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Revolutionizing Distance Learning through Technology: A Case Study of Allama Iqbal Open University

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Original Article

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Keywords

Distance Learning, Learning Management System, Transforming Education, Technology Integration Practices, Learners Engagement and Learners Satisfaction

Abstract

This study explores the pivotal role of technology in revolutionizing distance education at Allama Iqbal Open University (AIOU). AIOU's response to the COVID-19 pandemic involved a swift transition to technology-driven MPhil and PhD programs. To assess the students' engagement and satisfaction, interviews with tutors and instructors were conducted, and 50% of enrolled students participated in a comprehensive survey. The research was descriptive in nature. The findings reveal that AIOU's Learning Management System (LMS) significantly enhances student engagement and aligns effectively with course objectives. Tutors and instructors perceive the LMS as a valuable tool for facilitating interaction and learning, although perspectives vary based on teaching strategies. Students express higher satisfaction levels and deep engagement with courses delivered through the LMS. The study advocates the development of a pre-semester framework jointly created by course coordinators to ensure a learning-oriented approach throughout the semester. Additionally, leveraging the LMS for formative assessments is recommended to provide timely feedback to students. The study also underscores the importance of streamlining app usage based on ranking to enhance the overall learning experience. Furthermore, it emphasizes the need for a well-defined result component within the LMS to efficiently manage and communicate academic outcomes. This research sheds light on the transformative potential of technology in education, particularly in the context of distance learning, and provides valuable insights for educational institutions seeking to enhance the quality of remote education. It is recommended that if the LMS supports self-paced courses, students can study at their own pace. They can genuinely focus on what they need to study, no matter how quickly, after peer pressure has subsided.

Introduction

Allama Iqbal Open University (AIOU) is providing distance education to the masses from certificate courses to PhD level using different modes like conventional distance learning, blended learning and online learning. MPhil and PhD programs are being offered by infusing technology, this technology enabled learning environment is being maintained by aahgai learning portal using different applications of Moodle. Many of the applications are being actively used by the instructors/tutors like, file, label, URL, big blue button etc. In some cases learners are satisfied and engaged, but there was a need that tutors/instructors should use the applications that may optimize the engagement of the learners and enhance the level of satisfaction. Therefore, there was a need to conduct a study to explore the perception of the instructors/tutors about the potential of different applications for engagement and satisfaction of learners along with measuring the satisfaction level of learner. The major focus was to develop the mechanism that may enhance the level of engagement. The establishment of a mechanism for satisfaction and engagement, intended to provide the base for more modified and effective education in the technological enabled learning era.

Online learning system is used in many countries of the world for the purpose of education. It enables a teacher and student to set their own pace, there they add their flexibility of setting a schedule that fits every one's agenda. Using an online learning system allows for a better balance and work of studies (Akyol & Garrison, 2011).

Online learning opportunities and the use of open education resources and other technologies can increase educational productivities by accelerating the rate of learning reducing costs associated with instructional materials or programs and better utilizing teacher time. Every child is aware of every technology instruments in this era. They are also found of new instruments/ so the technology is giving beneficial to these children. Base and Poole (2003) explain that educational institutes increase the access of online learning. Colleges, universities and higher education also being criticized for the retention and graduation results. Teachers apply theories and techniques in online class for the engagement of the students. By applying these techniques and theories in online teaching engagements these techniques are always productive and important. These are than more helpful in online regards to face to face learning designs. Higher education provides an overview of contents in every chapter of online learning class.

Researcher found various researches focus on the pedagogical knowledge which is a good design of activities. Online classes belongs to those organizations where teachers enables students to certain outcomes. Researcher describe that an online should be based on design which is mixture of approaches. Teacher should communicate students with clear manners so the students could not be able to face any difficulty while attending their class. Researcher include these four types of components which help in teaching are:

- The context
- The tools which are used to communicate the teacher and learner channels
- Concrete task encouraging and collaborations
- The relation between the three

All these designs define the natures and learning situations.

In teaching, an online instructional mode is a good term. It means that how a teacher should teach his/her class. How his/her relation is strong with the students in online learning class. Teacher presence means that how a teacher involves her students in online class in Covid-19 situation. The

way a teacher designs her courses. How he/she used the cognitive designs matters a lot while he/she is attending his/her class. A teacher must be socially active. He / She has good communication skills which always help to maintain the teacher-student and student-student relationship.

