

SOME ASPECTS RELATED TO THE CHOICE OF LMS IN THE EDUCATIONAL PROCESS

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ABSTRACT: *This article briefly presents some of the advantages of using e-learning in the educational process. Online training, especially in the context of the pandemic generated by COVID-19 (since March 2020), has become a solution offered by many schools and universities. This generated an increased attention in the implementation of adequate solutions first of all from the point of view of the management facilities of the pupils / students, and then the management of the courses and of the audio and video work sessions. There are many E-Learning software applications that correspond to all the needs of the educational units, but also to the specific requirements of the teachers.*

KEYWORDS: distance learning, learning management systems, E-Learning, Moodle

1. INTRODUCTION

E-Learning is a method of transmitting and managing training, knowledge and education using technologies such as video conferencing, shared chat and digital course materials (on CD / DVD media). The training is offered and acquired practically either through the cloud or using an internal LAN. Educational institutions and companies are looking forward to providing online courses to the workforce or their customers can use e-learning software to manage their training materials and conduct online courses. [1]

E-Learning software can be used in the process of hiring candidates who have adequate training and knowledge. Through e-learning software (E-Learning) the company can select people who offer better performance and contribute to the success of the business. This, on the one hand, and on the other hand, an E-Learning software has been used for a long time in the instructive-educational process in the academic environment. Such software is essential in every educational institution. The last period (starting with March 2020 - Covid-19 pandemic) proved that it is necessary to invest in an e-learning environment that helps to eliminate distance and time barriers in the teaching process. An e-learning environment is based on a learning management system (LMS). LMS is a web-based application that is used to facilitate distance learning and to manage and classify course materials for both instructors and students [2] and [3]. When looking for the best E-Learning software, you can choose from the very large list of the best free (open source) or commercial E-Learning software.

It is necessary to present some basic aspects related to e-learning software so that we understand what e-learning software is, what are its types and benefits, highlighting what are the features you need to look for when you want to select such an application. There are several types of e-learning software:

Authoring Tool - is a visually oriented tool that allows designers to create and publish multimedia E-Learning content, even if they do not have programming or code writing skills

Learning Management System (LMS) - is a software application that is used to create and deliver educational content, to monitor user involvement (pupils / students) and to analyze the performance of both pupils / students and instructors (teachers)

Content Management System (CMS) - is used to track, manage and edit information on educational servers. This type of application is ideal for very large sites that have many web pages that need to be updated with educational content on a regular basis.

2. LITERATURE REVIEW

When designing an online course we must take into account a series of learning activities that can be planned weekly or daily. Learning activities can include both individual study activities and a series of collaborative activities such as:

- *Reading, viewing and individual study*: This can include different types of content, such as simple learning resources (documents and presentations), video and audio content and interactive e-lessons.
- *Individual tasks and collaborative project work*: The teacher asks students to carry out project work or a task, either in groups or individually. Students may also be asked to comment on each other's tasks. A task should be well structured and followed by a discussion of the strategies used to complete it.
- *Reflection presentation*: Students can comment and exchange ideas about the course activities or contribute to group learning by exchanging knowledge about a specific field.
- *Questions*: Students can ask specific questions to the teacher or instructor
- *Discussions initiated by the online teacher*: the teacher can ask students from different organizations or contexts to bring concrete examples of how the concepts learned during the course apply to their specific situations.
- *Spontaneous discussions*: discussions can be initiated by participants. It is important that the system tracks the conversations so that online instructors can review them afterwards and assess the involvement of the course participants.

Final evaluation. Most e-learning courses contain a final assessment of students and some assessments interspersed throughout the course. The assessments may vary - may consist of a set of questions (test-type assessment) and / or be an assessment of the final tasks of the students made by the teacher.

Feedback and conclusions. The last part of an e-learning course usually contains the completion of an evaluation survey that will provide the person who created the course and the teacher with feedback from the participants. This is a very useful step, as it allows the creator of educational content to improve the course along the way. It also gives students the feeling that the person who created the course is interested in making the course more effective.

