

Application of E-Learning Tools in Different Ways of Implementation

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Abstract. In today's stage of development information and communication technologies enable us to display a text, hear a sound material, see a static or dynamic visual material that can be pre-recorded or created on the computer. E-learning, in the form of independent use of the prepared material, often complements the teaching process being implemented in the classroom. The appropriate tools for e-learning are selected depending on the manner of implementation. The ways and possible tools for the implementation of e-learning are presented in the paper.

Keywords: E-learning, courseware, web, on-line, methods.

1 Introduction

In accordance with the development of information and communication technologies, education today is not limited only to that required, but what is more, the modern individual wants to develop and learn the possible and beyond. That is how the popular concept of lifelong learning was created. Learning theory is based on the notion that learning occurs when learners adopt new behaviours or demonstrate a change in behaviour as the result of an individuals response to stimuli.[1] In order to survive the abundance of information and knowledge, it is necessary to constantly improve and keep up with the world. One of the ways to satisfy the needs of the modern man is to develop e-learning which is growing and becoming increasingly popular in the world. E-learning certainly brings a great number of advantages in the educational process. This is not an alternative to the existing educational process, but it is also its integral part of the expansion and improvement. The combination of traditional paper-based learning material with digital one in a ubiquitous learning environment may offer great innovation in the delivery of education, to foster a student-centred approach, and to accommodate the needs of ubiquitous learners personal lifestyles. [2] The introduction of e-learning increases the role and importance of teachers, as mentors, coordinators and as well as participants in the educational process. E-learning enables that the student could be center of the educational process in which

he takes an active role and responsibility for its results. E-learning is a high education process in which all participants cooperate actively with the aim of achieving specific educational goals. During the process, modern information and communication technologies are used to create a flexible virtual environment.[3]

E-Learning falls into four categories, from the very basic to the very advanced.[4] The categories are:

- Knowledge databases: These databases are the most basic form of e-learning. These databases are seen on software sites offering indexed explanations and guidance for software questions, along with step-by-step instructions for performing specific tasks. These are usually moderately interactive.
- Online support: Online support comes in the form of forums, chat rooms, online bulletin boards, e-mail, or live instant-messaging support. This is slightly more interactive than knowledge databases.
- Asynchronous training: It includes access to instructors through online bulletin boards, online discussion groups and e-mail. Or, it may be totally self-contained with links to reference materials in place of a live instructor.
- Synchronous training: It is done in real-time with a live instructor facilitating the training. Everyone logs in at a set time and can communicate directly with the instructor and with each other.

2 Methods of implementation of e-learning

Web Based Training (WBT) is an application or set of applications contents of which are accessed using a Web Browser. Educational content of these applications is usually equipped and links to other educational resources. WBT systems offer much more than clear presentation of the learning content in a Web browser (eg, communication features, interactions, tests ...).[5]

In the, so called, teleconference classrooms equipped with cameras and equipment encoding and decoding video signals, lectures can be recorded and transmitted via the Internet to a remote location where there are participants.

Through the Internet we can publish and offer expertise in the educational market to a much wider circle of potential participants than those who geographically gravitate farther from the institution. It includes a publication of materials that are not available in print as well as other materials which are prepared for performance over the Internet.

Computer Based Training (CBT) is an application or set of applications that are educational facilities delivered via computer. This process includes lessons, exercises, simulation and testing. The CBT today means learning programs, which are not based on the Internet.[5]

The classrooms are equipped with one computer and projector, by which lectures can be run and which can visualize the process and facilitate the understanding of students.

In the computer classrooms, educational institutions can offer quality education to students requiring intensive computing (statistics, projecting, design). Testing can be performed using interactive tests with automatic evaluation.