Online delivery of education is on the increase, which tends to reshape the web-based content delivery and the ways of interaction in higher education (Bates, 2018; Allen & Seamen, 2016). Ponds (2002) has highlighted the difference of the context of learning between formal and technology enabled learning environments, and consideration of how the move to online and hybrid teaching and learning opens up new possibilities for instructional delivery, learners' engagement and learning facilitation. The survival of technology enabled learning is dependent on the quality of instructions, knowledge provided, expertise of the tutors and learners to use different applications, satisfaction of the learner and use of appropriate application for the engagement of the learners. Moreover, quality of technology-based learning always remained challenge for higher education where faculty is not formally trained to use the applications.

Therefore, in this situation and context when AIOU due to Covid-19 situation has not halted the process of teaching and learning and provided online learning solution, there was a need to conduct the study and modify the mechanism that may optimize the learning and will be more engaging and satisfying for the learners of MPhil and PhD level.

Background

Technology enabled learning is a need of current era and prevailing situation due to Covid-19. Allama Iqbal Open University (AIOU) is distance learning university and offering M Phil and PhD programs using Learning Management System (LMS) that provided technology enabled learning environment with many interactive applications. From semester (Spring 2020) all the classes were conducted using different apps embedded in the LMS. To what extent these apps help the instructor to engage learner and the level of satisfaction of learners from the technology enabled environment have some major issues repeatedly considered by the researchers. Here the use of technology, its importance, ways to engage learners and level of satisfaction was considered. It served two purposes, to formulate the theoretical background of the study and inform about selection/development of the tools for the study.

Learners Engagement in Online Learning

Many researchers (Adam and Crews, 2004; Pituch and Lee 2006) have discussed the issue of engagement of learners in online learning environments by considering the both synchronous and asynchronous modes. Student engagement has been defined as "students' willingness". Which then explain the learning mode and process according to student need (Bomia, Beluzo, Demeester, Elander, Johnson, & Sheldon, 1997). While delivering instructions through technology instructors/tutors may create many engagement opportunities focusing multiple dimensions of the application being utilised. The engagement of the learner focuses upon his/her dispositions or attitude rather than cognitive skills (Mandernach, Donnelli-Sallee, & Dailey-Hebert, 2011), therefore, learners class experiences and the level of interest are important variables to examine which highlight then nature of the student interaction and teaching learning process (Briggs, 2015).

Technology enabled learning attitude of learner play a significant role for active and appropriate engagement, because it allows learners to decide their own goals, pace and time for learning (Liaw, Huang and Chen, 2007). Therefore, affective use of technology enabled learning environments requires that instructors/tutors may be supported in the form of learning prospects (both formal and informal ways), incorporating digital learning in ongoing professional growth, working with digital equipment and tools, and an atmosphere that allows instructors to introduce

and use e-learning with flexibility (The Scottish Government, 2015). Researchers Chigeza and Halbert (2014) have identified that instructors can connect with students by giving them positive feedback that recognises their strengths while also pointing out areas where they may grow (Muirhead, 2004). Muirhead (2004) has also viewed that strategies to enhance students engagement in technology enabled environments are to encourage critical thinking, establish tutor presence but it depends upon the way course is designed, organised and implemented. Therefore, there is a need to explore the views of working tutors/instructors and compare these with the engagement level of learners that may lead towards the formulation of a mechanism.

Learners Satisfaction in Technology Enabled Learning Environment

In the technology-based learning context learners' satisfaction is the major concern. Learners' dissatisfaction may have many reasons like, expertise in use of technology, experience, equipment being used along with the application used by instructor/tutor, tutor knowledge and expertise for the use of technology. There are many other factors may affect learners satisfaction like, ability of acquisition, processing and feedback of learning information, as well as students' ability to control their own emotions. So, it is important to judge the perspective of learners that may help to understand their level of satisfaction and techniques that may enhance their satisfaction from the learning process. There are three major areas that may be focused for enhancement of satisfaction level of the learners, namely: students' self-characteristics, second cognitive level and approach of learner and technology and technical quality. Therefore, these factors must be considered for measuring satisfaction level of the learners while using technology enabled learning environments.

