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Attitude and perceptions of the faculty toward use of LMS in a tertiary medical college: An interventional study

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Abstract:

BACKGROUND: E-learning has become a new technique of instructional strategy during the current instructional era where we are surrounded with the uncertainty of pandemic outbreak and unrest in the educational system.

AIM AND OBJECTIVES: To analyze and modulate the attitude and perception of the faculty towards the use of the Learning Management System for teaching and learning.

MATERIALS AND METHODS: This descriptive cross-sectional study was conducted among 112 faculty members of Symbiosis Medical College for Women Pune. An elaborated research tool was designed to measure the attitudes and perception of the faculty members toward the use of the learning management system in teaching. The research tool was administered before and after the LMS sensitization workshop to all the participants. Workshop was planned to sensitize faculty regarding MOODLE (E-learning platform)

RESULTS: Statically, significant change in the mindset of the faculty members was found after sensitization workshop regarding incorporating LMS as an instructional method. Statistically, significant variations were found in the attitude toward using LMS based on gender variation, (0.021, F = 5341), experience (0.033, F = 0.189), and discipline (0.052, F = 0.233). Based on the themes derived from responses faculty felt that training and sensitization will help them to use LMS more effectively.

CONCLUSION: Use of blended learning strategies are need of an hour, there are lot of problems which can be faced by the faculty members while incorporating use of LMS in their routine teaching process. Training sessions for implementing any e-learning platform should be done on priority basis to increase its use more effectively.

Keywords:

Attitude, learning management system, perception, sensitization

Introduction

The rapid innovation in the field of computer technology has triggered the vast development in internet applications along with use of digital technologies in educational system.^[1,2] The millennials are tech savvy student population which prefers using technology over traditional route way of learning.^[3] Taking this in account there was a constant demand from the higher educational

institutions regarding incorporating use of technology in higher education for many years and which remained unnoticed.^[4] Universities around the world have become increasingly interested for using digital learning and e-learning platforms for catering the requirements of growing student population and to adapt with the changing learning mindset of the students; to provide a broad and fast information base, and to open up doors for communication between the learner and the facilitator and students and among their peers.^[5,6] All these concerns have

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created a requirement for using an information system which can provide technically advanced, broad as well as faster outcomes. E-learning has become a new technique of instructional strategy during the current era where we are surrounded with the uncertainty of pandemic outbreak and unrest in the educational system.^[7,8] Most of the universities have embarked on the journey of using technological software both in the classroom and in the administration. The rationale behind adopting learning management technique is to ensure active learner participation, flexibility, and linking it to the reality in which students live.^[9] The learning management system allows learners to communicate and interact with their teachers in order to work together in a new and enjoyable way.^[10] Learning management system comes with loaded features which includes, easy accessibility, it is also helpful for providing feedback for learning and assessment, one can update regarding tests, quizzes, and learning programs.^[1,2,11] LMS provides updates regarding various course-related announcements for the students, updates are also provided regarding scheduling any discussion, virtual class, etc., Teachers can easily tract down on the assignments provided. Learning material can be forwarded to the students in advance before the scheduled class along with references which helps in facilitating the blended learning atmosphere.^[12,13] Due to the inbuilt loaded features like advanced audio-visual aids, animations techniques, etc., LMS helps in catering the requirement of the students with different learning styles and preferences.^[14-16] Several studies have proven the efficacy of LMS in improving the efficiency of the teacher by helping them in aligning the course material; promoting self-directed learning among the students and fostering discussions regarding important topics in the concerned subject.^[4,17,18] Literature on LMS and its impact on teaching and learning can document both favorable and unfavorable findings. In addition, many researchers have highlighted that LMSs is not always been used by faculty members to their fullest capability,^[7,8,19] while adopting any new method or system there are people who support the change and few of them won't. There is a disparity in the attitude and perception of the faculty toward the application and use of the learning management system in teaching and learning process. And also, very few studies have been conducted at a tertiary level where the faculty have been sensitized prior regarding the use of LMS and also; the corpus of literature dedicated to understanding how its use impacts on pedagogical practices in higher education is still under development^[20] The present study was planned to examine and modulate the attitude and perception of the faculty toward the use of the learning management system.

Materials and Methods

Study design and setting

This descriptive interventional study was conducted at Symbiosis Medical College for Women Pune for the duration of three weeks.

