E-Learning and Learning Management Systems: Advantages, Disadvantages and Suggestions

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ABSTRACT

With the developing technology, different e-learning concept has entered our lives. This new education model, which is very different from traditional education administration, has been adopted by the education community and learners. Thanks to this model that provides internet-based training, it is possible to receive or give training without the concept of time and space. However, when the issue is a critical area such as education, this new method needs to be discussed and analyzed. First, the concept of e-learning and learning management systems in the infrastructure of this new education model should be understood in detail. Determining the software modules that LMSs consisting of internet-based software is a guide in this study. In addition, the advantages and disadvantages of this new education model were evaluated and presented item by item. At the end of the study, suggestions were given to the individuals or institutions who were educated with e-learning model or developed LMS software.

Keywords: Education, E-learning, Learning Management Systems

I. INTRODUCTION

In recent years, an incredible technological development and transformation has been experienced all over the world. With this technological transformation, many areas and sectors have been affected in human life. One of the areas where technological transformation is experienced intensively is the field of education. The use of computer applications in education began in the 1950s [1]. In today's education systems, besides the traditional education approach, new tools and techniques have emerged. Moreover, with the inclusion of the internet in the field of education, the concept of e-learning has entered the literature throughout the world. The aim of this study is to examine the concept of e-learning and learning management systems used for e-learning. In addition, the advantages and disadvantages of e-learning were listed, and suggestions were developed.

II. METHOD

Rapid technological advances in new technology and telecommunication tools open new opportunities for organizations wishing to receive training and offer. The WWW (World Wide Web), which emerged in the late 1980s, has become a common means of sharing and delivering information. The potential of WWW technology is more than an alternative method of presenting learning. In addition, the WWW has created innovative forms of learning and teacher [2].

The biggest difference of the new learning systems from the traditional method is the development process. Although traditional education systems took years to develop, it has taken less than the last 10 years to develop since the development of the new learning system [3].

E-learning has brought innovation to the traditional concept of education with the logic of "learn where, when and what you want" without any barrier of learning. In this educational technique, the learner and the instructor are not in the same environment.

The concept of e-Learning is basically categorized into two classes:
➢ Asynchronous: self-training at the computer,
➢ Synchronous: meeting of a group of students and subject teachers simultaneously in a computer environment in a classroom [4].

The main difference between e-learning and traditional learning is the means by which education is transmitted. In fact, this is a fundamental difference. Asynchronous training is more common because there is no limitation of concurrency, and a well-designed training content and learning activity are performed effectively.

Individuals or institutions working in the field of education are working with a competitive approach in this field in

order to catch up with technology and not to be behind the age, therefore investments in the concept of e-learning are increasing day by day.

III.   LEARNING MANAGEMENT SYSTEMS

The learning management system (LMS), as the name implies, is a management tool and an integrated system that enables the management of educational contents, the monitoring of learners and teachers, and the individualization of learning and teaching processes.

LMSs have the following definitions in the literature.

1. In Wikipedia, the learning management system is referred to as management software that allows students to select courses, record courses, present content, and measure and evaluate processes and track user information in distance or blended education [5].
2. Network Dictionary defines the LMS as a software that provides the management, distribution and transfer of resources to students [6].
3. The aim of learning management systems is to facilitate e-Learning activities and to perform them in a more systematic and planned manner [7].
4. Learning management systems are software that enables the management of learning activities. Thanks to these software functions; students or teachers can make presentations, manage courses, do homework and exams, edit content, store and report student and teacher records. [8].
5. Learning management systems include software components that manage, report, and monitor students' interactions with content and teacher. In other words, LMSs have the basic functions that enable students to enroll in classes, organize courses, distribute content, monitor, evaluate and communicate the learning function [7].

Today there are many open source learning management systems as well as LMSs developed by companies producing e-learning software. There are over fifty open source learning management systems worldwide [9].

Some of them are listed below:
➢ AnaXagora
➢ Moodle
➢ Open LMS
➢ Open Elms
➢ OSLearning
➢ COSE
➢ Papermark
➢ Sakai
➢ Tiny LMS
➢ DotNetSCORM
➢ Uni Open Platform
➢ LogiCampus
➢ Helo
➢ Interact
➢ eFront
➢ ForeL
➢ eStudy
➢ Eledge
➢ Virtucoll
➢ KEWL.NextGen
➢ KEWL

IV.   LEARNING MANAGEMENT SYSTEM EVALUATION CRITERIA

Distance learning or online learning is not just about providing technological products to educational services; it is also a discipline that includes the planning, design, production, presentation, and evaluation of education. Before any software or hardware technology can be selected or coded, the students to whom the education service will be provided and how they will be provided with education should be clearly defined. The selection process should be evaluated from the perspective of learners and teachers; in particular, ease of use, interaction and cooperation should be considered.