According to Means, Toyama, Murphy, and Bakia (2013) this demands that while utilising technology enabled learning environments satisfaction of the learners must be ensured by the education providers and stakeholders.

Eom, Ashill and When (2006) examine the "determinants of students' satisfaction and their perceived learning outcomes" (p. 216), and Student satisfaction was shown to be influenced by course structure, teacher feedback, self-motivation, learning style, interaction, and instructor facilitation. Only teacher comments and learning style, they found, had a substantial impact on reported learning results. Student satisfaction was also found to be a major predictor of learning results. Therefore, there is a need that while implementing technology enabled learning at AIOU, the learners' satisfaction should be measured and mechanism may be accordingly modified. Richardson and Swan (2003) have investigated that high overall perceptions of social presence of learners is positively correlated with the perceived satisfaction with the instructor. Therefore, it motivates researchers that interaction between learners and instructors while using technology enabled learning may be explored and focused. Increased student learning and, ultimately, retention, necessitate active learning and student involvement. Students' happiness and perceived learning were strongly impacted by the clarity of the design, connection with instructors, and active conversation among course participants. According to Swan (2001), Student satisfaction and learning are likely linked to their evaluations of the course's general usefulness.

In overview one can predict that while implementing technology enabled learning, as being used by all the four faculties of AIOU for their MPhil and PhD programs, satisfaction of learners, engagement of learners, tutors/instructors perception and use of appropriate application may help to improve the delivery mechanism. Therefore, based on factors of engagement and satisfaction of the learners, a mechanism developed on the basis of best practices being used by tutors/instructors with the help of technical staff so that to achieve the objectives of the said programs.

Rationale of the Study

The major features of technology enabled learning are self-pace, interactivity, flexibility and development of higher order thinking (Srinivas, 2014). We at AIOU are utilizing aaghi learning portal embedding applications of Moodle for the delivery of MPhil and PhD programs and first time across the faculties for conduct of online classes and continuous assessment due Covid-19 situation.

Although many of the tutors/instructors of AIOU are utilising technology affectively, but learners are novice in this regard. They may suffer many difficulties at first in the use of technology (Technical support and its use), understanding course delivery mechanism, familiarity with different applications of LMS, and their previous experience of use of technology. Therefore, there was a need to conduct the study that may explore the instructors/tutors competency in use of different applications, their perception about the level and strength of the application for appropriate engagement of the learners' and their perception of students satisfaction from the course design and delivery. On the other hand, there was a need to measure the level of learners' engagement and satisfaction as these two are the major predictors of learners' success. So this study focused on learners' satisfaction and engagement and compare it with the perception of tutors/instructors for engagement of learners. In the light of proposed analysis a mechanism such as revision of user interface and placement of different applications on course shell along with course design proposed that may enhance the interactivity and satisfaction of learners.

Objectives of Research

The major purpose of the study was to explore the engagement and satisfaction level of MPhil and PhD students of AIOU using learning management system. It may help to prioritize the applications pinned in learning management system and used by the learners and instructors. On the basis of responses a mechanism proposed that may lead to enhance the engagement level.

The specific objectives of the study was to:

1. Explore the perception of instructors/tutors towards engagement of learners about use of different applications.
2. Elicit the perception of instructors/tutors about satisfaction of learners by the use of LMS.
3. Investigate the level of learners' satisfaction by the LMS.
4. Investigate the level of engagement of learners with different applications pinned in LMS and used by instructors/learners.

Research Method

The research was descriptive in nature, mixed data collection design was employed as per demand of the objectives. Open ended interviews of instructor/tutors were conducted to explore and elicit the perceptions about use of different applications for engagement of learners and their satisfaction from the learning management system. Survey of learners' satisfaction and engagement from technology enabled delivery of courses was conducted.

Participants

The university has introduced a wide range of MPhil and doctoral programs. These programs have given distinction to the university in relation to other educational institutions of Pakistan as it caters to the need of different groups. There were almost 450 students at' MPhil and PhD levels using Aaghi LMS during semesters' spring and autumn 2020. For present study the students and tutors/instructors using LMS at MPhil and PhD levels during semesters' spring and autumn 2020 constituted the population of the study.