Intelligent Tutorial System (ITS) like asynchronous e-learning systems represents a specialized software system intended for learning and teaching in the selected knowledge base. Unlike copyright or expert systems, thanks to elements of artificial intelligence, it has a possibility of detection and diagnosis of errors during the monitoring of students' knowledge in the context of teaching strategies at their disposal.[5]

ITS has:

- regional knowledge (knowledge base created by the appropriate authority)
- the conclusion of the rules set out on the basis of domain knowledge
- assessment of students' knowledge and
- teaching strategies

It is designed so that the teaching content in scope, structure and order can be adapted in accordance to the individual abilities of students. It is based on regional, methodical and pedagogical knowledge. It represents a kind of "virtual teachers". It analyzes the process of the current students' knowledge and it has the ability to draw conclusions for instructing learning. Development of ITS began in the early seventies, it reached the popularity in the nineties, and recently it has appeared in the form of cognitive tutors.

The structure of the ITS consists of four related software modules:

- specialist module
- students module
- teachers module
- communication module (interface)

Specialized software environment enable professionals to build the base of domain knowledge, masters to construct the techniques for the course, and students to learn and assess. Video on Demand (VoD) and Video on Demand (AoD) are used for streaming multimedia technology and broadcasting audio and video data over the Internet in real time, for delivering educational content to desktop users upon request. There is no "delayed broadcasts" after a video is download from the server. It requires a quality link of the users on the network so that the required video footage could be aired at real time.

IP Television (IPTV) is an interactive television transmission using multicast technology for sending data from one user to a subset of users as a group concept of high quality transmitted video and audio on the user's computer.

Virtual Classroom is a teaching environment that is not located in a brick building like traditional school, but in the computer-generated and communication supported systems. It represents the online seat of synchronous communication professors, instructors, mentors and students.[6]

Virtual Labs - free like a virtual classroom is a term that refers to the online position on which a project of software solution laboratories is realized with a view to students, instructors, professors, mentors in synchronously or asynchronously making preparations or realization of simulation of various laboratory tests to which the Virtual Lab is related.

Audio-video conferencing - as mentioned when we talked about WBT-in, in teleconference classrooms equipped with cameras and equipment for coding and decoding, lectures can be carried out and the AV signal is recorded and transmitted via the Internet to a remote location, thereby realizing a form of distance education. Interactive AV communication provides feedback to callers in real time, which both see and hear. Video technology increases productivity of the instructor and is particularly interesting to guest lectures and experts in certain areas, especially in the implementation of teamwork, which is dominant in the interactive distance learning.

Real-time on-line tutoring - we have already discussed this subject in the context of stories about AV conferencing, to which we can add what is a logical extension - computer online conference as a new form of educational interactions using modern, primarily telecommunications possibilities. To everything that has enabled AV conferencing infection, the ability to integrate with the content created via computer is added to the direct downloads. Lectures can be supplemented by different, for a specific topic prepared, software processed content (presentations, simulations, experiments and the like.). There are quantitative elements to consider, such as how many lessons, how much time per lesson, and how much material to cover. There are qualitative elements as well: What level is appropriate for the learner? What are the goals, objectives, and needs of the learner?[7] Tutoring fits in the topic of real time on line and what we have said for Virtual classroom (on-line seat synchronous communications) and chat.

Net-Learning, as well as learning through study of the content to be converted into digital formats to servers (or groups of servers) computer networks, allows the student, , from school or any other location where there is a computer that is connected to one of the computer networks, to have access to these facilities at any time, as long as they want to meet their needs.

Searching knowledge base is a form of learning through the network. searching information is carried out by entering keywords according to their interest entered by the user. "Permanent assistance online "as opposed to the knowledge base, benefits through the possibility of obtaining replies on specific issues that are not provided by the standard knowledge bases. It is implemented through the use of the forum to network, "interview room", e-mailing a constantly active centers messages, blogs.

Learning on the Web is Net-Learning, or any Net-Learning does not have to be implemented Web technology. For example, learning by using a LAN of an educational institution that is organized so that the educational materials from the server and the network can be accessed to, for organized procedures by the aforementioned network administrator, may not be realized as WBT but it may be realized on the principle of file-transfer of materials mentioned on the local labor station (PC) and then it is still implemented. However, today, the Net-Learning increasingly includes Web Based Learning. The growing institutions, corporations, educational institutions, the banking group, state administration, etc., have organized Internet.

