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CHOISE PROBLEM IN LEARNING MANAGEMENT SYSTEMS

In modern conditions, the main aspects of training management and the educational process rely on learning management platforms (LMS). LMS are software solutions that manage the administration, monitoring, reporting, online courses and training programs in an educational organization. They can also be classified as a kind of virtual classroom, where teachers can interact with their students and conduct educational activities online. With the help of such tools, the way to another form of learning and teaching, in particular blended or online, is laid. This, in turn, makes it possible to ensure continuity of education. By and large, this is a set of software platforms that are provided to ensure the management of the entire educational cycle.

A significant part of the issues related to the analysis and research of learning management systems remains relevant and requires further scientific research. The use of modern approaches allows to increase the quality and efficiency of the use of these systems and to understand how to use them correctly to achieve greater productivity.

The purpose of the article is to investigate the issue of LMS selection and selection criteria, to explain the difference between LMS and LCMS. The result of the article is a comparison of modern LMS.

An important result of the study is the analysis of a new class of LCMS educational content management systems and a comparison with conventional LMS. Unlike LMS, such systems focus on content and curriculum management tasks, rather than on the learning process itself. They enable the development, management, and distribution of digital resources for face-to-face and online learning, provide interaction between traditional learning methods and digital learning resources, and provide students with personalized e-learning opportunities. This, in turn, significantly contributes to the growth and simplification of communication between students and teachers. After all, e-learning is a field that has achieved significant development, as it does not limit communication and provides educational opportunities for many educational institutions around the world. The role of LMS has gained significant importance within the context of STEM (science, technology, engineering, and mathematics) programs and courses in recent decades due to advances in online teaching and learning technologies. Many educational institutions use learning management platforms and continue to explore their effectiveness when using different types of LMS. Choosing an LMS is quite a difficult task, as it combines the need to choose among many criteria necessary for an educational institution,

as well as taking into account the educational risks [1] that also arise when using platforms. When choosing, it is also necessary to pay attention to similar products [2], as well as to the requirements for software solutions [3]. Also important is the issue of using mobile educational applications [4] to reach a larger modern audience, as well as mobility and accessibility of the educational process.

In addition, learning management platforms allow educators to track performance outcomes, predict achievement (for early identification of at-risk students), and then use the information to modify e-learning practices [5]. The future of education must continue to improve with innovative LMS, technologies such as: online labs, online tutorials, and virtual and augmented reality programs. A recent systematic review of research on trends in STEM education indicates that learning environments that include LMSs are one of the key areas that continue to evolve. According to Capterra [6], as of 2021, there are 561 LMS available worldwide for academic and educational purposes, which is quite a significant increase compared to previous years. The main criteria for choosing means of organizing e-learning are: functionality, reliability, stability, cost, SCORM support, modularity, scalability and extensibility, cross-platform.

The platform is essentially a high-level software solution for planning, executing and managing educational activities in an educational organization. The main focus is to organize students' learning, monitoring their progress and development in all types of learning activities. The system performs complex administrative tasks, such as: creating reports and data for the HR department, statistics, etc. But in most cases it is not used to create content for training courses. And in the LCMS learning content management system, on the contrary, the main task is to create learning materials and educational resources. It provides authors, teachers and experts with tools to create educational materials more effectively. The main task that LCMS solves is to create the necessary content in the given time to meet the needs of individual students or a group. Before designing the course itself and adapting it to a large audience, teachers create the objects used and make them available to all course developers. This eliminates duplication of development efforts and allows you to quickly "collect" customized content. LCMS is defined as a system that creates, stores, collects and reproduces personalized data, learning content in the form of learning objects. While an LMS manages all forms of learning in an organization, an LCMS focuses on online learning, usually in the form of learning objects. A learning object also includes metadata, or tags, that describe its content and how it is used. Metadata can include information such as authorship, language, version level, type. Typically, learning objects are used to create content. LCMS is based on the concept of representing learning content as a set of reusable learning objects with a target audience and a specific context of use. Most developers of LCMS systems include the functionality of general learning management and implement the capabilities of learning content management. Although there are

many variations in the capabilities of an LCMS, it should include the following key components: a learning object repository and automated authoring software.

Learning management systems and content management systems have different purposes. The primary task of an LMS is to automate the administrative aspects of learning, while LCMSs focus on managing the content of "learning objects" and together they manage course content and track learning outcomes. Both tools can manage and track content, down to the institution level. But an LMS, at the same time, can manage and track blended learning consisting of content, classroom activities, virtual classroom meetings, and other sources. LCMSs can manage content at a lower level, allowing an organization to more easily restructure and reuse content that has been developed.

Table 1 – Summary of capabilities and differences between the two systems LMS and LCMS

	LMS	LCMS
For whom is intended	Students, organizations	Content developers, students
Provides management	Learning process, training, educational programs and planning	Educational content
Manages e-learning	+	+
Manages teaching forms	+	-
Tracks results	+	+
Supports student cooperation	+	+
Creation and management tests	+	+
Support for content creation	-	+
Organization of re-used content	+	+
Enables HR and ERP systems use training data	+	-
Management tools of creating content	-	+

Another aspect of using an LCMS is that it provides a great boost in planning and learning the skills to develop effective learning materials, as it provides ready-made templates and examples of use.

Table 2 – Summary table of comparison of popular LMS according to the criteria defined above

Criteria	Moodle	ATutor	Docebo	Lams	Sakai
Current version	4.0.4	2.2.1	7.5	4.6	22.0
Product support	+	+	+	+	+
Reliability	High	High	High	High	High
Stability	High	High	High	High	High
Cost	Free	Free	1600\$/m	-	Free
Multilingual interface	More 100 lang.	More 30 lang.	More 40 lang.	More 33 lang.	More 19 lang.
Number of users	More 200 million	More 5 thousand	More 2 thousand	More 3 thousand	More 10 thousand

SCORM support	+	+	+	+/-	+
Ease of use	+	+	+	-	+
Modularity	+	+	-	-	+
Provision of authorized Access	+	+	+	+	+
Multimedia content Resources	+	+	+	+	+
Scalability, Expandability	+	+	+/-	-	+
Cross-platform	+	+	+	+	+
Support for external tests	+	-	-	-	+
Reporting system	+	+/-	+	+/-	+
Limiting listeners	-	-	-	-	-

Therefore, regardless of the positive trends in the development of learning management systems, the study and further analysis of their effective and correct application remains an important issue. The advantages include ease of deployment for the organization, technical support, a set of ready-made modules and plugins, mobility and the possibility of use in blended and online learning. Therefore, of course, the best option would be to choose an LMS based on an open source software server, which does not require a license or monthly payment, which greatly simplifies maintenance and service costs.

As a result, open source systems are increasingly popular, which allow solving the same tasks as commercial systems, but at the same time users have the opportunity to refine and adapt a specific system to their needs and the current educational situation. Also important is the issue of using mobile educational applications to cover a larger modern audience, as well as mobility and accessibility of the educational process. Most open source systems are cross-platform solutions and are not tied to a specific operating system or to specific web browsers.

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