Participants Selection for Interview

Participants for interview (Tutors/Instructors) were selected based on their utilization of different applications of LMS and the data for use of LMS was collected from ICT department of AIOU. The data collection was terminating on achieving the saturation. 20% of the enrolled students as described by Gay (2016) were selected as sample for collection of data regarding satisfaction and engagement. 221 of the enrolled students from each faculty were selected randomly and approached to respond the questionnaire.

Data Collection Instruments

Questionnaire

A questionnaire for measuring the level of satisfaction and engagement of the learners was developed by researchers. For this the researchers explored the existing tools and identified constructs along with measures useful in this study. The tool construction, reliability and validity details are as under:

The questionnaire initially contains a demographic section, after those two sections to explore the learner satisfaction and learner engagement level towards technology enabled learning were organized. Section-I contained 15 items in which 14 statements measure on five-point Likert scale, and section-II contained 16 items in which 15 statements also used five-point Likert scale, with an open-ended question at the end. For developing the questionnaire, a draft prepared by researchers with the help of existing literature was presented to field experts for validation. After this focus groups were conduct for instructor/tutors opinions. The refined and revised draft then proceeded for pilot testing. In parallel a meeting was held for students' opinion about statement refining. The group of 15 students participated in discussion session. After final review the questionnaire was distributed among 60 students and 51 filled questionnaires were returned and used, the reliability Cronbach alpha value was .92 for 29 statements.

Interview

To get the instructor/tutors perception about the learner satisfaction and learner engagement level towards technology enabled learning an interview protocol was designed by the researcher team. The interview protocol consists of 13 questions. Here initial draft was developed by researcher with the help of related researches and LMS interface.

After these two meetings was conduct for students and instructor/tutors opinions separately. In meeting with students' constructs for questions of interview protocol was drafted. In meeting with instructor/tutors the constructs were modified and questions was drafted. Furthermore, field expert's opinion was collected by a final focus group discussion. Here all constructs and related questions was finalized. The final interview protocol was then presented to two program coordinators, two course coordinators for validation of the instrument. After validation, reliability was ensured by pilot testing in which two interviews were conducted.

Data Collection Procedure

For the collection of data, the population of the study categories in two types for which two data collection tools were used separately.

The first category were learners of MPhil and PhD levels of AIOU who used Aaghi LMS during semesters' spring and autumn 2020. As all academic activates conducted through Aaghi LMS so the responses were met by closed ended questionnaire at the time of final exam which was held on campus. The permission from departments were taken before distribution of questionnaire.

The second category were instructor/tutors of AIOU who used Aaghi LMS during semesters' spring and autumn 2020 for MPhil and PhD levels. The instructor/tutors at AIOU specify for MPhil and PhD levels were interviewed at main campus AIOU as all are full time faculty members of concern departments. Here due to Covid-19 context the rotation /work from home policy were apply so 15 instructor/tutors were interviewed which were available.

Data Analysis

The data analysis was done with filled questionnaire and interviews. Here are two types of data analysis presented below: Quantitative data analysis for questionnaire and analyzed by using, frequencies and percentages with the help of SPSS. Qualitative data analysis for instructor/tutors interviews were analysis by thematic analysis which was done to extract the information from structured interview sessions.

A-Quantitative Data Analysis

Learners' engagement and satisfaction was measured by questionnaire and analyzed by using frequencies and percentages with the help of SPSS.

Level of learners' satisfaction by the LMS

The first section of questionnaire which consists of 14 statements used to measure the level of learners' satisfaction by the LMS. The section I measures the level of satisfaction with two indicators which are motivation and communication.

