DIGITAL COMPETENCES IN BLENDED LEARNING

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Abstract. This article highlights the main concepts in the application of blended learning in medical education. The author reveal the role of online courses, online exams, electronic textbooks, animations, and simulators for teaching medical students

Keywords: online courses, online exams, digital textbooks, animations, internet resources, digitalization

We live in the 21st century where technology has no boundaries. This is the period when the development of technology has affected every corner on the planet. Smartphones, laptops, tablets are already an innovation for anyone. Not surprisingly, the education system is also evolving in the name of improvement. Students of the current generation are overly inquisitive, their huge potential for education cannot be satisfied by the same education system that was created earlier. By educating the youth in the same way that we taught them yesterday, we will deprive them of tomorrow. Our old education system is not able to survive in the 21st century. Therefore, we are forced to use mixed models in the education system.

A new training period has begun and requires various improved methods such as:

Online courses

Online courses have been developed by experts who have unsurpassed skill in a particular field and can give you a real-time learning experience by creating your own online courses. Medicine is the practice of preventing and treating disease through the application of biomedical sciences, research and technology. Modern medicine is divided into many fields, including biochemistry, genetics, immunology, neurology, and epidemiology, and treatment may include surgery, pharmaceuticals, physical therapy, diet therapy, and etc. Blended learning combines face-to-face learning with online learning methods. So medical students can listen to a lecture in the classroom and then take an online quiz right there or at home.

Interactive learning process

Theoretical materials can be challenging (if not boring). It's one thing for medical students to sit and listen to a speaker for hours. And it's a completely different thing when they learn the same information by pressing buttons, participating in a simulation of a dialogue, taking a game course, and so on. Gaining new knowledge can be a fun experience, and blended learning provides many tools for doing just that.

Student autonomy

Ability to control and plan individual trajectory of the learning path is important for medical students, especially for adults. Education is not the only (and hardly the most important) activity of students and employees. Work, family, hobbies and friends – life of people are made up of many facets, and learning should not become an obstacle. With blended learning, students can access courses 24 hours a day, 7 days a week, any time they want and are able to.

Teacher Skills

Blended learning requires specific digital competencies as educators need to create online courses, assign them to students, track their progress, and more. Some e-learning tools have a

steep learning curve and not all educators may be willing to invest the time and effort required to master a new technology tool.

The new skills also refer to the fact that digitally inexperienced teachers may give too much content to study just because they have no group time limits and think that if students are at home, they have a lot of free time. And this can lead to cognitive overload on the part of students.

Plagiarism

The more e-learning content is created, the higher the risk of plagiarism. Instructors may do this by accident, for example if they find an image that highlights their idea and add it to their online course while the image is copyrighted. If this happens, the company or university may have a problem.

Online exams.

Student assessment is an integral part of higher education. With the growth of the development of information technologies and their introduction into the education system, many different assessment methods have been formed, based on technology. Home online exams are computer-based exams that examinees can take anywhere they choose and on their own computers. Despite its advantages, this method faces certain problems.

Online exam results at home have many benefits, including reduced human error, faster scoring, and less stress for test takers. However, one of the limitations of this exam method is that examinees may not meet all the criteria required to take exams at home. The obvious risk is unethical behavior of students and fraud, which is a serious problem with this exam method. Conclusions: The reliability and correctness of examinations can be improved by using combined methods, question banks and issuing random equivalent questions to each medical student, not necessarily similar, as well as mixing the question and answers to them, which can serve as a tool to prevent or limit cheating. Online monitoring systems are also one of the strategies proposed by the observer for permanent monitoring online exams, which are usually developed using artificial intelligence. [6]

Detailed analytics

How long did it take the medical student to complete the test? How many attempts did they make? Do they have tasks that are expiring? Can you answer these questions when teaching in the classroom? Probably yes. But how much time will you spend collecting all this information about each employee or student? With blended learning, you won't waste even a minute - the learning management system will do everything for you. Based on the student's progress, you will be able to see how competent the student is in specific topics, whether they are ready to move forward or if they need to revise some materials and more.

One question per page or a maximum of five questions per page, only these limited questions can be shared with others at any given time. The possibility of cheating is also reduced if questions are used that require a better understanding of concepts instead of memorizing them, or if questions of concepts and memory are confused. In these cases, even if the candidate has access to resources, they still need more time to find answers.

Electronic textbooks

Also known as interactive interface, electronic textbooks, which provides students with access to multimedia content such as videos, interactive presentations and hyperlinks.

Usually, an electronic textbook is a set of teaching, controlling, modeling and other programs placed on electronic media. An electronic textbook often complements a regular one, and is especially effective when it: provides almost instantaneous feedback; helps to quickly find the necessary information (including contextual search), which is difficult to find in a regular textbook; significantly saves time with repeated references to hypertext explanations; along with a short text shows, tells, models, etc. (this is where the possibilities and advantages of multimedia technologies appear) allows you to quickly, but at the pace most suitable for a particular individual, check knowledge in a particular section.

As a medical student, it is necessary to know the structure of the body, diseases that affect the body, disease prevention and other topics related to medicine. These PDF medical books can be useful for studying, preparing for exams, or completing assignments.

Animations

This is an exciting approach in which students learn better. By offering a visual representation of a topic, students understand the concept in a more understandable way. Even the most complex topics can be presented in a simplified way with the help of animation.

Virtual reality -virtual world, creating a complete illusion of presence with the help of human senses: touch, hearing, vision. At the same time, virtual reality is able to simulate both actions and reactions to them. User experiences gravity, the properties of various materials (water, sand, etc.), the force of impact, etc., feeling all this is absolutely real, as in life.

