

MODERN APPROACHES IN TEACHING MEDICAL SCIENCES

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Annotation: *The place of modern approaches in modern medical education is given by training based on Biomedical Engineering, Industrial Experience model, International Integrated Curriculum, the content and essence of training based on simulations. Also, the preparation of students for real clinical situations in medical education, the development of clinical thinking in them are highlighted.*

Keywords: *simulation, industrial practice, international programs, reflective teaching, critical thinking, professional competence.*

Аннотация: *В современном медицинском образовании рассматривается место обучения на основе биомедицинской инженерии, модели производственного опыта, международной интегрированной учебной программы, раскрывается содержание и сущность симуляционного обучения. Также освещаются вопросы подготовки студентов к реальным клиническим ситуациям в медицинском образовании, развития у них клинического мышления.*

Ключевые слова: *симуляция, производственная практика, международные программы, рефлексивное обучение, критическое мышление, профессиональная компетентность.*

Annotatsiya: *Zamonaviy tibbiy ta'limda zamonaviy yondashuvlarning o'rnini Biotibbiyot muhandisligi asosida o'qitish, Industrial Experience modeli, Xalqaro integratsiyalangan o'quv dasturlari, simulyatsiyalar asosida o'qitish mazmuni va uning mohiyati. Shuningdek, tibbiy ta'limda talabalarni real klinik holatlarga tayyorlash, ularda klinik fikrlashni rivojlantirish yoritib berilgan.*

Kalit so'zlar: *simulyatsiya, industrial amaliyot, xalqaro dasturlar, reflektiv o'qitish tanqidiy fikrlash, kasbiy kompetensiya*

In modern medical education, traditional approaches are being replaced by innovative methods. Today, the educational process is not only theoretical knowledge, but also special attention is paid to the formation of professional competencies of students in a real clinical environment. In particular, case study technology, problem-based learning, collaborative learning and various didactic games on digital technology platforms, training based on Biomedical Engineering, Industrial Experience model, International Integrated Curriculum, training based on simulations are highly effective.

Simulation-based training is a modern method created to prepare students for real clinical situations in medicine, in which practical exercises are conducted using special mannequins, virtual platforms and interactive scenarios.

The use of simulation technologies in medical education is a very effective method for developing students' practical skills, making the right decisions in clinical situations and forming professional competencies.

After acquiring theoretical knowledge, students practice situations such as cardiac arrest, surgery, and childbirth in a simulated environment in a safe environment.[1] This method allows for learning from mistakes, teamwork, quick decision-making, and developing skills without harming the patient. It plays an important role in improving the quality of medical education and building professional competence. Simulation-based training is carried out in specially equipped simulation centers in medical education. In these centers, students perform practical exercises in conditions similar to real clinical situations. First, the teacher gives a theoretical explanation, and then students practice performing procedures using mannequins or virtual platforms. For example, they are taught step-by-step how to act in cases such as cardiac arrest, bleeding, and respiratory failure.[2]

During the training process, virtual laboratories, interactive exercises on clinical situations, forums, and discussion forums are organized through LMS systems. This develops the skills of exchange of ideas, teamwork and joint problem-solving among students. Teachers also monitor student activity, apply an individual approach and analyze the results.[3]

The Industrial Experience model is a modern method of medical education based on the integration of the learning process into a real work environment, where students develop professional skills through practical work, while mastering theoretical knowledge.[4]

Starting from a certain stage of their studies, students devote some days of the week to practical training in a real workplace. This process is organized through medical institutions cooperating with the university. Each practical session is monitored and evaluated by teachers.[5]

Students learn skills such as communicating with patients, participating in the diagnostic process, maintaining medical records, and working in a team. This method of training combines theoretical and practical knowledge, making students ready for work immediately after graduation. It is especially effective in studying modern medical technologies, understanding the internal processes of the healthcare system, and feeling professional responsibility.[6]

International integrated curricula - this method is aimed at adapting medical education to global standards and is developed in collaboration with leading foreign universities (for example, MIT, Harvard, Oxford). Students receive training based on a curriculum developed in collaboration with international universities.[7] Classes are taught in English, using cutting-edge technology, virtual laboratories, and seminars and master classes with international professors. Students have the opportunity to practice in international clinics, which prepares them for the global healthcare system.[8] Through this method, teachers also participate in advanced training programs, conduct scientific research, and exchange international experience. As a result, the quality of education increases, diplomas are recognized internationally, and graduates have the opportunity to work or continue their studies abroad.[9]

Biomedical engineering education is a modern method of medical education that combines biology, chemistry, and engineering disciplines, where students learn to create and use medical devices, prostheses, artificial organs, and diagnostic technologies. Through this approach, students develop innovative thinking, technical design, laboratory experiments, and practical skills in a real clinical environment. The method strengthens the technological approach to healthcare and serves to train a new generation of medical professionals.[10]

Reflective learning is a method that encourages students to reflect on their experiences, which accelerates professional growth in medical education. After practical training, the student analyzes his mistakes, successes and decisions, which enhances critical thinking and a sense of responsibility. Reflection is carried out through written diaries, group discussions or conversations with the teacher. This approach serves to form the student as a conscious, empathetic and thorough specialist. In modern medical education, traditional approaches are being replaced by innovative methods. Today, the educational process is aimed not only at imparting theoretical knowledge, but also at preparing students for a real clinical environment. Several advanced methods are being introduced for this purpose.[11]

In conclusion, it is worth noting that the introduction of modern approaches in modern medical education significantly increases the quality of education. Through simulation-based learning, industrial internships, international integrated programs, biomedical engineering, and reflective learning methods, students combine theoretical knowledge with practical skills. These approaches not only build professional competence, but also prepare students to work independently in a real clinical environment, make quick decisions, and adapt to the global healthcare system. Through innovative educational technologies, medical professionals are formed as mature, responsible, and empathetic individuals in line with the requirements of the time.

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