Study participants and sampling

The study was conducted among 112 faculty members from pre-clinical; para-clinical, and clinical departments. Participants were selected by a convenient purposive sampling technique.

Ethical consideration

Prior ethical clearance was obtained for conducting the study from the institutional ethical committee (SIU/IEC/294).

Data collection tool and technique

Research tools designing

Upon theoretical literature review an elaborated research tool was designed. The study tool was designed to measure the attitudes and perceptions of the faculty members toward the use of the learning management system in teaching. All questions were rated according to 5-point Likert-type scale, developed, and tested in previous studies, anchored with "1 = strongly disagree" to "5 = strongly agree."

Validity and reliability of research tool

Research tool was having 18 items based on recommendations from the study expert. To calculate the reliability of the research tools, the method of testing and retesting (Test - Retest) was adopted with a difference of a two-week time. The tool was tested on 10 faculty members upon which the reliability coefficient derived was 0.85. The reliability factor was (0.88) and was considered acceptable in the social sciences. The overall mean Content Validity Index (CVI) and Content Validity Ratio (CVR) values were 0.94 and 0.83, respectively (acceptable range for CVI was 0.7-1 and for CVR was 0.4-1).

Administration of research tools for the faculty

A two-day LMS sensitization workshop was organized for the study participants by the department of medical education. Prior informed consent was taken from all the participants in the research questionnaire itself. A research questionnaire was administered before and after the workshop to all the participants for analyzing the change in the perception regarding the use of LMS.

The workshop consisted of sensitization of the faculty members for using the LMS software (MOODLE). During the workshop, hands-on training was provided to the faculty members regarding basic functioning of

MOODLE software, recording a video lecture, preparing a lesson plan; adding resources, creating online assignments and assessments; and also regarding forum discussion and live chat sessions on MOODLE.

Statistical analysis

Descriptive analysis was performed based on the Likert-style survey responses obtained from all the study participants. In this study, data obtained from closed questions in the questionnaire were analyzed using the Statistical Package for Social Science SPSS 22 software which was used to perform all frequencies and percentages. An unpaired *t* test was used to assess the mean variations in the attitude and perceptions of faculty toward the use of LMS before and after conducting the workshop. To ascertain, the intrinsic differences in the calculation means of the research variables (gender, academic track, and level of study), the researchers performed the ANOVA analysis. Thematic analysis was performed for open-ended responses obtained regarding the feasibility and utility of LMS.

Results

To analyze what are perceptions of faculty regarding use of learning management before conducting the workshop, research questionnaire was sent to all the participants on prior day. Calculation of mean and standard deviation score for study questionnaire showed that initially most of the participants were willing to get training for LMS and after workshop too they felt to get sensitized regarding the same, (*P* value-0.04); statically, significant change in the mindset of the faculty members was found after sensitization workshop when inquired regarding if they would like to talk regarding LMS application, whether LMS use will help in facilitating interaction between teacher and student; whether use of LMS will be helpful to deliver information quickly; if it can create interesting learning environment; whether LMS will help in replacing formal instructional and assessment strategies; also regarding whether LMS will facilitate teachers role in the learning process; and will offer flexibility; better integration; provide better results than normal formal education [Table 1]. Table 2 shows gender and experience and discipline-based variations in the perception for using LMS. Both males as well as female faculty members were having positive perception regarding using LMS, predominantly slightly higher values were obtained in males (4.40; 3.19). Attitude of the young faculty with less years of experience was more positive toward using LMS as compared with more experienced faculty (4.18, 4.05, and 3.13 respectively). Pre and Para clinical faculty were more in favor for using LMS as compared to the clinical faculty (4.49, 4.43, and 3.79, respectively). To Validate these differences in the perceptions for using LMS; ANOVA analysis

was performed and results showed that statistically significant variations were found based on gender, (0.021, *F* = 5341); experience (0.033, *F* = 0.189) and discipline (0.052, *F* = 0.233). [Table 3].

Themes were derived based on the open ended responses obtained from the participant’s regarding feasibility and utility of LMS. Based on responses obtained two broad categories were prepared 1. Advantages and 2. Disadvantages. Figure 1 provides the information regarding themes derived based on the open ended responses from the faculty regarding advantages of using LMS. They felt that it’s better application to manage the data regarding lesson plan and for assessments. They also felt that once they get trained for using LMS they can use it more effectively. Disadvantages based on responses includes, lack of user-friendliness, requirement of internet, training faculty; few of them also felt that using LMS is time consuming and will increase workload of the faculty. [Figure 2].

