

INTERNATIONAL INTERDISCIPLINARY CONGRESS OF **WOMEN IN SCIENCE**

"Diversity, Careers, Interdisciplinarity"

January 13-14, 2023 / Sivas-TÜRKİYE
Sivas Cumhuriyet University



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INFORMATION AND EDUCATIONAL SPACE: APPLICATION OF INNOVATIVE DIGITAL TECHNOLOGIES

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Abstract

Today, most institutions of higher education strive to modernize the education system based on the widespread use of information and communication technologies. Each institution of higher education in the development of resources is guided, in addition to the standard, by its internal needs, the presence of a laboratory base, highly qualified specialists both in the subject field and in the field related to the development of electronic educational resources in general. Our article will consider the features of using innovative technologies in higher medical educational institutions. Special attention in the article is devoted to the latest technologies and their varieties, which are used to master a very difficult profession - "doctor". The latest technologies are very important in the education and training of qualified specialists in the medical field. The main methods of studying human anatomy, which are the basis of any doctor's knowledge, their disadvantages and advantages, which allow to sufficiently understand the structure of organs and structures of the human body as a whole system, are considered. Among them, virtual reality and various online services, separate programs that allow you to examine the detailed structure of the body's structures occupy a prominent place. In addition, the role of the complex "virtual patient" system in training the student's clinical thinking, as well as the opportunity to try yourself in the role of a doctor, is considered. Important advantages and disadvantages of these methods are highlighted, which should be taken into account in the process of planning the introduction of the latest technologies in the teaching of institutions of higher medical education.

Keywords: innovation, innovative technologies, higher education, higher medical educational institution, distance learning, online services, virtual reality, virtual patient

1. Statement of the problem

Medicine is a science that studies the diagnosis, treatment and prevention of diseases of the human body. Formation of a high level of information culture of future specialists is an important task of higher educational institutions. After all, a high level of medical care is a guarantee of the health of the population.

Therefore, since we live in a time of development and improvement of information technologies, they are used at all stages of the development of health care. In the 21st century, the need for qualified specialists who are knowledgeable in their field and eager to learn has grown significantly in all areas. As a result, there is a question about mastering skills and further processing of the necessary material in various directions, with the aim of improving knowledge. Considering the wide development and introduction of modern medical technologies, an important place in the education of medical students is the ability to use the latest information technologies. As computer technology advances, more and more information is digitized from the physical world, and researchers then work on how to process and display that data to the user, allowing them to effectively perceive and interact with the information. What is the basis for creating a new paradigm of education in the medical field [1].

After all, modern society faces one of the most important tasks, which is aimed at creating a characteristically new and promising education system that would be able to prepare the population of our planet for life in new conditions of civilization. Without the presence of highly qualified specialists capable of qualitatively performing the necessary tasks in various spheres of social life, the normal functioning of such a complex mechanism as the modern state is simply impossible.

2. Formulation of the goals of the article.

The purpose of the article is to analyze the features of the use of innovative technologies in modern institutions of higher medical education.

3. Presentation of the main material.

Every student must understand both the functional and spatial context of human anatomy. Among the traditional methods of studying the subject, the following are distinguished: the use of textbooks, models of organs and the body as a whole, a corpse. Currently, these methods are also used, but there are several disadvantages.

As a rule, the information collected in printed books, such as anatomical atlases, is displayed in the form of diagrams, and only in a few selected sections, which does not allow to fully convey the location of the organ in relation to its surroundings, as well as to consider the structures of the organ in detail, because most of them not detailed, have a different color than the real one. In this way, we can get only an approximate idea of the organs and structures of our body [2].

Anatomy is also taught by dissecting corpses. The value of dissections as a teaching format is that they provide a 3D view of human anatomy, including a tactile learning experience. This allows you to improve the knowledge already obtained in lectures and training manuals, and it provides a complete understanding of the structure of anatomical structures and their interrelationships in the whole body. The use of corpses is currently gradually receding into the background, due to practical and financial problems.