Improving student activities. In collaborative online learning, a group of participants creates synergy around the common goals of the learning objectives. The online teacher is responsible for this process to be organized, stimulating and efficient. The online teacher performs the following tasks:

- provides information about tasks, deadlines and places to upload or download work files
- assist participants during their work by checking the workflow and individual or group results, creating working groups and intervening, if necessary, in group dynamics in case of conflicts or work blockages

- provides summaries at the end of the chapters
- answer questions about tasks, deadlines or the use of learning tools
- motivates students to produce, reflect, lively exchange ideas and initiate discussions
- organizes the final evaluation of the e-learning course.

The online teacher customizes the e-learning course, giving rhythm and rhythm to the learning event. The teacher is the one who approaches the participants with any questions; therefore, he or she must be available throughout the course and answer questions as soon as possible so that students can continue their work and stay motivated.

The continuous presence of the teacher throughout the educational process is crucial to ensure the motivation of students and the considerable reduction of dropout rates from the learning-assessment activity.

Using communication tools for e-learning

E-learning educational activities can be achieved by using communication tools - both synchronous and asynchronous. Some of these tools, such as wikis, blogs, and chats, are called "social media" or "Web2" tools because they have a powerful social component that allows students to work together to create products, such as a project document.

The most used communication tools are:

- Tools based on email
- Discussion forums
- Wiki pages and other shared writing / editing tools
- Blogs
- Webcasting
- Chat and instant messaging (IM)
- Polling / voting instruments
- Whiteboard editing tools and teacher / student screen sharing
- Application sharing
- Audio and video conferences

These working tools as well as their use in e-learning courses are not the subject of this article, but they deserve some clarification, especially in the current context generated by the coronavirus pandemic.

In general, asynchronous tools, such as forums and wiki pages, are better suited for tasks that require reflection and more time to carry out educational activities. Asynchronous discussions are especially valuable where students are too shy or have developed more fluent verbal communication skills to collaborate effectively in real-time conversations. However, synchronous tools, such as chats or audio conferencing, provide a greater social presence. For example, in virtual classrooms, students can use chats to provide feedback and answer questions during the presentation.

Synchronous	Asynchronous
Chat and IM	E-mail
Video and audio conference	Discussion forum
Live webcasting	Wiki
Application sharing	Blog
Whiteboard	

Starting with March 2020, most of the educational activities have been transferred from the

physical environment to the online environment. Thus, the teachers actively used some of the synchronous communication tools, which they did not use too much or did not use at all. These include: webcasting, chat and instant messaging, polling / voting tools, whiteboard editing tools and teacher / student screen sharing and audio and video conferencing.

Webcasting. The term "webcasting" refers to audio and video files sent from a single source to multiple passive receivers. The typical application is the video lesson, where a teacher talks to many students simultaneously, without any interaction. Webcasting uses media streams to stream audio and video over the Internet. However, recorded webcasts may be provided for asynchronous use. Podcasts are audio programs that are broadcast on the Internet. These are audio files (such as MP3 or .wav format) that can be downloaded to a compatible digital audio player or computer. Videos can be used by the teacher to provide content (for example, short video lessons in which an expert speaks), motivation, or guidance. They are used to show moving objects or processes (e.g. assembling the components of a car), show real people talking (e.g. the instructor).

Chat and instant messaging. Instant messaging (IM) is one of the most popular applications on the web. It allows two or more people to exchange text messages in real time using a web or desktop application. A group of people can start an online text conversation in a space commonly called a "chat room." In a typical chat session, everyone sees all the messages. However, some chats allow private messaging between two session members. Chat can be used as a communication channel for questions and feedback during an online presentation or meeting. Chat sessions have the advantage of following the textual dialogue in a discussion.

Surveys. Teachers may ask students to answer a displayed survey, usually consisting of one question and two or more possible answers. Surveys can be used by the teacher to collect students' opinions by asking them to vote on issues and make choices about course activities.

Whiteboard and screen sharing tools. Whiteboards allow instant visual communication. They allow teachers to display content and students to interact with that educational content. Teachers can use whiteboards for synchronous presentations, when the content is changed / modified at the very last minute and when the visual component is important (for example, to inform about certain activities). The presentation can also be recorded. Whiteboards allow interaction in two directions. Students can complete a drawing started by the teacher, make notes on certain parts of the screen, can vote visually by indicating their choice on a certain graph, can write their name and use arrows on a map, etc.

