EFFECTIVENESS OF USE OF MODERN INNOVATIVE TECHNOLOGIES IN MEDICAL EDUCATION

https://doi.org/10.5281/zenodo.10655242

Buzulaykho Khaydarova
Fergana Medical Institute of Public Health

Annotation: *This article is devoted to considering the possibilities of using modern technologies in medical education. The integration of these technologies into the system of higher medical education occurred because there was a need to find modern methods of teaching students of the new generation, born in the digital world, fluent in technical skills and expecting that education will reflect their experience, develop skills and abilities in technological learning environment.The advent and rapid spread of digital technology in the last decade of the 20 th century changed the way students think and process information, making it more difficult for them to succeed academically when using traditional teaching methods. The article discusses technologies such as simulators, virtual reality, used in the process of training students who receive continuing medical education.*

Key words: *medical education, new generation of students, technological learning environment, simulation technologies, virtual reality modeling, information processing.*

Medical education is trending toward transformation, driven by many factors including the ever-changing health care environment, the new role of the physician, changing public expectations, rapidly evolving medical science, and the emergence of a wide. variety of teaching methods used in teaching medicine. Changes in public expectations are putting patient safety at the forefront and raising ethical concerns about teaching medical students on live patients, as the long-used “see, do, teach” teaching method is no longer acceptable.

Educational goals for the use of technology in medical education include facilitating the acquisition of basic knowledge, improving decision making, enhancing perceptual variation, improving coordination of skills, practicing in non-standard and stressful situations, team learning and improving psychomotor skills.

The use of technology in medical education has evolved over the years. The trend of using innovative technologies has mainly developed in response to the challenges facing medical education. Numerous studies have been devoted to the problems of medical education [1-6]. One of the main problems, according to most researchers, is the quality of medical education, which can be improved by introducing technological innovations [7-13].

Purpose of the study. The use of technology can provide the infrastructure and be the key to solving many of the problems affecting the delivery of medical education now and in the future. In this article we will look at technologies such as mobile applications, video

games, simulators, and virtual reality. This is only a small part of the existing variety of methods available to solve changing educational problems in the new technological world.

Shifting the emphasis in the curriculum of higher educational medical institutions, both at the undergraduate and postgraduate levels, from the simple acquisition of knowledge to the need to form and develop the professional competencies of a doctor, no longer allows teachers to overload students with a huge amount of information, but provides an opportunity to teach how to navigate a rapidly changing information flow [14-16].

Recently, a popular educational approach to increase student motivation using video game elements is gamification [19]. Medical education is also using digital games to train future professionals. So-called "serious" games provide learning tools that provide a simulation environment and are often used to train future surgeons. Using serious games for surgical training improves eye-hand coordination and reflex responses. At the Florida State University College of Medicine, students play ElderQuest, a role-playing game in which players try to find the Gray Sage, a powerful wizard in poor health who the player must restore to health first. Researchers have found that this game provides medical students with specific knowledge of gerontology, as well as experience of caring for an older person, influencing not only their learning, but also their understanding of the special needs of the elderly population. Many important educational goals can be achieved using new medical technology - simulation. Recent research on high-precision medical simulation technologies suggests that they promote learning in an environment that is as close to reality as possible, creating the effect of “total immersion” in the clinical situation [20].

Identified characteristics of simulation training include the provision of feedback during medical procedures, the integration of learning and practice activities, the opportunity to practice learned learning skills at different levels of difficulty, the development of multiple learning strategies to accommodate clinical variations, and the ability to perform as a group, and individual learning, while simultaneously assessing students using benchmarks.

Although research in this area needs to be improved and refined, high-quality medical simulations are educationally effective, and simulation-based education complements medical education in patient-facing settings.

The use of simulation in the classroom, from simple demonstrations of isolated body parts to complex human mannequins that reproduce the appearance of the entire body with changing physiological parameters, helps medical students gain experience in providing medical care in a safe environment. For example, Figure 1 shows a manikin teaching anatomical electrode placement when performing an ECG. Students learn electrode placement on an adult simulator using anatomical landmarks such as the intercostal spaces, midclavicular line, anterior axilla, midjaw line, and scapula.

Another rapidly developing area in the field of medical educational technologies is virtual reality modeling, in which the environment and objects are recreated in the form of a complex computer image. In virtual reality simulations, the computer display simulates the physical world, and the user's interaction with the computer takes place in this simulated world. There are a number of virtual reality simulation programs used in medical education.

The use of simulation models in nursing has become widespread in the practice of teaching medical disciplines.

The use of modern technologies in medical education should help support learning, and not be a replacement for traditional approaches where the main role is played by the teacher. Teachers still need to focus on teaching principles rather than specific technologies.

