinical Skills Labs are training centers for medical students (institutions) or medical professionals (post-graduate education) where a safe and secure environment is provided for learning skills and manipulations. To date, enough experience has been accumulated in the use of innovative educational technologies in medicine all over the world. The skills acquired in the virtual environment are successfully applied to the real clinical environment. Thanks to the establishment of such centers in the USA, Germany, Great



Britain, Japan, Korea and other developed countries, it was possible to bring practical skills and the performance of medical procedures to the level of automation.

From the simulation training center, students of medical universities (for example, to study anatomy, physiological functions, to familiarize themselves with medical examination methods), residents (for example, to acquire and improve the skills of performing manipulations and techniques), practical it can be used in preparation for exams, refresher courses, certification exams, etc., continuous training of doctors or nurses (for example, acquisition of practical skills, improvement of teamwork) or to test the competence of an employee before hiring him.

Today, due to the sharp increase in the number of students in medical universities, there are 8-10 students for each patient. From the point of view of ethical principles, this is wrong, because it is necessary to pay special attention to critical patients and follow their daily regimen. Even an innocuous procedure such as questioning can tire the patient. Simulation technologies are needed to solve these problems of medical education: to perform all algorithms and practical skills without harming the health of the patient, to teach students and doctors how to act in emergency situations.

In addition, simulation training is also important for learning the effective use of medical equipment and the use of minimally invasive methods of treatment that are currently being developed. The student should come to the patient only after bringing practical skills to the level of automation. This allows the student to feel more confident next to the patient.

During the simulation training, it is possible to get acquainted with all the diseases covered by the training program, regardless of whether there is a patient with specific symptoms in the clinic or not. The most important thing is that in the course of teaching using simulation technologies, there is an opportunity to conduct an individually planned practice for each student. The simulation training process includes activities aimed at developing practical skills, algorithms and communication skills.

In our opinion, in order to evaluate the effectiveness of simulation training in the process of improving the quality of practical training of students, the following interrelated indicators should be taken into account:

- convenience and individualization of education for everyone; compliance of personnel training programs and content with the needs and trends of the healthcare system;
- the level of material and technical equipment of the educational process. Constant updating and enrichment with new equipment is required;
- implementation of interdisciplinary integration and connection in the teaching of subjects. Today, departments should not be allowed to train students separately, of course, integration between departments is also necessary;
- the quality of methodological provision of the educational process. Our programs and all documentation must comply with international standards;
- indicators describing the results of control and evaluation activities.

The assessment should be objective, in which the students' self-assessment should be taken into account. We can talk about objectivity only when the student's self-assessment



corresponds to the teacher's assessment. But at the same time, we can achieve one hundred percent objectivity only by reducing the human factor.

The future of Uzbekistan's medicine depends on the quality of our graduates. We believe that the following is necessary to improve the quality of education and medical services:

Creating simulation centers where students can practice practical medical care skills in accordance with the curriculum, for example, first aid to a patient in an ambulance, complex surgical operations, obstetrics, dentistry, ultrasound diagnostics, etc. to create conditions for them to master their skills. Simulators can cover almost all areas of the educational process. Organizing master classes for a large contingent of students and doctors, involving world-class professors and teachers. Predicting possible complications during surgery on a real patient and conducting pre-operative training of every doctor in the surgical team, from the anesthesiologist to the surgical nurse.

Conclusion of cooperation agreements between simulation training centers and leading manufacturers of medical equipment, conducting training courses on their equipment, thereby increasing the coverage of doctors and young specialists several times and foreign clinics and the need to go to training centers can be reduced. The goal of improving the quality of education in medical institutions of higher education today is the basis of all our ongoing and planned activities.

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