As in other software, LMSs are expected to have some features such as interoperability, reusability, manageability, accessibility, continuity, scalability [10]. These criteria should be reviewed and defined before the LMS is evaluated.

➢ **Interoperability:** the interaction and interaction of different systems,
➢ **Re-Usability:** the ability to bring existing objects together into a different learning object,
➢ **Manageability:** monitoring of the information in the system by the education management system,
➢ **Accessibility:** the user can access any object in the system whenever he/she wants,
➢ **Scalability:** support possible increases in the number of students in the system, for example, without any intervention,
➢ **Durability:** technological development does not require redesign or coding.

A developed software is evaluated according to these criteria. The basic software modules required in an LMS are listed below:

1.   Learner Interaction Tools
1.1.   Video Conferencing Support
1.2.   Whiteboard Applications
1.3.   Simultaneous Chat
1.4.   Inter-User Messaging
1.5.   Forum Applications
1.6.   File Transfer Operations
1.7.   Announcements
2.   Productivity Tools
2.1.   Calendar
2.2.   Work Offline
2.3.   Bookmarks
3.   Collaboration tools
3.1.   Social Networking
3.2.   Portfolio
3.3.   Team work
3.4.   Blogs
4.   Management tools
4.1.   Delegation
4.2.   Authentication
4.3.   Backup
4.4.   Record
5.   Course distribution tools
5.1.   Exam Management
5.2.   Exam Preparation
5.3.   Online Notebook
5.4.   Student Monitoring
5.5.   Online Grading Tools

6. Content development tools
6.1. Compliance with Accessibility Standards
6.2. Course Templates
6.3. Appearance Customization
6.4. Content Sharing / Reuse
6.5. Multi-language support
7. Hardware / Software
7.1. Browser Compatibility
7.2. Database Compatibility
7.3. Server Compatibility
8. Reporting Tools
8.1. System Reports
8.2. Teacher Reports
8.3. Student Reports
8.4. Admin Reports

V. ADVANTAGES, DISADVANTAGES AND SUGGESTIONS

The advantages of e-learning can be listed as follows:
➢ Learning over the Internet eliminates the need for physical classrooms so that learners do not have to go to class to attend the class [11],
➢ There is no need to easily access the content and distribute any physical material [12],
➢ Enables stress-free learning at home through e-learning [12],
➢ E-learning provides geographical freedom and temporary freedom. It makes learning independent of time and space possible [11],
➢ E-learning provides faster and more efficient learning [13],
➢ It provides great flexibility to teachers [11],
➢ E-learning brings cost advantage, with e-learning it is possible to save between 30% and 70% of costs [14].

The disadvantages of e-learning can be listed as follows:
➢ The development of e-learning materials (images, videos, animations, etc.) can lead to high costs [13],
➢ Learners can feel isolated from the teacher and classmates, making them feel asocial,
➢ It is very difficult to simulate hand work and laboratory applications in virtual classrooms, for example, the establishment of a laboratory environment in the field of engineering or health can cause huge costs,
➢ Access to students with computer knowledge may be difficult,
➢ Without any coercion, e-learning requires more responsibility and self-discipline,
➢ The student should have the skills to decide what to work and how,
➢ Failure in bandwidth and network connectivity may result,
➢ Traditionally, a teacher's course material is her intellectual property right.

The suggestions of e-learning can be listed as follows:
➢ There are many e-learning programs and software in many different architectures around the world. It is important for these programs to meet on a common ground and integrations,
➢ The effort spent on the development of e-learning programs should be used for the content,
➢ One of the biggest barriers in the e-learning education model is the lack of laboratories and applications. New

software and improvements are needed to overcome this obstacle,
➢ Another threat in e-learning education approach is that it provides asocial education to students. Therefore, a mixed education model is recommended. It is thought that the asynchronous part of the lessons and the synchronous part will be useful in overcoming this handicap,
➢ E-learning applications must have browser-independent operation and cross-platform support. Only in this way can the undergraduate costs of students be reduced,
➢ E-learning applications serve the students with an internet-based technology. For this reason, bandwidth should be used effectively, and contents should be developed according to this bandwidth.

VI. CONCLUSION

Technology is developing day by day and is effective in all areas of human life. One of the most important of these areas is the field of education. Together with the concept of e-learning that has developed and expanded in recent years, an alternative to the traditional education method has been developed-learning aims to enable the learners to continue their learning activities via internet-based software. This new training method, which is accepted day by day, has advantages and disadvantages. In this study, the basic software modules that should be included in an e-learning software are examined and listed. In addition, the advantages and disadvantages of the e-learning training model were examined. At the end of the study, suggestions for the development and implementation of e-learning training model were listed.

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