To immerse in the virtual world, special helmets, glasses, suits, gloves, monitors are used. For a long time, VR technologies, originally created for the entertainment industry - computer games and cinema, have been actively used in other industries as well. They also proved to be very useful for medicine.

Simulations for student learning

Virtual simulators have recently been widely used to train students of various medical faculties. This can be an individual or group session, for example, for several surgeons performing an operation. Also, with the help of VR simulators, you can learn how to perform ultrasound, endoscopy and other diagnostic procedures. At the same time, simulators reproduce the reaction of a real organism in a normal environment or under extreme conditions. The convenience of such simulations for learning is that at any time the teacher can interrupt the action, point out the student's mistake, discuss the results, and make as many repetitions of the manipulation as needed. [8]

Another direction of VR technologies for use in medicine is the emergence of simulators that create a virtual world for patients with disabilities and mental disorders.

So, the Virtual Relief company has developed glasses for those suffering from senile dementia - dementia. This is a serious disease from which people around the patient suffer. It is difficult for an elderly person with dementia to navigate in the surrounding space, to memorize new information. In virtual reality, a game is created for such patients that allows them to train their memory, perform action planning exercises, and other things that make the brain work.

There is also a simulator for the treatment of paranoid disorders. The patient puts on a helmet and finds himself in a closed space - for example, an elevator, into which new people gradually enter. The patient learns not to panic in closed spaces with strangers. In 20% of the subjects after such classes, a decrease in paranoid symptoms was noted. [3]

Best Study Guide for Medical Students:

Interactive video lectures help teachers and students to communicate effectively in real time.

1. Khan Academy

Salman Khan founded Khan Academy in 2008 as a non-profit educational organization in the United States. Its goal is to create a set of online tools to help students learn.

Today, Khan Academy is one of the best teaching aids for medical students.

At Khan Academy, instead of using a whiteboard or PowerPoint, teachers use whiteboards to take notes or draw diagrams during presentations.

Practical exercises are also provided for workout questions and submitting answers to prove that the students are doing a good job.

Virtual platforms give medical students the opportunity participate and control your progress [6]

2. Brainscape is an educational platform that can be used online and on mobile devices. It allows students to learn with adaptive cards.

Students, educators and corporate trainers can use the website and mobile app to create their own e-cards and search for cards created by other users and publishers around the world.

Brainscape web and mobile software is a flash card-based learning tool for those who need to absorb and retain large amounts of knowledge quickly.

Students and teachers around the world have posted hundreds of medical cards that cover a wide range of topics.

Today Brainscape is one of the best learning tools for medical students.

3. Epocrates is a medical reference app for your phone, which provides medical students with information on medicines, diseases, diagnosis, and how to care for patients.

Understanding drug interactions is an integral part of medical education and safe practice. Free edition of Epocrates. is dedicated to pharmacology and includes a robust system for testing drug interactions. [4]

It covers disease information, infectious disease therapy, test panels, and assistance in choosing alternative therapies in a professional version.

This app is a great resource for studying pharmacology and safe prescribing practices. Today it is one of the best teaching aids for medical students. [5]

4.Picmonic:

Research shows that people remember visual information is better than written information.

Picmonic is the best way to learn about thousands of topics that are difficult to memorize and which are frequently checked. It can be used to prepare for exams and other tests. It also allows users to explore the content and answer questions to gauge their understanding. Thus, it is one of the best teaching aids for medical students.

Through the transformation of the entire education system to digital, the use of various methods, such as online courses, online exams, electronic textbooks, quizzes and electronic records improve the quality of students' education. [2]

Internet resources:

Technology has really made our lives as easy and hassle free as it is for online teachers by providing online learning application technologies. Numerous mobile apps for teachers completely rethink teaching and learning. Flexibility in working hours, the ability to reach a

wider audience, the use of simple devices and access to online services are some of the great advantages of the online classes application. There are even more apps designed specifically for educational purposes that you can download on your phones and your students' mobile devices. [3]

Every teacher has their own strategies for staying organized, but this can be difficult without groups and students doing assignments. Luckily, a quick search in the App Store for a mobile device or computer will reveal a wealth of useful apps for everything from general course management to direct contact with students. Currently, blended learning uses online learning programs such as Google classroom. Microsoft team Slack Floop, Zoom, Smart survey, Timely, Pocket, Dewo, etc. All software software is used in training.

Kahoot

Teachers can use Kahoot to make their online classes more lively and engaging. Kahoot is a tool that helps teachers create educational games. To create a game that can be played immediately, teachers simply need to prepare a set of questions and enter the prepared questions and answers on the Internet. This will break the monotony.Students must download the Kahoot app and use it as a buzzer.

Kahoot Features

Games are easy to create

Sharing and organizing

Reports and analytics

Conducting a game using video and communicating with students outside the audience

Quiz Quizzizz

This is a fantastic educational app that will bring benefit both teachers and students. Teachers can create interactive tests and distribute them among students, helping to break the monotony in the group and make it more fun.

Most teachers struggle to make their classes fun as the classes are online and this educational app will help add the necessary life.

Quizzizz features

Student oriented

Easy Screen Sharing

Automatic reviews and results

Schoology

Schoology is another educational app for teachers, which serves as a forum for teachers and students to share assignments, projects, videos, learning materials, and links, among other things. This helps increase the interest of medical students and focus on classes.

It is also useful for audience management.

Schoology Features

Activity Creation Tools

Web page tools

Calendar

Tools for creating assignments and projects [1]

The popularity of online learning apps is growing and many people are looking for the best LMS platforms to use in order to attend classes easily and efficiently. We hope that this list of the best educational apps will help us make our classes more fun.

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