On-line Learning brings with it fundamental changes in educational psychology, methodology, didactics, communication ... whose achievements are necessary to implement a successful educational content. This is a much more complex task of digitization of standard textbooks and the use of computer communication with the mentor. On-line courses are educational technology of tomorrow.[8] The contemporary university becomes increasingly permeated by digital mediation both on-line and face-to-face, relationships between digital media, time and socially-situated practices of meaning-making are foregrounded.[9]

One of the most accepted model for the development of on-line courses is a popular model ADDIE:



Fig.1: The standard model ADDIE in the interpretation of the instructional designer Dhala Anglade

After much review, editing, proofreading and other control mechanisms, process making courses do not end with the beginning of classes. Most of them often provide the phase trial performance courses. In her project the team carefully supervises the course and impressions and reactions of the participants. After the last amendment and the full adaptation of the courses to real conditions,courses are fully completed.

Control of the online courses will not stop,and the connection of the topics with information and communication technologies directs the project team on a regular insight into compliance of courses produced with technological advances and changes according to it. It is a longer and more difficult mode compared to the traditional access and to the maintenance of educational materials. The difference in the quality of the courses in the obtained system training according to ADDIE model far exceeds the financial and time investment.

What we can point out as a problem when it comes to online courses is the percentage of the students who complete such courses. As this percentage varies, and in some cases falls to 25%, the question is why that happens with

some on-line courses. Here are several factors which are important for how to make on-line course students be interested so they do not leave:

- design course
- informing the participants before the course
- skills on-line teaching
- technical support

Mobile Learning (M-Learning), as part of the accompanying e-learning, is one of the modern ways of training companies. The progress of information technology creates the conditions for the development of new forms of this type of education. Most young people know a lot about the use of mobile phones, which is the basis for a new line of e-learning. In addition to mobile phones, there is a growing number of people using laptops which represent an important factor of development of M-Learning.

Mobile devices such as tablets, mobile phone, Palm computing devices, portable computer (laptop, notebook) can be used to search for knowledge, regardless of where where you are, even when you are in one of the vehicles, depending on the course of communication conditions available (usually wireless). If electronic learning can be defined as a method of education that performs the process of education beyond classroom, school or education camp, then M-Learning involves mobile way of education. M-Learning separates us from some fixed point. Where e-learning is involved, we believe that it is an alternative way of education, but, on the other hand, M-Learning can be said to be a complementary activity to electronic education, as well as for traditional education.[10]

M-Learning is characterised by high mobility and low embeddedness: data storage and communication are easy, learning is enabled at anytime and anyplace through mobile phones, ipods, NintendoDS. Issues are that learning at anytime and anyplace is not enough and that personalisation according to the learners context is also important to provide the appropriate learning contents and to enhance learning in the real world.[2]

Today modern technology provides us with an opportunity to "pockets" bear many resources and have access to them whenever we need them. Let us mention a number of limitations that come with M-Learning : small screen size, limited processing power, reduced input capacity and the like. The foregoing means the need for adapting existing E-Learning services and content for M-Learning, which is not at all a trivial task.

3 E-learning tools

There are tools within which we can create, as an author or as a student, and use in the courses and as teaching materials, monitor the work, progress and interest of the students in topics that are object created courses.[11] Such tools are:

- courseware tools
- web discussion forums

- chat
- blog

Courseware-term obtained by merging concepts course (course-course) and software (program) is a computer software designed for education. Tools for electronic education can be offered on CD / DVD-ROM, website, as an instructional video or a program for learning. Tools for electronic education are often used for training people in the use of computer business applications, and often indicates the extra material in courses for computer use. Courseware tools are not a substitute for traditional books and textbooks, but should be seen as a new way of organizing teaching and learning, qualitative supplement (innovation) to existing (Traditional) ways, in order to successfully achieve the objectives such as: high quality education, lower cost of education, universal access to education.