Table 1: Level of (learners' motivation) satisfaction with different applications pinned in LMS

Sr. No	Items		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	My moderator(s) has the grip on the subject matter.	%	3.6	14	9.4	29	44
2.	I am given with relevant assignments.	%	6.9	4.42	21.26	30.77	36.65
3.	I am given proper time to complete my in-class assignments.	%	14.9	19	9	25	31
4.	My online class mostly starts timely.	%	12.4	21.6	9	32	35
5.	My class mostly ends on time.	%	5.54	12.4	16	25.79	40.27
6.	Classroom rules are followed by all the students.	%	7.23	1.35	11.34	35.34	44.34
7.	The moderator himself follows the set class rules.	%	5.42	9.4	7.69	33.12	44.37

%=*Percentage*

Table 1 describe most of the students rated that moderators had grip on the subject matter as 44% (f=97) students marked on strongly agree, 29% (f= 64) marked agree, 9.4% (f=20) mark neutral and 14% (f=30) mark on disagree, 3.6% (f=10) students marked on strongly disagree for this statement. Most of the students strongly agreed with 36.65% (f=81) that the researcher gave them relevant assignments. 30.77% (f=68) were marked agree, 21.26% (f=47) mark neutral, 4.42% (f=10) were marked disagree and strongly disagreed were marked 6.9% (F=15). Students strongly agreed with 31% (F=70) that I have given them proper time to complete in class assignments. 25 % (F=56) were marked agree, 9% (F=21) were marked neutral, 19% (F=41) were disagreed and 14.9 (F=33) were marked strongly disagree.

Students strongly agreed with 35% (F=78) that the researcher's online class started on time. 22% (F=43) were marked agreed, 9% (F=20) were marked neutral, 21.6% (F=50) were marked disagree and 12.4% (F=30) were marked strongly disagree. Most of the students strongly agreed with 40.27% (F=89) that the researcher always ended the class on time, 25.79% (F=57) were marked agree, 16% (F=35) were neutral, 12.4% (F=30) were marked disagree and 5.54% (F=10). Students strongly agreed with the statement that classroom rules were followed by all the students with 44.37% (F=98). 35.74% (F=79) students were marked agreed. 11.34% (F=25) were marked neutral, 1.35% (F=3) were marked disagreed and 7.23% (F=16) were marked strongly disagreed. Mostly students were strongly agreed with the statement that the moderator himself follows the class rules with the ratio of 44.37% (F=98). 33.12% (F=74) were marked agreed. 7.69% (F=17) were marked neutral. 9.4% (F=20) were marked disagreed and 5.42% (F=12) were strongly disagreed.

Table 2: Level of (communication) learners 'satisfaction with different applications pinned in LMS

Sr. No	Items		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	I get the recording of the online class afterwards.	%	9.04	6.37	7.23	38	39.36
2.	My moderator uses interactive strategies in the class.	%	.8	.8	2.5	38.5	43.43
3.	My moderator adjusts the instructions according to the students' level.	%	4.07	12.7	3.16	38.45	41.62
4.	All the students remain mostly active in the class.	%	5.41	6.37	39.36	15.38	33.48
5.	Class time is suitable for all the students.	%	7	12	20	37	24
6.	Classroom rules are set for all the students.	%	3.18	7.23	23.98	33.48	32.13
7.	An alternate platform is used if LMS is not working.	%	8.6	12	21.83	25	32.57

%=*Percentage*

Table 2 explains that 39.36% (F=87) students strongly agree that they get recording of online class afterwards. 38% (F=84) students marked agree, 7.23% (F=16) mark neutral, 6.37% (F=15) mark disagree, and 9.04% (F=20) mark strongly disagree about they get recording of online class afterwards. Students were 43.43% (F=96) strongly agreed that a resaercher uses interactive strategies in the class. 40.27% (F=89) were agreed, 10.86% (F=24), .2.72% (F=6) were disagree and 2.72% marked strongly disagree with (F=6). Most of the students strongly agreed with 41.62% (F=92) that the researcher adjusted the instructions according to the students' level. 38.45% (F=85) were marked agreed, 3.16% (F=7) were marked neutral, 12.7% (F=28) were marked disagree and 4.07% (F=9) were marked strongly disagree.