Audio and video conferences. Audio and video conferences are audio and video sessions between two or more users in different locations, in real time. They are mainly used for meetings and project updates. Some instant messaging applications incorporate video and voice conversations. Voice over Internet (VoIP) applications allow users to make high-quality, low-cost calls over the Internet. One of the most popular programs that use VoIP is Skype. Skype allows free calls to other Skype members connected to their computers and charges a small fee for calls to regular phones. Audio conferencing can be an excellent approach to mobile learning (i.e. via mobile phones). Audio lectures are suitable for training topics while speaking and listening are crucial (for example, language skills courses). Recorded audio conferences may be available as podcasts. Video conferencing mimics face-to-face experience and human presence. Video conferencing is particularly suitable for training topics where visual clarity is crucial (e.g. medicine and engineering). Video conferencing requires very fast network connections.

Virtual classroom

A virtual classroom mimics a traditional teacher-led classroom by integrating different types

of synchronous tools, such as whiteboard, chat, audio conferencing, or application sharing. Most virtual classroom tools incorporate similar functions, although the screen interface may be different.

3. OUR PROPOSALS

3.1. What is the purpose of the evaluation?

Evaluation can be done to meet specific evaluation purposes. First, the teacher should decide whether to evaluate the course in the development stage to improve it before it is completed, or make an evaluation at the end of the course to measure its effectiveness or examine a past course to see if it is still valid and can be reused in a new context.

Depending on the type of learning objectives, different methods can be used to evaluate learning activity. Changes in attitudes and the development of relational skills can be measured through interviews, surveys or direct observation of participants' behavior.

Thinking and cognitive skills can be measured by assessment tests. Assessment tests may consist of sets of questions or tasks designed to verify the achievement of a specific objective or mastery of a given skill.

Assessment tests can be used for different purposes:

- 1) **Preliminary tests:** used to check if students have the minimum necessary knowledge to participate in a certain learning course
- 2) **Pre-assessment tests (or entrance tests):** used to assess a student's knowledge and skills before starting a course, to personalize learning activities
- 3) **Diagnostic tests:** used to assess the achievement of the learning of an objective unit after the completion of a specific learning unit
- 4) **Post-assessment test:** used to assess the achievement of learning the objectives of the course after completing the entire course
- 5) **Certification tests:** used to verify the specific skills and knowledge within the organization and are not necessarily related to a learning course.

3.2. Open-source LMSs

Moodle (<https://moodle.org/>) - is a widely used open source learning platform. Moodle promotes a collaborative approach. It was originally created for education, training and as a development environment to help educators create online courses with an emphasis on interaction and collaboration, although it has recently been extended to business settings. Moodle has more than 268538361 users and almost 190000 registered sites worldwide. It offers many modules that extend its functionality (for example, graphic themes, authentication and registration methods, games and activities and resources). Moodle runs unmodified on Unix, Windows, MacOS, and many other operating systems that support the PHP scripting language and a SCORM and AICC compliant database. However, its installation requires some technical expertise in PHP technology. A course web page from Moodle is presented in Figure 1.

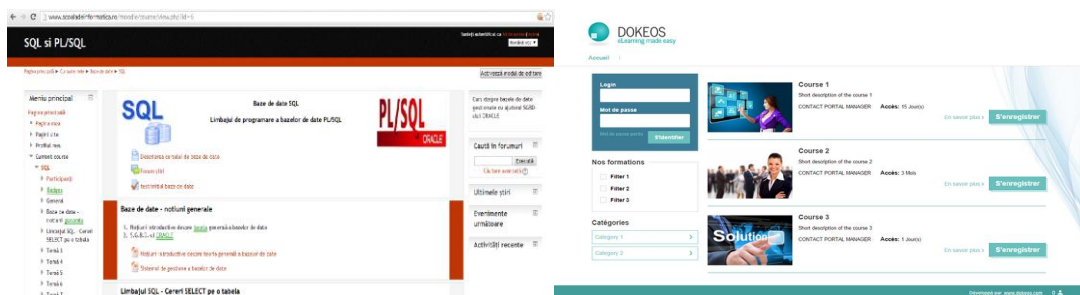


Figure 1. Moodle Course Web Page <http://www.scoaladeinformatica.ro/moodle>
 Figure 2. Dokeos Course Web Page. (<https://www.opensourcems.com/dokeos/>)