Discussion

The present study was planned for analyzing the attitude and perceptions of the faculty for using LMS as a method of teaching learning and assessment. While the other studies were just planned to assess the perception and attitude of the teaching faculty toward using LMS, we went one step ahead and tried to modulate those perceptions by sensitizing faculty regarding the LMS application. This strategy not only helped the faculty to gain confidence for adopting technology

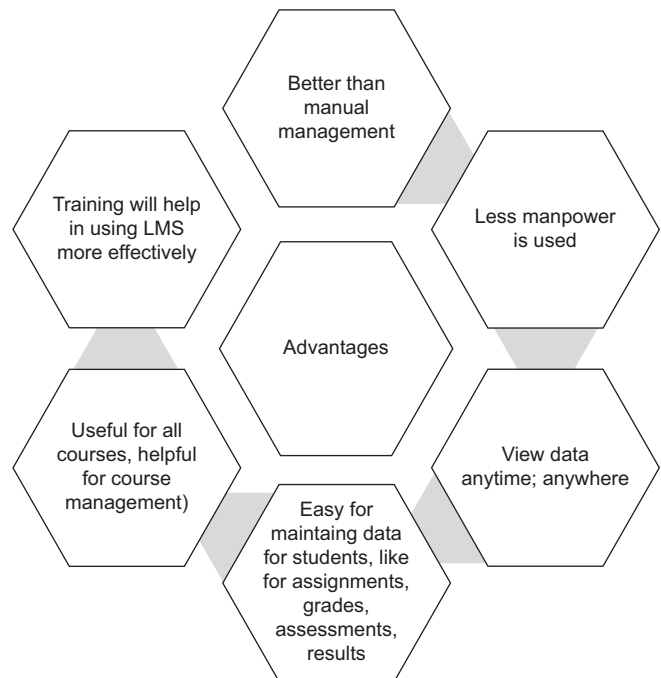


Figure 1: Advantages of using LMS (Thematic analysis)

Table 1: Perceptions of faculty for using LMS (Before and after Workshop)

Question	Mean and SD scores (Before work shop)	Mean and SD scores (After workshop)	P
I would like to get more training on how to use learning management system (LMS)	3.45±0.785	4.33±0.989	0.04**
I enjoy when someone talks to me about the uses of LMS in teaching	3.20±0.836	4.12±0.888	0.011**
I will ask for help from others in case I face a problem while using the LMS.	3.98±0.931	4.00±0.675	0.982
I would like to discuss with my colleagues about how to use the LMS.	3.27±0.673	4.67±0.567	0.05**
Use of LMS will increase the interaction between teachers and students.	2.91±0.345	3.61±0.776	0.069**
LMS helps to deliver the information to students quickly.	2.89±0.397	4.99±0.967	0.006***
Use of LMS will provide interesting learning Environment.	2.77±0.412	4.78±0.479	0.005***
Learning by using the LMS will gradually replace the formal method of education	2.99±0.459	3.49±0.698	0.013**
Use of LMS will increase student's achievement.	3.00±0.612	3.10±0.516	0.782
Use of LMS will facilitate teacher's role in learning process.	3.14±0.516	4.16±0.619	0.012**
Use of LMS offers a great benefit in teaching the required subject in a better way.	3.36±0.733	3.94±0.498	0.632
In the future - the use of LMS will become a necessity for all teachers.	3.12±0.543	4.79±0.612	0.004***
Use of LMS helps the teacher to organize the course and develop the teaching process.	3.08±0.789	4.48±0.722	0.009***
The use of LMS will reduce the role of the teacher and increase the role of the student in the learning process.	2.77±0.512	4.94±0.543	0.004***
LMS makes it easy for teachers to provide students with individual learning environment.	2.95±0.677	3.45±0.823	0.127
LMS contributes in integrating the educational resources effectively.	3.10±0.645	4.90±0.561	0.014**
Use of LMS will increase the flexibility in educational institutions system.	3.07±0.899	4.99±0.912	0.005***
Use of LMS offers better results than the normal formal education.	2.98±0.965	4.47±0.413	0.004***

***P<0.01, **P<0.05, *P<0.10

Table 2: Attitude toward use of LMS based on Gender variation teaching experience and discipline (Mean and SD scores)