Students were marked agreed with 33.48% (F=74) that all the students were mostly active in their class. 15.38% (F=34) were marked strongly agreed, 39.36% (F=87) were marked neutral, 6.37% (F=19) were marked disagree and 5.41% (F=8) were marked strongly disagree. Mostly students were marked agreed with 37% (F=82) with the statement that the class time was suitable for all the students. 24% (F=54) were marked strongly agreed. 20% (F=42) were marked neutral and 12% (F=27) were marked disagree and 7% (F=16) were marked strongly disagree. Most of the students were agreed that the classroom rules were set for all the students with 33.48% (F=74), 32.13% (F=71) were marked strongly agreed, 23.98% (F=53) were marked neutral 7.23% (F=16) were marked disagree and 3.18% (F=7) were marked strongly disagree. Most of the students were strongly agreed with the statement that the researcher used alternate platform if the LMS were not working with the ratio of 32.57% (F=72), 25% (F=56) were marked agreed, 21.83% (F=48) were marked neutral, 12% (F=26) were marked disagree and 8.6% (F=19) were marked strongly disagreed.

Level of engagement of learners with different applications pinned in LMS.

The second section of the questionnaire consists of 15 statements used to measure the level of engagement of learners with different applications pinned in LMS and used by instructors/learners. Here the student engagement and learning environment were two constructs to measure this level.

Table 3: Level of student engagement with different applications pinned in LMS

Sr. No	Items		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	For me the technology enabled environment LMS provided by AIOU is very engaging.	%	6.4	6.4	17.33	30	39.87
2.	Class assignments provide me the opportunity to get engaged.	%	5	5	18	29	43
3.	My class presentations engage me well.	%	7.7	7.7	7.7	32	44.9
4.	My class fellows' presentations give me a chance to get engaged in the class.	%	8	5	9	36	42
5.	Question answer sessions from the teacher are very engaging.	%	6	9.50	8	30.8	45.70
6.	Question answer session with my class mates is very engaging.	%	2.71	3.17	13.92	44	36.2
7.	The article shared by the teacher in the online classes engages me well in the class.	%	4.18	8.5	16.74	35.29	35.29

%=*Percentage*

According to table 3 most of the students strongly agreed with the rate of 39.87% (F=88) that for them the technology enabled environment LMS provided by AIOU is very engaging.30% (F=68) agreed. 17.33% (F=37) were neutral with the statement, 6.4% (F=14) disagreed and strongly disagreed with same ratio. 6.4% (F=14). Students 43% (F=43) were strongly agreed with the statement that class assignments provide them the opportunity to get engaged. 29% (F=64) were agreed, 18% (F=40) were neutral. While .5% (F=11) strongly disagreed and disagreed with the same rates. Most of the students were strongly agreed with the statement with 44.9% (F=100) that their class presentations engaged them well 32% (F=70) were agreed with the statement .7.7% (F=17) were neutral while 7.7% (F=17) were disagree and same ration for strongly disagreed with the statement.

Most of the students were strongly agreed with 93% (F=42) that their class fellows presentations given them the chance to engaged them in their class. 36% (F=79) agreed, 9% (F=20) were neutral, .5% (F=11) disagreed with and 8% (F=18) strongly disagreed. Most of the students were strongly agreed with the statement that question answer sessions were very engaging from teachers with the rate of 45.70% (F=101), 30.8% (F=68) were agreed, 8% (F=18) were neutral, 9.50% (F=21) were disagreed and 6% (F=13) marked strongly disagree for this. Most of the students were strongly agreed with the rate of 36.2% (F=80) that question answer session with classmates were very engaging 44% (F=97) were agreed, 31.92% (F=31) were neutral, 3.17% (F=7) were disagreed and 2.71% (F=6) were strongly disagreed with the statement. Most of the students strongly agreed with the statement with the rate of 35.29% (F=78) that the articles shared by the teacher engaged the students in online classes. 35.29% (F=78) agreed. 16.74% (F=37) were neutral. 8.5% (F=19) disagreed with and 4.18% (F=9) strongly disagreed.