Technology is just one method in the educational toolbox. The challenge for health educators is to effectively use these new technologies to make learning a more collaborative, personalized, and empowering experience.

CONCLUSIONS. Thus, due to the fact that new technologies can solve many problems in medical education, their use in the process of training students who receive continuing medical education is becoming increasingly necessary. The use of these technologies facilitates the process of acquiring knowledge by students and makes it more interesting, develops skills in perceiving information, making decisions, provides an educational environment that involves the student and allows for training in practical skills that does not endanger the patient.

The use of innovative technologies in medical education contributes to the acquisition of special skills that will be used in solving professional medical problems in future preventive, diagnostic and therapeutic activities; increases the level of interest of future medical specialists in mastering professional integrative skills, the level of external and internal motivation for educational activities in general and for the study of medical disciplines in particular.

REFERENCES:

1.Shaposhnikov V.I., Ashkhamaf M.Kh., Gedzyn R.V., Marchenko N.V. Problems of modern medical education // International Journal of Experimental Education. 2012. No. 4-2. pp. 272-274

2. Zorin K.V. Dehumanization of medicine and doctor’s education: psychological and pedagogical aspects // Alma mater (Bulletin of Higher School). 2016. No. 6. pp. 113-115

3. Moshkova O.M. Continuing medical education: opportunities and problems of motivating doctors. In the collection: Science and practice: partnership in the implementation of the national health care strategy in the region 2015. pp. 272-276

4. Anikina V.V., Zotova Yu.A. Problems of medical education in Russia. Bulletin of Medical Internet Conferences. 2016. T. 6. No. 1. P. 161

5.Aliev N.I., Balakhonsky V.V. On the problem of information and synergetic foundations of medical education. In the collection: Holiday and everyday life: the heuristic potential of childhood, a collection of scientific works. St. Petersburg, 2017. pp. 386-388

6.Marchenko D.V. Formation of new knowledge in medical universities: the example of simulation technologies // Quality management system: experience and prospects. 2019. No. 8. pp. 84-87

7.Itinson K.S., Chirkova V.M. Analysis of existing information resources on the Internet used in teaching students in medical universities // Azimuth of scientific research: pedagogy and psychology. 2019. Vol. 8. No. 1 (26). pp. 144-146

8.Chernyshova T.S. Innovative technologies in postgraduate education // University Bulletin. 2015. No. 7. pp. 276-279

9.Itinson K.S., Chirkova V.M. The role of simulation educational technologies in the formation of professional competencies of future doctors // Baltic Humanitarian Journal. 2019. T. 8. No. 4 (29). pp. 71-73

10.Bakirova R.E., Nursultanova S.D., Muravleva L.E., Tusupbekova K.T., Turkhanova Zh.Zh., Ashirbekova B.D. Innovative technologies in teaching medical students // Modern problems of science and education. 2018. No. 3

11.Itinson K.S., Chirkova V.M. On the issue of the effectiveness of using electronic resources in the process of teaching foreign students at a medical university // Baltic Humanitarian Journal. 2019. Vol. 8. No. 1 (26). pp. 233-236

12.Meerson Y.M. Problems of implementing Internet technologies in teaching medical college students // Scientific research: from theory to practice. 2015. T. 1. No. 2 (3). pp. 237-239

13.Taptygina E.V. Formation and control of professional competencies among graduates of medical faculties // Alma Mater Bulletin of Higher School. 2017. No. 11. pp. 46-50

14. Samchik N.N. Methods for developing audit competence of future doctors when studying Russian as a foreign language // Regional Bulletin. 2019. No. 12 (27). pp. 47-48

15.Dmitrieva D.D., Rubtsova E.V. Criteria and indicators of the effectiveness of professional training of medical students in teaching Russian as a foreign language //Modern problems of science and education. 2015. No. 3. URL: http://www.science-education.ru/

16.Prensky, Marc (October 2001). “Digital Natives, Digital Immigrants.” On the Horizon. 9(5):1–6

17.Moiseev R.V., Kryuchkov Yu.A. Determining the effectiveness of an interactive mobile application - an atlas of ophthalmological instruments in optimizing the educational process of students, residents and ophthalmologists // Bulletin of medical Internet conferences. 2017. T. 7. No. 5. P. 734.

18.Chirkova V.M. Opportunities and advantages of using gamification in the educational process // Regional Bulletin. 2019. No. 20 (35). pp. 43-44

19.Kolesnikova E. A., Makhmutkhodzhaev A. Sh., Ripp E. G. Medical simulation in obstetrics and gynecology // Ministry of Internal Affairs. 2015. No. 1. P.11- 14.