In addition to Moodle, there are other open source LMS solutions:

Dokeos (<http://www.dokeos.com/>) - Contains all the features needed for e-learning and blended learning. Available as: free, educational, professional and medical editions. Dokeos E-learning Studio offers free resources, templates for fast content creation and a test generator, image gallery. Live collaboration by videoconference, follows the student's progress, time and collaborative interaction. A course web page from Dokeos is presented in Figure 2.

ILIAS (<http://www.ilias.de/>) - Provides testing and evaluation tools, as well as collaboration tools (e.g., chat and forums) and distribution technologies (e.g., RSS and podcasts). Students can customize their desktops and collect all the necessary resources to perform daily learning tasks. The personal desktop features News, Personal Messages, Learning Resources, Personal Notes, bookmarks, external web feeds, and other information. A student can rearrange these blocks of information according to his needs. Content management and creation is limited to xml modules, glossaries and wikis. A course web page from ILIAS is presented in Figure 3.

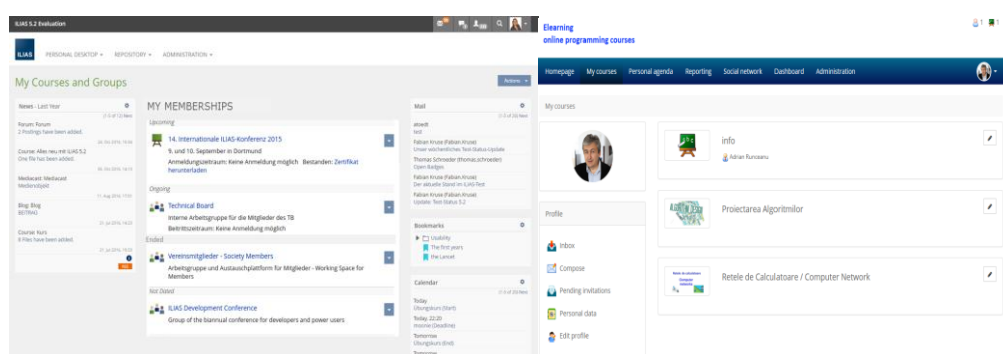


Figure 3. ILIAS Course Web Page.
 (https://docu.ilias.de/goto_docu_wiki_wpage_3434_1357.html?lang=fr)
 Figure 4. Chamilo Course Web Page. (<http://elearning.runceanu.ro/>)

Chamilo (<https://chamilo.org/en/>) - is a Libre / Open Source e-learning management system (LMS) focused on ease of use and increased speed. It offers a wide range of features, including SCORM and xAPI support, complex exam configurations, certificate generation, skills management, course catalog and course shopping cart. Versions are installed on the site with over 700,000 registered students and over 5,000 students connected simultaneously. A course web page from Chamilo is presented in Figure 4.

REFERENCES:

- [1] <https://www.goodfirms.co/blog/best-free-open-source-e-learning-software>
- [2] **Alshammari, S. H., Ali, M. B., & Rosli, M. S.** (2016). - *The Influences of Technical Support, Self-Efficacy and Instructional Design on the Usage and Acceptance of LMS: A Comprehensive Review*. Turkish Online Journal of Educational Technology-TOJET, 15(2), 116-125.
- [3] **Blake, M. R., & Morse, C.** (2016). - *Keeping your options open: A review of open source and free technologies for instructional use in higher education*. Reference Services Review, 44(3), 375-389. <https://doi.org/10.1108/rsr-05-2016-0033>
- [4] **Obeidallah, Randa, Shdaifat, Aayat** - *An Evaluation and Examination of Quiz Tool within Open-Source Learning Management Systems*. International Journal of Emerging Technologies in Learning (iJET), [S.l.], v. 15, n. 10, p. pp. 191-201, jun. 2020. ISSN 1863-0383. Available at: <https://online-journals.org/index.php/i-jet/article/view/11638>