Table 4: Level for learning environment with different applications pinned in LMS

Sr. No.	Items		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	I can easily get assess/log into the LMS.	%	2.8	10.4	13	33.5	40.3
2.	For me BBB is easily assessable for the classes.	%	1.4	6	15.4	42.2	35
3.	Assignment submission is always easy for me.	%	0.5	3.16	7.2	42	47.14
4.	Teachers lecture is very engaging.	%	7.2	7.2	8	33.5	44.1
5.	The presentations shared by the teacher in the online classes engage me well.	%	5	4	12	42	37
6.	My moderator's/teacher's feedback makes me engaged in the class.	%	5.4	5.4	10.40	33.5	45.3
7.	The use of alternate online platform (WhatsApp), when LMS doesn't work is very engaging for me.	%	5.4	9.05	22	26.6	37
8.	The material (Presentation/articles) shared on LMS by the moderator /teacher is very engaging for me.	%	5.54	12.4	16	25.79	40.27

%=*Percentage*

Table 4 explain that 40.3% (F= 89) students were strongly agreed with the statement that they can easily get assess or login to the LMS 33.5% (F=74) students were agreed with statement 13% (F=29) were neutral 10.4% (F=23) were disagree and 2.8% (F=6) were strongly disagreed. 35% (F=77) strongly agreed with the statement that for them BBB is easily assessable for the classes. 42.2 (F=94) were agreed 15.4% (F=34) were neutral 6% (F=13) disagreed and 1.4% (F=3) students strongly disagreed. Most of the students were strongly agreed with the statement with 47.14% (F=104) that an assignment submission was always easy for them 42% (F=93) were agreed with the statement 7.2% (F=16) were neutral, 3.16% (F=7) were disagreed and 0.5% (F=1) were strongly disagreed with the statement.

Most of the students strongly agreed with 44.1% (F=98) that teachers lectures were very engaging 33.5% (F=74) agreed with the statement 8% (F=17) were neutral, 7.2% (F=16) disagreed and 7.2% (F=16) strongly disagreed as well. Mostly Students were strongly agreed with the rate of 37% (F=81) that the presentations shared by the teacher in online classes engage the students very well. 42% (F=93) were agreed with the statement. 12% (F=27) were neutral, 4% (F=9) disagreed and 5% (F=11) strongly disagreed. Most of the students were strongly agreed with the statement that my teacher's feedback makes the students engaged in class with the ratio of 45.3% (F= 100), 33.5% (F=74) were agreed, 10.40% (F=23) were neutral, 5.4% (F=12) were disagree and strongly disagreed.

Most of the students were strongly agreed with the ratio of 37% (F=81) with the statement of that they use alternate online platform like WhatsApp, when LMS does not work in very engaging for the students 26.6% (F=60) were, agreed 22% (F=48) were neutral, 9.05% (F=20) were disagree and 5.4% (F=12) were strongly disagreed. Most of the students strongly agreed with the statement that the material shared on LMS by the teacher is very engaging for the students with the rate of 40.27% (F=89). 25.79% (F=57) were agreed, 16% (F=35) were neutral, 12.4% (F=30) disagreed and 5.54% (F=10) strongly disagreed.

The level of learner satisfaction and engagement with reference to LMS was satisfactory here learners responded that connectivity issue and internet problem should considered as a barrier in learning. The material and method use in online sessions gave an alternative for students struggling. Tutor/instructor were highlighted as very helpful in an online classroom environment.

B-Qualitative data analysis

The instructors/tutors' interviews were analysis by thematic analysis which was done to extract the information from structured interview sessions.

Tutors/instructors interview analysis

The face to face interviews were conducted by researcher to get the opinion of tutors/instructors. The instructor/tutors at AIOU specify for MPhil and PhD levels were interviewed at main campus AIOU as all are full time faculty members of concern departments. Here due to Covid-19 context the rotation /work from home policy were apply so 15 instructor/tutors were interviewed which were available. Here to highlight that approximately all 15 instructor/tutors were very cooperative because of this the answering process was very pleasant. Each interview was consisted on 25-30 minutes as all of them elaborated the point very well.

Thirteen questions were asked by interviewees, which then categories in two parts learner engagement and satisfaction for analysis. Thematic analysis of the qualitative data performed for identification of different indicators and perceptions of tutors/instructors for the level of engagement of learners. Also, satisfaction of the learners as perceived by the tutors/instructors was highlighted.

Perception of Instructors/tutors Towards Engagement of Learners Using Different Applications

Theme wise perception of instructors about learners' engagement is presented below.

Student Engagement

Student engagement and student-centric learning is play major roles in the education sector in the COVID scenario. In the teaching-learning process, now opened up new paths, techniques, and models, and there's no turning back now.