At the same time, the use of computer technologies in medicine is very progressive at the moment. Computer-based learning is developed by experts for more effective acquisition of knowledge by students. Computer-aided education can be very powerful for teaching anatomy, where 3D visualization is a big advantage. These resources are valuable, more interactive and interesting than textbooks.

There are a variety of online services and standalone programs that allow you to view organs and structures from any angle, control magnification, and often even select specific organs and systems to show or hide.

Such programs are widely used, especially in the conditions of the modern world, when the coronavirus pandemic and war reign and the main method of acquiring knowledge is distance learning. It has several disadvantages, the main of which is the lack of practice, which is very important for future doctors. And that's why most medical students are forced to acquire valuable knowledge using the Internet and various programs that can provide insight into the human body, its organs and organ systems. After all, in such conditions, the student is more independent and can rely only on his goals and efforts [3].

Virtual reality is also often used for medical education and psychomotor skills training. These systems have really proven their effectiveness and usefulness. After all, with the help of a special helmet and controllers, a person is able to feel as if he is in another place, to see in front of him the organs and structures of the human body, how they function, to understand the basics of their physiology.

The student's ability to see and feel himself as a future doctor is important. And it is the virtual patient that makes it possible to feel like a doctor at the moment, to see the consequences of the decisions made (regarding the patient's diagnosis and treatment algorithm), as well as to take responsibility for one's actions. The reality of the professional situation creates a special emotional atmosphere that contributes to the assimilation of educational material and increases the quality of education.

There are two types of virtual patient, one of which provides visualization of the student's actions in the form of an interactive computer program, which allows to develop the clinical thinking and actions of the doctor at the stage of diagnosis and treatment process. After all, every action leads to some consequence, which can be both positive and negative[4].

The second type of virtual patient is a computer simulation system of the human body or body system at different levels: biochemical, cellular, physiological, or as a single system. And it makes it possible to monitor the effect of drugs of different composition on the human body, it allows to predict the change in the state of the body system and reveals the pharmacological mechanisms of this action. This program also allows you to simulate the action of various physical natural factors, such as: air pressure, increasing the concentration of gases in the air: O₂, CO₂, CO, etc. In this way, we can show students new ways of interacting with information that could not be achieved when studying diagrams in books and models, thereby increasing their enjoyment of learning [5].

Among the advantages of using innovative technologies are:

1. Visibility. A student can examine in detail the structures and processes that occur in the human body, which is much more interesting than simply observing pictures in books and atlases.
2. Informativeness. When using various programs to study the structure of an organism or the chemical structure of various compounds, clicking on a certain component usually brings up a help that contains all the necessary information about it.
3. Concentration. Bright colors are used to display structures and elements in the virtual environment, which allows you to focus your attention on learning and increases interest in the material.
4. Maximum involvement. The student can not only observe, but also participate in what is happening, make certain decisions, observe the consequences of his actions and learn by trial and error.
5. Security. With the use of the latest technologies, it became possible to carry out complex operations, research with dangerous chemicals and at the same time not harm either yourself or others.

6. Effectiveness. The latest technologies, due to different colors, shapes, detailing, make it possible to better study or consolidate the passed material.

7. Individual approach. If we talk about classes in groups, the teacher pays equal attention to all students. While the latest technologies make it possible to gradually learn and develop independently.

However, in addition to the advantages, there are also several disadvantages: limited communication with peers, friends, due to long-term study at the computer and other gadgets, as a result of which it is more difficult for such students to find a common language with people, to find words to express their own thoughts[6]. There are also disturbances in vision, posture, and limitation of mobility can lead to an increase in body weight. Therefore, all advantages and disadvantages should be taken into account when introducing innovative technologies into the educational process[7].

4. Conclusions

So, after reviewing the material, we can conclude that the introduction of the latest technologies in our time is an important step towards the training of highly qualified specialists, which is an integral part of a modern developed state. Modern technologies make it possible to fully enjoy the learning process, stimulate the desire of students to obtain valuable knowledge, give an opportunity to practice skills, understand aspects of the functioning of the human body and its structure. Looking at all this, we can say that innovative technologies are an integral part of the modern paradigm of the educational process in higher medical educational institutions.

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