

Teacher Management System (TMS) Versus Learning Management System (LMS) and Its Theoretical Bases

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Abstract: The present study aims to bring to light how the traditional method of teaching and learning or the teacher managed learning (TMS) gradually paved the way for a purely technical kind of teaching and learning by exposing the four learning theories, the most important and relevant to prepare a new method of teaching and learning such as the traditional model, behaviorist and cognitivist methods, and the social constructivism. The eLearning professionals have combined these four learning theories at its best while designing a computer platform into a higher paradigm that focused all the teaching learning functions fit for the modern era named Learning Management System (LMS). The flexibility and convenience of these eprogrammes provide more opportunity for individuals to achieve their goal of more personal and professional development, while increasing brand and revenue potential for the institution, even during critical situations.

Key Terms: (TMS) Teaching Management System, (LMS) Learning Management System, OVAREP, (Open Source Adaptive Learning Platform), ODL (open and distance learning), ILT Instructor-led training

I. INTRODUCTION

The e-learning platforms had been widely used by the invention of teaching learning machines. In due course, it paved way for the Learning Management System (LMS) developed by Martin Dougiamas and other developers based on a classical or traditional training model. The teacher was the focal point in sharing knowledge with the learner using various modalities in order to foster their learning. It was mostly Teacher Managed Learning (TMS), that is to say tools at the teacher's service to create and manage courses rather than at the service of learners. The new conceptual model of Learning Management System (LMS) is based on collaborative as well as cooperative learning. Both teachers and learners are partners of teaching learning activity through forum, wiki, blog, and other social media network including youtube connectivity. They are able to collect information and interact via these means, according to their needs and objectives in terms of learning. It is a fact that the use of any tool in the field of education should be for addressing the real needs of its final users, particularly learners. Even though LMS is an effective solution for overcoming space-time restrictions in the modern era, these platforms might be an obstacle for the learning processes to the extent that the pedagogical principles are neglected during their design. However, when designing LMS, one has to try to answer at first the following questions:

1. What should be the scientific as well as technical aspects of LMS modeling?

2. How can it work as an innovative technical system?

3. At what extent learning theories become applicable in online learning?

DEFINITION

An LMS (Learning Management System) otherwise known as e-learning platform is a software that includes a number of services that assist teachers for a better management of educational courses. Moreover, as defined by the OVAREP, (Open Source Adaptive Learning Platform) the LMS is a platform that groups several tools and ensures the educational objectives. As per the ODL (open and distance learning), all channels are preserved and expanded for the learner, tutor, coordinator and administrator within the e-learning platform. 'It offers many services allowing the management of content, particularly by creating, importing and exporting learning objects. The set of available tools in the LMS represent all these services that help in managing the teaching process and the interaction between users such as the access control services, synchronous and asynchronous tools of communication and user- administration services.' [1]

BENEFITS OF LMS

To the question, why we increasingly rely on LMS as a means of learning, the experts opine that it has considerable potential in the construction of knowledge and other 21st century skills. [2] The ultimate offers these e-learning platforms provide us is that they help to access and use interactively the multiple sources of information

available to them regardless of location or time. LMS can be customized for training programmes to develop skills and abilities to the highest level of learner's potential and their needs. [3], [4] While designing it, the following computer applications may be made sure.

- Provider of exercises for learning
- Presenter of information
- Supervising teaching and learning
- Facilitating a space for innovation
- Providing a platform for exchange of knowledge between educational actors, learners, teachers, tutors and administrators.

All these functions should correspond to the learning theories allowing the learner to acquire individual and collective knowledge. This happens according to the type of interaction that takes place between the learner and the sources of information. [3] In practice, each individual has a set of tasks to deal with such as:

- Consulting and reading the pedagogical resources,
- Realising the interactive exercises,
- Exploring the learning environment,
- Solving the problem situations,
- Discussing via synchronous and asynchronous tools of communication.

LMS FEATURES

An LMS e-Learning platform exists to bring answers to the following problems:

- Expand the training offered through the ODL and allow those who find training constraints to have opportunities to overcome them, [4]
- Access to the best management of time jobs by reducing the supply in presenting training,
- Develop exchange, inter-actors of training,
- Innovate the teaching practices by using new technologies for communication and training,
- Introduce other modalities of training such as management of collaborative projects,
- Foster the role of tutoring that allows reducing the sensation of isolation, often the cause of stalling and abandonment. [4]

An LMS e-Learning platform fits well in several pedagogical models. We defined our expectations in matters of content and teaching modalities for all the actors: learners, integrators, tutors, coordinators and administrators.