Variable	Mean	Standard deviation
Teaching experience		
1-5 years	4.18	0.43
5-10 years	4.05	0.47
>10 years	3.13	0.59
Gender		
Male (n=44)	4.00	0.47
Female (n=68)	3.19	0.39
Discipline		
Pre-Clinical	4.49	0.49
Para-Clinical	4.43	0.47
Clinical	3.79	0.54

Table 3: ANOVA test of faculty members' attitudes towards Learning Management System

Source	Type III Sum of Squares	df	Mean square	F	P
Corrected Model	11.121a	15	639	3.1263	0.001
Intercept	1311.312	2	1259	6197.289	0.001
Gender	1.109	2	1.129	5.341	0.021*
Experience	0.138	1	0.57	0.189	0.033*
Discipline	0.329	1	0.285	0.233	0.052*
Error	14.398	74	0.183		
Total	1491.379	91			
Corrected total	27.000	93			

a. R squared values - 0.409 (Adjusted R squared = 0.284)

assisted learning, but also helped in connecting with the millennial tech driven students. As discussed

earlier it has been the requirement and necessity for all the instructors/teachers/facilitators to enhance, and upgrade their technological skills. This need was more profound when the entire world was reeling under the pandemic of COVID-19 where most of the higher educational institutions adopted digital mode of instructions including the medical schools too.^[1,2,3,8] Learning management system plays a fundamental role in higher education system by setting up an association and interplay among the important stake holders which includes the course content, the facilitator, and the learner.^[3,4] The interactivity, uniformity, and the importance of student contentment was derived based on learner facilitator, learner learner and learner content interaction.^[5-7] Either of these stakes can compensate the demand for each other. In a blended instructional strategy, this association and interplay can often occur online while using LMS.^[9-11] Use of LMS helps in setting up a different type of dialogue between the facilitator and the learner which helps in enhancing the learning abilities of the learners and makes the process of learning more delightful. However, there is a paucity of information regarding faculty perceptions of using LMS features has been sparse; although it might be "simplistic to portray staff as resistant to using new technologies and younger students as more likely to embrace them" (Waycott, Bennett, Kennedy, Dalgarno, and Gray, 2010, p. 1209). However, few other articles indicate that faculty view the learning benefits of LMS more positively than students, with students seeming

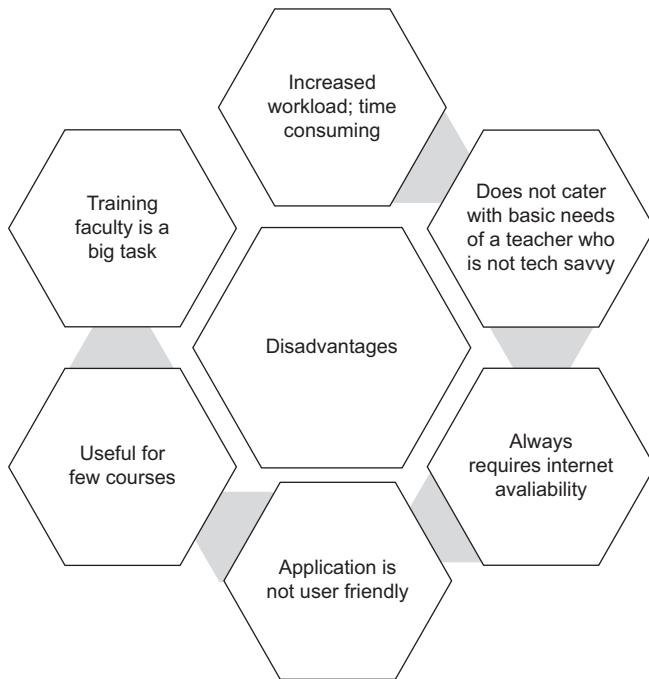


Figure 2: Disadvantages of using LMS (Thematic analysis)

