

Distance Learning Perspectives

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Review

SUMMARY

The development of modern technology and the Internet has enabled the explosive growth of distance learning. Distance learning is a process that is increasingly present in the world. This is the field of education

focused on educating students who are not physically present in the traditional classrooms or student's campus. Described as a process where the source of information is separated from the students in space and time. If there are situations that require the physical presence of students, such as when a student is required to physically attend

the exam, this is called a hybrid form of distance learning. This technology is increasingly used worldwide. The Internet has become the main communication channel for the development of distance learning.

Key words: Telematics, ICT, Distance Learning.

1. TELEMATICS AS A PREREQUISITE FOR THE DEVELOPMENT OF DISTANCE LEARNING

Telematics is the science which studies the techniques and methods of information transmission on distance (1, 2).

There are two broad approaches to telematics:

First see as important the knowledge about use of telematics in learning (teaching medical students to use tools such as the Internet) (1). Another approach is considered essential the use of telematics for teaching (the use of WWW as a platform for CAI-Computer Based Instructions). The introduction of telematics in medical education has affected more educational sectors:

On the so-called university teaching, where students for example in preclinical training use Internet to communicate with their colleagues in order to find ideas and initiatives to work together.

In clinical settings, where medical students can have a chance to "catch" the experience of telematics.

2. E LEARNING AND DISTANCE LEARNING

E-Learning, by definition, is using electronic learning aids which in our case it may be a computer, PAD device or smartphone. As an integral part of the E-Learning stands out the distance learning. Along with favoring knowledge as the most important global resource for the future, in the last decade has been extensively worked on the improvement and expansion of all forms of electronic support to the educational process. Besides the use of new technologies in improving the standard teaching, developed is also the so-called distance learning, with the main objective to establish a flexible infrastructure, and thus the availability of this form of learning to each student, to raise the general level of digital literacy of the academic population and develop high-quality of educational content. These requirements optimally meet the Web-based E-Learning courses, which now make up nearly 80% of the total number of distance education courses.

Distance learning is planned learning that can be used in different places for learning, but in order to perform that kind of education should be used (3,4,5):

- Special methodology,
- Special design techniques,
- Special methods of instructional teaching,
- Special methods of communication via electronic media and other technologies,
- Organization of special institutions,

Administrative arrangements

Learning material can be made in the form of multimedia applications on hard disk or other memory device. If the data resides on a remote server in this case we say that it is distance learning. In addition, the computer is the center of communication for all participants, students and teachers that provides access to files that represent the teaching materials.

The most common method of distance learning is by using the Internet and for this purpose specially created web applications. Previously, for distance learning was used different video materi-

als, video links, telephone conferences, radio, television and similar but their importance in recent times becomes negligible. One of the definitions of distance learning (Distance Learning-DL) reads: "Distance Education is a system and process of connecting students with distributed learning resources. " More recently, with the development of the Internet as a global computer network, a system of distance learning uses opportunities and facilities of the Internet (4).

E-learning courses give you the opportunity to plan your time more efficiently, since the on-line learning material can be accessed at any time of day and night.

If we take into account the aspect of communication between students and sources of knowledge we can say that distance learning can be interactive and passive.

Passive learning involves viewing content on the screen but without a significant influence on the contents that will be published. Students choose only the lessons that they want to see. Lessons can be in the form of written text, or can be represented by the contents of web pages whose access is usually secured with a username and password (5).

So it becomes common that teachers record material such as video. Lectures in this case are followed by the slide show presentation related to what the professor (teacher) is currently talking about. Students can ask questions and receive answers in real time. Therefore, there are forums and communication by the electronic mail through which students can ask questions to teachers who should, within a few days respond. This approach is not able to completely replace teachers and students face to face communication.

3. VIDEO LECTURES

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4. ONLINE QUIZZES AND TESTS

Online tests and quizzes are one of the aspects of distance learning that are based on student interaction with the system. The system has stored the correct answers to these questions and explanations of the correct answers. When a student answers all questions he/she can immediately see where a mistake is made and can take second test until it had all the correct answers. Additional explanations explain why the answer is correct or not.

5. VIRTUAL MEDICAL SCHOOL

Traditional medical education typically includes the amphitheater in which professors give lectures to many students. However, new technologies allow certain groups of students to focus on one problem under the supervision of teachers. The development of technology enabled distance learning to become a new trend in education of medical students and other health professionals (1). Technology enables students learning online or offline, depending on their needs. One segment of the study is based on medical problems that are stored in the hospital information system (HIS). Such a system is able to establish so-called Virtual medical school.

These schools include virtual class-

rooms and virtual libraries. The libraries are designed to enable search and retrieval of the relevant information based on a selected medical problems. If we consider the problem of the patient with heart disease, the system will offer electronic articles, lectures, animations and other related multimedia content.

Particularly interesting is the segment which refers to the virtual patients in conjunction with the hospital information system. Hospital information system stores important data on real patients, the results of tests conducted and the final diagnosis and history data. These data are the basis for creating virtual patient identifiable information without revealing the actual patient. Student requires from system patient information stored and on the basis of these data suggests the diagnosis and treatment.

Data collection can be divided into the following segments:

- History: Present illness, main complaints, drugs, past history and family history
- Physical exam: General condition and system of organs
- Laboratory data: Blood test, immunology, microbiology, biochemistry.
- Medical images
- List of possible diagnosis
- Treatment and management of patient.