1. Learners are invited to:

- Attend pedagogical activities that take various forms, both specific and general (problems, simulations, QCM, tests self-correcting), [4], [8]
- Include interactive teaching resources in various formats (text, image, audio, video, PDF, Flash), [7], [8]
- Realise situations for assessments,

- Access collaborative working from shared documents. The learning path is divided into two entities:

- Entity 1 consists of creating modules that are broken into several units that contain various resources (documents, activities, quizzes) and learning path-oriented supports (individual or a group),
- Entity 2 consists of achieving a set of activities (in relation to the objective of the module) as part of project-based teaching, course oriented activities.

Teachers (course designers) are responsible for the preparation of training courses with regard to: [10]

- Creation of the teaching resources interface with the training management systems (The Aviation Industry CBT Committee (AICC), Sharable Content Object Reference Model (SCORM) [10]
- Sharing educational resources (course modules, evaluations
- Planning of pedagogical resources.

2. Tutors are entitled to:

- Take charge of learners by an individual tracking system, animation and / or moderation of forums, [10]
- Initialise the conversation within the chat
- Follow-up the learners in videoconference
- Monitor activities and proposed projects
- Plan the interventions
- Monitor the groups' management

3. Administrators and coordinators are responsible for customizing the platform with regard to:

- Establishing the groups
- Monitoring the activities of teachers,
- Managing the courses,
- Customizing the platform,
- Managing the roles.

II. THEORETICAL BASES OF LMS IN EDUCATION

The Main Theoretical Currents

Education sciences draw their theoretical foundations in Psychology, Sociology, Philosophy and Cognitive sciences. This diversity of theoretical bases of different approaches to teaching and learning can always be confusing and may need research study. Some experts opine that its design is based on various theories of learning. Majority of the educational theorists agree to group teaching and learning models according to four different learning theories; they are, traditional model, the behaviorist and cognitivist methods and the social constructivism. Even with their considerable potential in the construction of knowledge and skills, the LMS can realise itself as a real pedagogical tool only if their use relies on solid and proven learning theories.

TABLE I THEORETICAL BASES FOR LMS DESIGN

Traditional pedagogy	Behaviorism	Cognitivism	Social Constructivism
Teaching Management System			
Teacher presents information in a structured, hierarchical, and inductive way.	Stimulating, creating and Reinforcing appropriate Observable behaviors.	Presenting information in a structured, hierarchical and deductive way.	Organizing learning situations conducive to dialogue with a view to provoke and resolve Socio cognitive conflicts.
Learning Management System			
Following the course: unfolding the course and the tutor.	Associating, By conditioning, a reward to a specific response.	Treating and storing new Information in an Organized way.	Co-constructing learner knowledge by comparing one's own representations with those of others.
Appropriate teaching methods			
Learning by course, exercises and assessments	Assisted self- study programme	Formal presentations, problem- solving situations.	Projects, discussions, exercises and work based learning.

Source: www.researchgate.net

Table 1 is the tabular summary of how the four basic learning theories design an LMS