Modern teaching only with a book or only with speakers is hard to imagine. It is hard to imagine distance learning courseware without the use of tools. They should not offer only a clearer presentation of the material, and the second mode of systematization of knowledge, but they should also serve as a place for communication. This does not mean that they will completely replace communication with "a human being". These tools depend on the speakers. The lecturer who is not interesting in the classic form of teaching, most likely will not, without modification, be interesting even with the courseware tools. In addition to working on the materials, media, presentation mode, adapting to a new way of working, a lecturer using courseware can significantly improve the quality of teaching and the results of their work with students courses that he leads.

With the increasing popularity of Open Source and Freeware solutions and market courseware tools there are some free solutions. At this point the best representatives of the free courseware tools are Moodle, Claroline, A Tutor and Bazaar. These tools are not only free but they support the Open Source philosophy, so with them you get the source code. The advantage of such tools and Open Source philosophy is that that they will be noticed by people who want to adapt to their tools needs.

As a rule, large commercial tools justify their commerciality. Some of the most popular are: WebCT, Blackboard and Intralearn, a little less known FirstClass, e-Front, Lotus Learning Space, Lotus Sametime, and e-College e-Learner. With a good customer support, commercial tools often offer opportunities being free for now, but they are yet not able to offer: private space and settings, improved asynchronous and synchronous communication, internal e-mail, calendaring, selecting the interface layout, more features in checking the knowledge, support for audio and video, more information about the participation of students, support for content sharing.

Web discussion forums are sites or parts of a larger site where people interested in the subject of which the discussion is led may present their opinions and comments, ask questions or answer questions raised by other participants in the discussion. Forums are part of the Web and they are managed by a group that is responsible for the proper forum, so there is a reduced amount of advertising, enhanced security, programmable interface is the most common adjusted to pur-

poses (discussion among participants). Participant posted their assignments and provided peer feedback for each other regarding their design work in the discussion forums.[12] Forums and discussion groups and chat rooms can be classified as a "permanent online help" that gives ability to respond to specific questions and provides greater interactivity.

Chat is an electronic instrument which plays an important education role because it is one of the most common and most popular means of communication on the Web (especially among young people). In the chat room-in users "bring together" and discuss various topics, on-line, so that they are more engaged, which leads to a freer conversation, there are challenges, which are believed to be the best conditions of chat rooms with no more than five people. In such a situation, for example a very productive conversation can be led between the professor and two to three students.

Chat allows us: discussions about problems in real-time, game roles and simulations, exchanging opinions, debating and discussions in small groups, instructions and guidance in learning, group research, creation of an online community.

Blog, as a term, was created by shortening the two words Web Log (Web log). The phrase Web Log in Internet technology is used to define the statistical activities of one site (the number of visitors, the number of open pages site, etc.), but in the context of the phenomenon Blog, it means the guided log through the Web site.

Technically speaking, the blog is a type of automated Web site, where content (texts, images, multimedia) is entered and displayed chronologically, which is a significant difference compared to classic view news sites, where there is a particular emphasis on the most important news. This gives a chronological overview of all the articles that are published, whatever their importance.

Blogs can contain text, images, video, audio materials, musical and content, so-called micro-blogs.

4 Conclusion

The Internet has created great opportunities for informational and educational institutions to expand their database and the way of education, as well as the area in which they operate. Supporting the development and application of information and telecommunications technologies directly contributes to the development of economy and society and has the influence on the population.

The development of e-learning in the world today has reached a breakthrough. A great number of world-renowned institutions of higher education apply this category of learning in their curricula as a compulsory choice and modern way of education, as well as serious organized programs that are characterized by a large number of participants. The success of this type of education is guaranteed only when you align the way of implementation of e-learning with a choice of the proper tools. Combinations of different methods of implementation and tools for distance learning open a new chapter in the field of application

of information technology in education. That is, as yet, under-explored and that will, in the near future, occupy an important place in the the education system.

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