Special software which is actually a web application server connects the components of the en-

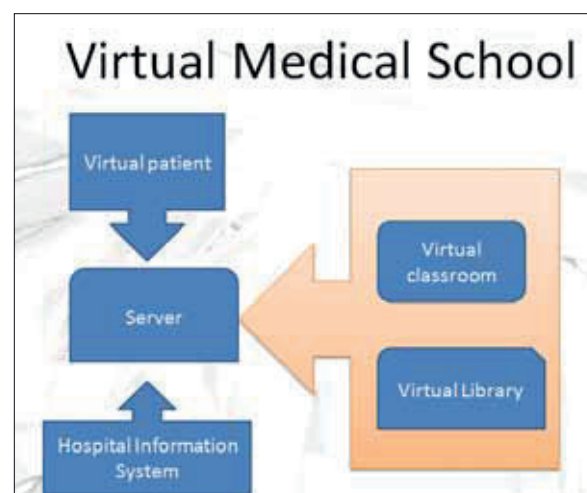


Figure 1. Virtual medical school

tire system in one unit. The software ensures that test results and medical images that are stored in the hospital information system are available to students. Clinical instructors may elect cases or the students themselves can choose. Direct access allows entrance to the subsystems of:

- Clinical laboratories
- Radiology information subsystem
- Clinical (Hospital) subsystem
- A database of drug interactions
- Subsystem of Clinical Library
- MEDLINE

Learning systems can be connected to an integrated clinical (hospital) information systems and thus allow students and residents with just one click to access the variety of clinical and academic resources

Active or interactive learning involves interaction between teachers and students or between students and specially designed software that is responsible for acquiring knowledge. The main disadvantage of this approach is the huge consumption of time needed for creation of such programs.

There are software shells for interactive learning where the teacher needs to input the teaching material. This involves setting up a series of questions in the form of test that resembles the one test that students must take on the classic way and the sheet which indicate the correct answers. These questions are on the computer monitor and there are several subsets of questions from those in the form of multiple choice questions with one or more correct answers, the questions are supplemented by completing unfinished sentences. The program provides additional scoring of individual responses so that for a wrong answer can give more negative points if the answer is substantially different from the correct. Also, the correct answers can be evaluated differently so that those which are more relevant to a particular topic carry more points. In this way, partially correct answers can bring some

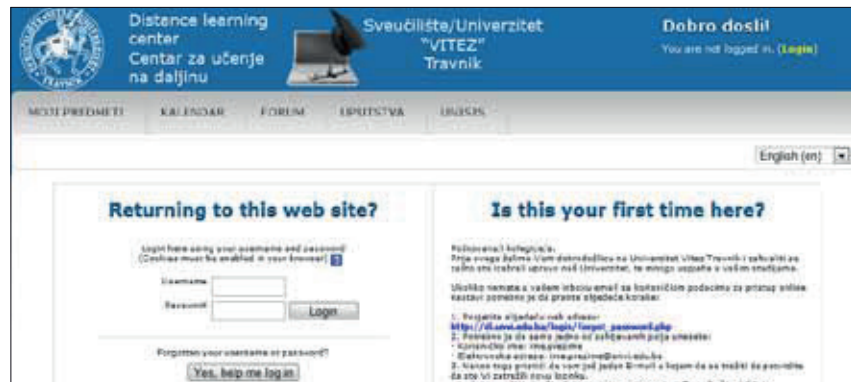


Figure 2. Example of web page of university where the student logs in the Distance Learning system.



Figure 3. An example of a web page that allows creation of online courses

points and may be further punished those answers that are fundamentally flawed (for example, if you indicate that something is exactly what someone would use could be life threatening).

6. VIRTUAL CLASSROOMS

Virtual classroom is a form of computer-based education, where the teacher communicates with students through video-conferencing, internet, or e-mail. Working in the classroom is completely directed by on-line system, with access to rooms for a "chat" (chat rooms), E-mail and messages in real time (1).

The teacher is making presentations and preparing the teaching material that students can download from the internet, solve

problems and send comments via e-mail or chat rooms to other students or the course teacher. The basic idea is that the different sets of possible ways of learning are available to students. In this way, students can choose the way that suits them best.

Virtual classroom is a manner of education where learning takes place without limits via computer networks.

7. THE AVAILABILITY OF SITES FOR VIRTUAL LEARNING ON THE INTERNET

There are institutions in the world that deal with classical education, and in addition organize training courses and studies which are almost exclusively

for distance learning. In order to be able to issue a valid certificate exams are often conducted under the supervision of qualified staff employed at that institution. Because of that, some universities restrict the number of points that can be acquired online or using the hybrid learning that combines face to face mode of learning and eLearning (6).

On the other hand, there are informal websites that allows that anyone can create a course at will, depending on the interests of other participants. So there are courses related to entrance exams at certain universities or different courses, some of them are for professional and some for entertainment purposes.

One of the reasons why universities introduced distance learning is the ability to educate more

students with a smaller number of physical classrooms and thus can reduce the costs of education.

In the future we expect that most universities in the world will introduce this method in order to reduce costs and as an auxiliary method of education for students. However, face to face contact remains a popular method of education especially in cases where there is requirement for student's knowledge verification and identification.

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MIE2011; Oslo, Norway
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August 28-31 2011

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