III. LMS AND TRADITIONAL TEACHING MODEL

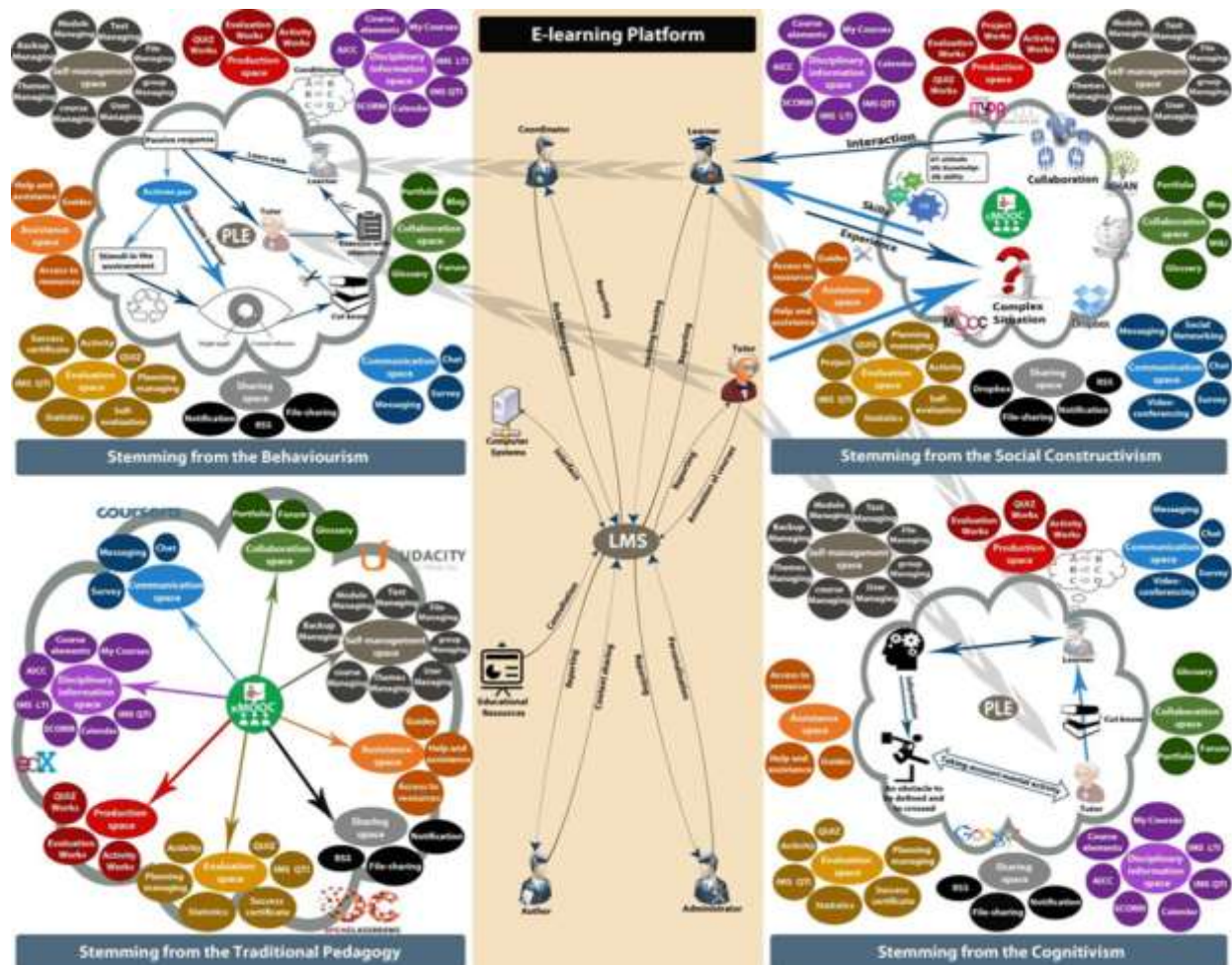
The concept of traditional teaching and learning invariably relies on a direct and systematic oral mode of transmission of knowledge. In fact, it is based on the authoritarian role of the teacher. In this model, fixed and unchanging knowledge through lecture is shared and evaluated by involving learners following the different stages of a pre-established scenario. Among the main ideas that are associated with the traditional pedagogy are:

- a) Lecture-based teaching: This idea generally refers to the teaching-centered pedagogy in which the teacher is the main provider of subject content to learners. The acquisition of knowledge is assessed through various operations such as recitation, examination and practical exercises.
- b) The idea of transmission and reception: We consider that the teacher delivers knowledge in ways that are clear,

concise and transparent and the learner receives it without any difficulty in memorization, understanding and reproduction. Thorndike's principle of trial and error method is not applicable in this perspective.

- c) Individualism: Though the learner is part of learning, no exchange between learners is allowed. [21] Obviously, there is no scope for debate, dialogue and communication. Everything is centered around the teacher.
- d) The sanction: In this pre - tech model, the role of a teacher is to identify errors. The learners are grouped in order to produce a spirit of competition between them. These main ideas from the traditional teaching and learning model had had an impact on the design and development of the conceptual model of LMS. [21] However, traditional pedagogy has its limits since learners are passive receivers of knowledge.