more interested in *how* LMS features are used rather than *whether* they are used.^[12,21,22] Decman M A Waheed and Al-Mutairi S in their review found that staff were generally less positive about the interactive features of LMS as compared with the students^[12,21,22]. Others examining this conundrum have proposed that staff generally view the interactive elements of LMS as being too time-consuming (Baczek M; Zang T; Balta N).^[10,15,16] Learning management system clarifies the information, provides a platform for creating course content where not only the facilitator but also the learner can easily access the presentation and video content related to the course.^[4,17,18,23] It helps in enhancing the learner facilitator communication through forum discussions and live chat sessions too.^[4,19,20] LMS also helps in enhancing the skills of the instructors in organizing the assessments, attendance, record of student progress, and other administrative documents for long time.^[24-26] There is also an evidence that interaction through online environment can lead to growth in critical thinking skills of a teacher as well as the student, although for this to occur timely interplay and intervention by the facilitator is really very important.^[8,10,11,21] Our study results revealed statically significant change in the mindset of the faculty members regarding the use of learning management system after conducting the sensitization workshop on LMS. Their attitude regarding creating interesting learning environment; regarding replacing formal instructional and assessment strategies; also regarding whether LMS will facilitate teacher's role in the learning process; and will offer flexibility; better integration between teacher and student; and whether use of LMS

will be helpful in delivering the information; changed after the workshop. This shows that sensitization is the most important element for incorporating any kind of change in the existing system. Our results are consistent with findings of other researchers who documented the positive attitude of the faculty for incorporating LMS as tool for instructional strategies.^[27-29] Although in many institutions an online mode of instructions has been adopted, few faculty members from the same institution found that there is a deficiency in the effectual way for student engagement strategies, also there lack of motivation due to unawareness, and motivation which is consistent with our findings.^[17,18] Literature review done by Jayson; Zanjani, and M. Jones to analyze the impactful learning experience using LMS highlighted that technical skills confined to both facilitator and the learner is very important in adopting LMS as an instructional strategy.^[17,18] A study conducted by Almahasees Z, Mohsen K and Amin MO in 2021 to assess the attitudes of faculty members at King Khalid University toward e-learning and LMS showed that there was statistically significant different opinion for using these tools pertaining to age, especially among younger groups.^[29] These findings are again consistent with our study findings where we found that young faculty members are more inclined for using LMS as teaching tool. Sindalini AM *et al.*; in their study which aimed to identify the degree of integration between the virtual classrooms and the system of e-learning learning management system, compared the different virtual classroom systems in terms of integration with e-learning management systems. The study showed several results, including the need to use virtual classroom techniques in e-learning in general and in the live broadcast of lectures and tutorials in particular because of the benefits of many of these programs.^[28]

In a view that the LMS thus have become an integral constituent on higher educational system it is important that the learner should be sensitized to use it effectively without taxing the time of the facilitator. Literature also proves that there are two important yields one can expect while using LMS. 1. LMS can work as medium to store and act as depository of learning resources. 2. Bilateral communication between learner and the facilitator in various forms like assignments, feedback sessions, providing teaching schedule, etc., LMS will also help the facilitator and learner to go through the learning material at any time and any place.^[24,25,30] However, studies on use of LMS have shown both appreciative as well as non-appreciative outcomes. Researchers have also pointed out that not all the faculty find LMS application user friendly as well as useful and for the same reason it is not been used effectively, which is again consistent with our findings.^[31] Various studies have also shown that use of LMS have improved the instructional strategies of the

facilitators, where they found different ways for learner engagement in a blended learning virtual environment. It also helped in facilitating the communication, and also promoting self-directed learning.^[7,8,19,25]

Our results are consistent with the findings of Alshorman BA, Bawaneh AK,^[26] who found statistically significant relationship toward use of LMS based on gender variation.

Limitations and recommendations

The strength of our study is the mindset of the faculty, lot of research has been done regarding faculty perceptions for using e-learning techniques; but the results indicate lack of participation of the faculty for such initiatives, our faculty participated in the LMS workshop with its full strength which shows positive attitude toward change and adapting new reforms. Our major strength was also moral and financial support from the higher management for investing on an e-learning platform software. They also equipped us with good quality IT support which is the backbone of for implementing such platform.

The only weakness in our study is long-term follow-up for effective utility of e-learning platform. Also, it was very difficult to get the trained faculty for sensitizing others regarding LMS.

Conclusion

Although not inevitable; but use of blended learning strategies are need of an hour, there are lot of problems which can be faced by the faculty members while incorporating use of LMS in their routine teaching process. Training sessions for implementing any e-learning platform should be done on priority basis to increase its use more effectively. Priority must be given for appointing the faculty members who are technologically driven and have prior sensitization and knowledge for using LMS. Adequate technological support must be provided by the institutions which must include trained IT professionals and high speed internet connectivity.

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Conflicts of interest

There are no conflicts of interest.

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