



Efficacy Of Learning Management System (Moodle) In The Subject Of Biochemistry

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Type of Publication: Original Research Paper

Conflicts of Interest: Nil

Abstract

Learning Management System (LMS) is a software application which provides the framework for Teaching, Learning & Evaluation (TLE). A prospective educational intervention study was done on first MBBS students to study the effects of LMS implementation on students' knowledge and satisfaction. Lectures on lipid metabolism were conducted in powerpoint and chalk and board form. This was followed by notes (easy notes for students in short including mnemonics), video presentation and home assignments uploaded on Moodle(LMS). Pre and Post test was conducted. Also students feedback was obtained. The present study shows that after LMS was implemented students received considerably better marks. Most of the students find LMS user friendly, that it complements traditional way of teaching and learning and it saves time. They were happy and satisfied with the use of LMS.

Keywords: NIL

Introduction

Learning Management System (LMS) is a software application which provides the framework for Teaching, Learning & Evaluation (TLE) (1)

Online teaching became an important means of education during the COVID pandemic, leading to a big change in medical education and pedagogy. The internet is perceived as one of the most important sources of new information and web-based learning is becoming a newly accepted standard in the process of education.(2)

LMS has many types, one of which is Moodle which stands for Modular Object-Oriented Dynamic Learning Environment. Moodle is a system that has very broad benefits. It is supported by various advanced features that make the teaching and learning process more effective, efficient, and organized, such

as quizzes, files and links, Free Online Resources, Workshop Features, polls, assignments, chat, surveys, and discussion forums (3,4) Moodle is a system that is ready to use and has very broad benefits as a social network between teachers and students (5)

Learning management systems (LMS) or virtual classrooms are used as an integral part of e-learning activities in medical education. (6)

Indian Medical Graduate (IMG) of the 21st century needs to update with latest technologies to ensure flexibility particularly during the pandemics & unexpected emergencies. There is a greater need for educators, students and clinicians to update their skills, & remain abreast of the changing healthcare environment and remain "digitally literate" (7)

Learning Management Systems (LMS) provide teachers and students with an online classroom that reinforces learning processes. (8)

Methodology:

Prospective educational intervention study was conducted on first year MBBS students in the Department of Biochemistry at Bharatratna Atalbihari Vajpayee Medical College, Pune.

Inclusion criteria: All first MBBS students of batch 2024-25 who were willing to participate in the study.

Exclusion criteria : The students who were not willing to participate in the study.

Institutional Ethical Committee approval was obtained.

6 lectures on Metabolism of lipids including beta oxidation of fatty acids, Lipoprotein metabolism and ketone bodies metabolism in ppt and chalk and board form were conducted.

Pre-Test: - Pretest was conducted in the form of 10 MCQs.

Notes (easy notes for students in short including mnemonics), video presentation on the topics and home assignments were uploaded on Moodle (LMS) on the topics: beta oxidation of fatty acids, lipoprotein metabolism and ketone bodies metabolism.

Post-Tset :- Post-test in the form of 10 MCQs was conducted.

Students gave their feedback about LMS in a pre-validated questionnaire based on Likert’s scale.

Result:

LMS	Pre-Test (N= 100)		Post Test(N=100)		Significance
	Mean ±SD	Std. Error of Mean	Mean ±SD	Std. Error of Mean	
	6.79 ±1.50	0.150	8.8 ±0.89	0.089	P =< 0.001

The score of pretest were 6.79 ± 1.50 and score of post test were 8.8 ± 0.89 .

The present study showed improved student performance after LMS implementation. This was statistically confirmed by an unpaired t-test, with a p-value of 0.001, much below the significance level of 0.05.

No.	Questions	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
1	LMS is user friendly	10	58	28	3	1
2	Resource material on LMS was appropriate, relevant and useful.	15	68	15	2	1
3	It added extra interest in the topic.	13	40	36	8	3
4	LMS helps understand topics taught in regular classes	15	59	23	1	2
5	LMS complements traditional ways of teaching and learning in an excellent way.	16	56	21	5	2
6	LMS is an easy way of learning at our convenient place and time.	26	54	16	3	1
7	Learning with the help of LMS saves time.	20	47	25	6	2
8	More topics should be covered using LMS.	20	48	24	6	2
9	I would like implementation of LMS for other subjects also.	19	38	33	7	3
10	I am happy and satisfied to use LMS.	11	57	30	1	2

- 68% of students agree that LMS is user-friendly, while 4% disagree.
- 72% of students agree that LMS complements traditional teaching and learning, while 7% disagree.
- 67 % students feel that learning with the help of LMS saves time while 8 % do not feel so.
- 68 % want more topics to be covered using LMS , 8 % do not want.
- 68 % students are happy and satisfied to use LMS, 3 % are not.

Discussion :

The present study shows that after the LMS was implemented, students received considerably better marks. Most of the students find LMS user-friendly, as it complements the traditional way of teaching and learning, and it saves time. They were happy and satisfied with the use of LMS.

Shashidhar et al also found that students appreciated the flexibility and convenience offered by the LMS, allowing them to access learning materials at their preferred pace and time, accommodating various learning styles and individual schedules. (3)

According to research carried out by Ekici et al. (2012) using the Moodle course management system to enhance the effectiveness of teaching Basic Physics showed that teacher candidates have positive ideas about course instruction with the use of

Moodle.(9,10)

Al-Fraihat et al found that learner engagement is sustainable when online users use an LMS to monitor their progress (11)

Afsheen Salahuddin et al performed a study to develop some plans to facilitate teaching the large classes. The results showed that LMS or the Learning Management System proved to be successful for teaching English to large classes as it saved time for the teachers and

students both along with providing ample guidance and support.(12)

Conclusion :

Biochemistry is a subject which students find difficult to retain. There are many difficult words, jargon, and pathways that students find difficult to remember.

Supplementing the interactive lectures with the help of videos, notes, assignments, etc, on LMS surely helps students to gain better knowledge and they feel more satisfied.

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