Fig 1. The conceptual model of an LMS



IV. LMS AND THE BEHAVIOURISM

The term “behaviourism” appeared at the beginning of the 20th century in parallel with works of the American psychologist, John Watson. Researches of Ivan Pavlov on conditioning of animals influenced Watson. This led him to admit that all behaviours operate on a principle of “stimulus-response” or pairing a stimulus with a conditioned response what is called “classical conditioning.” Behaviourist theories consider that learning consists of acquiring a new behaviour or modifying an existing one. In the behaviourist method of learning, the teacher presents new information to the learner under restricted stimulus that follows reinforcement. The role of the learner here is to respond to the stimulus by adopting the expected behaviour. Behaviourist model is evident in the LMS that displays systematic exercises allowing learning by repetition (trial and error) and in which the principles of conditioning are integrated. Although behaviourism focused more broadly on supporting the change of superficial behaviour by allowing the development of certain procedural knowledge in an individual and in a progressive manner, the deep understanding of notions is not attainable from this perspective.

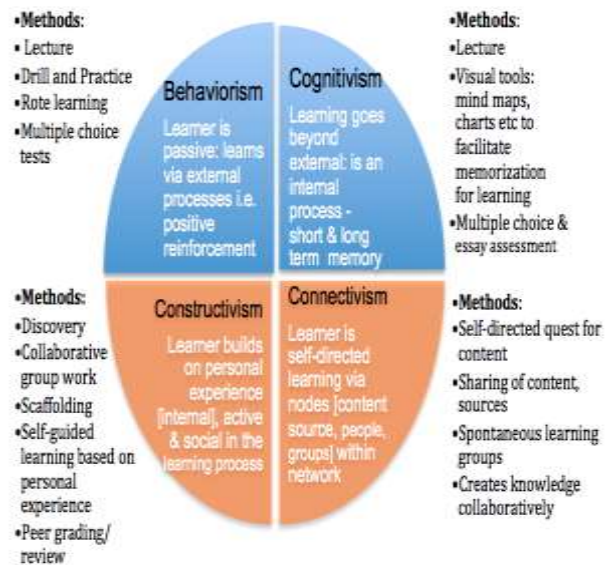


Fig 2. Source – www.google.com

LMS AND THE COGNITIVIST METHODS

With an LMS based on the cognitivist approach, the learner is an active information-processing system, like a computer. He/She perceives information that comes from the outside world, recognizes them, stores them in his/her

memory, and then recovers them when the environment demands it to resolve problems. The teacher manages learning. He/she acts as guide, animator, director, adviser, regulator, and the remedy. [12] Knowledge becomes an external reality that the learner must integrate into his/her schema and reuse rather than acquire observable behaviours. The best teaching method is the one that takes into consideration individual variables particularly the learning styles conducive to learning environment. Therefore, the cognitivist teacher is the one who uses ICT in particular. Such teachers promote high level of interaction with learners, through simulators, experiments and intelligent tutorials. But the cognitivist model is very limited related to the fact that a well-structured material is not sufficient to ensure learning. A higher level of motivation from learners is a crucial factor as it provides the required energy to perform learning.

LMS AND THE SOCIAL CONSTRUCTIVISM

The social constructivism is the fruit of the development of learning theories under the influence of some researchers, particularly Lev Vygotsky in 1934, who wanted to depart from the behaviorism by integrating other factors that are able to positively influence knowledge acquisition. Thus, new ideas emerged linking to the possible interaction of individuals with the environment from where they learn new knowledge and develop required skills for life. The social constructivism outlines learning by doing among a community of learners. Here the learners are expected to interact with the available resources such as teachers, tutors, learners and all other learning materials in the proposed learning environment. In this environment, the learners' psychological functions increase through socio-cognitive conflicts that occur between them. [8] These conflicts lead to the development of the zone of proximal development and thus facilitating the acquisition of knowledge. The teacher's role is to define this zone precisely in order to design suitable exercises for learners. Furthermore, designing collaborative tasks, which involve discussions and exchange (socio-cognitive conflicts) between learners is so important in this model. Errors are considered as a point of support for the construction of new knowledge.



Fig 3. Source – www.google.com

Based on the social constructivism approach, the design of LMS was oriented towards integrating online communication and collaboration tools. In practice, a wide range of platforms, particularly the social constructivist ones, propose a set of tools, which allow sharing, exchanging and interacting in synchronous and asynchronous mode such [7] as blogs, wikis, forums. In addition, [9] Connectivism can be considered as a branch of the social constructivism. Learning is the process of acquisition of knowledge that is located not only in the human brain but also in networks of connections (links) that social media provide today like twitter, facebook, and you tube connectivity which could be created between the users of a particular learning environment under certain conditions.

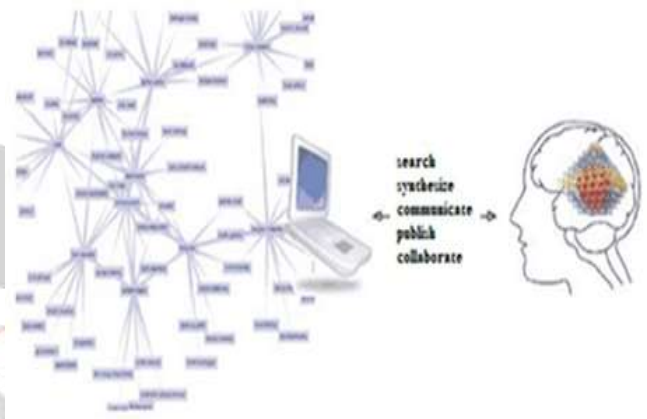


Fig. 4. Siemens's connectivism model (Chekour et al.) [22]

V. CONCLUSION

Based on behaviorism, the LMS that we propose is broken down into learning units, which offers the possibility to present structured knowledge and learning activities (progressive application exercises) and assistance. Social constructivism allowed us to justify the integration of services with the installation of internal and external applications enabling communication and collaboration between educational actors. [8]

Social media integration allowed learners to take the discussion outside of the LMS to gain even more insights from industry leaders, peers, and friends. This also allowed the learner to seek out resources from social media groups within their industry to gain a greater depth of understanding and bring that understanding back to the course and discussion groups. This level of engagement went beyond traditional ILT, i.e, TMS, where learners were discouraged from using their phones during lectures limiting access to outside information that may further the discussion, and were discouraged from engaging in discussion until scheduled breakout sessions.

Integrating social learning features into eLearning had created a more interactive, collaborative, engaging,

learning experience making online training and continuing education more informative and effective than ever before.

Over 850 million students in the world kept away from educational institutions due to the global shutdown caused by the coronavirus pandemic, announced United Nations Educational Scientific and Cultural Organisation, or UNESCO. The shutdown had caused “educational disruption” to approximately 861.7 million children and youth worldwide, a UNESCO statement said. Globally, 16 countries had closed their schools nationwide, while an additional 16 including the U.S. had enforced localized closures, according to UNESCO. The United Nations organization recommended that educators implement digital learning to help prevent kids from falling behind academically, and the group included a list of education resources in which LMS is invariably one of the significant platforms. [23], [24] In UAE, the educators used virtual learning as the ultimate solution in times of crises and natural disasters. It helped to provide students with all curricula, in case students needed to stay at home. It also enhanced their self-confidence and helped them take responsibility for self-learning.

To conclude, in this manner, the knowledge building in a group outweighs the individualization of the learning path. In addition, Cognitivism opened the door for the use of multiple learning pathways to consider individual variables that may influence the way in which learners’ process information. The cognitivist teacher is invited to use ICTs that promote high interactivity with learners, such as simulators, experiments and intelligent tutorials. This obviously does not prevent the development of personal learning environments in parallel to the services offered according to the needs of each of the participants involved in the training device.

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Johnson K began his teaching career in 1989 at the Pontifical Seminary, Aluva, Kerala. He graduated with BA in Philosophy, and post graduate studies in Education, English Literature and History. He has been a continuous learner and researcher with an M.Phil. in History and Education and M.Ed. He taught in a number of schools and colleges at Secondary, Intermediate and in the training scenario as well. Having been a part of the Department of Basic Science and Humanities in Sree Narayana Guru Institute of Science and Technology, Kochi, he joined Bharatiya Vidya Bhavan, Abu Dhabi, UAE in 2014. For 3 years he took interest in teaching students who needed Special Education. He had completed his UGC lectureship and presently pursuing Doctorate in Education in Bharathiar University, Coimbatore.