> *''we talking particularly about MPhil, PHD and we used to call them on campus each and every workshop so in that case they were facings so much trouble and do many challenges that they were hair physically but they were not always participating activities now when they are participating online from their home town, I think that they are at least they are more engaging now so AIOU setup. My students are from different parts of the country so an LMS and virtual environment has been enabling for it".*

The digital era is here, and it will continue to alter education for decades to come. Tutors /instructors using the LMS for M.PIL. and PHD students from almost 1.5 years.

> *"The beauty of LMS is that technology is providing us this is the option that technology is giving us so we should utilize that option and we should not limit our self to only a few numbers of resources are activities rather all available activities should be.....and one think that is very important than we some activities are resources in the LMS I am not very much technically expert but I know that we can use so many available plugging to at different feature in LMS".*

Most of them appreciated the platform LMS means learning management system as a user-friendly software. Which allow students to use and explore the knowledge on their door step.

Learning Environment

In this context, a teacher's ability and an institution's competitive advantage over the industry may be defined by keeping students engaged in the classroom. All of them said it easy to use and help them to maintain a positive learning environment. In start it was challenging as there are connectivity issues and students understand issues but now day by day the system smoothness is increasing.

> *"In the initial year when half of the think were face to face and half of the think were online they were not very satisfying with the LMS and online teaching and learning because they were experience face to face as well so many of them were reporting that we do not find it very engaging or we do not find it very enabling to ask questions from the teacher and staff then they was the phase when the mikes were off and it was under our control if we open it or not that was also not a very good feature of it now in this year at Autom 20 and Spring 20 they mikes are open and they are presenting as presenter and they can ask questions any time they can interact to the teacher and these two batches are now fully online so that not experience to the face to face component in any case now .They are very comfortable and very happy about it".*

Students are also passionate and try to grip on commands so they can work with LMS easily. A learning management system (LMS) ensures that students have access to their learning materials no matter where they are or when they want them. A tutor elaborated that

> *"They can interact with the teacher what we have been doing and I think many coordinators have been doing is they have WhatsApp good as well. So even if there is an online class of 3*

hours let's say the teacher after that as well student so they can ask questions they can send their comments".

Tutors/instructors may recall a period before the Internet, but today's children have grown up in a digital environment. They have unrestricted access to learning content. Now tutors/instructors who have flipped their classrooms and require students to complete their part before class begins, so that class time is spent solving issues and learning more about the subject rather than lecturing.

Perception of Instructors/tutors about Satisfaction of Learners Using LMS

Theme wise perception of instructors about learners' satisfaction is presented below.

Motivation

Students' satisfaction has an impact on their motivation, which is a critical psychological component in their performance. Meeting and exceeding the expectations of students not only pleases them, but it also promotes the institution and its courses.

"Feedback they can ask questions regarding their assignment as well so now this virtual environment is not just the LMS its be own LMS as well so I think they are much more satisfied".

Teacher/tutor, technology, and engagement are the three primary elements that impact student pleasure. Not only is the teacher a facilitator of learning, but he or she is also a motivator for the pupils.

"For MPhil the activities are they reading, we give them we give them PowerPoint presentation they already have their framework they have outline of the course they have with them. But like in the class the activities are given by the teacher even on LMS it's only the absence of face to face interaction otherwise it's the same activities which may be if I am in the face to face session. Give them and but other resources they too have to search by their own".

In the framework of the teaching-learning environment, one of the most significant variables influencing student happiness is access to technology.

Communication

The good ratio of student satisfaction with the communication and communication technologies utilized during online learning was noted by faculty. As faculty explain

"Not every student is satisfied because it cannot be over generalized like in any other scenario students cannot be satisfied up to 100 %level but most of the students are satisfied in a way that they have so many different forum so LMS to have interaction with the teacher they can post their questions they can excess their learning material at any time so most of the students are satisfied but some students are obviously not very much satisfied and this is just because a individual differences this is not because of any gap in the LMS rather some students who are not ready to accept the change".

The challenge of technology enable environment are not a such controllable at AIOU is end because the challenge are poverty of internet the challenge are excess to internet so all these challenge are not actually in the control of AIOU.As explain by a tutor:

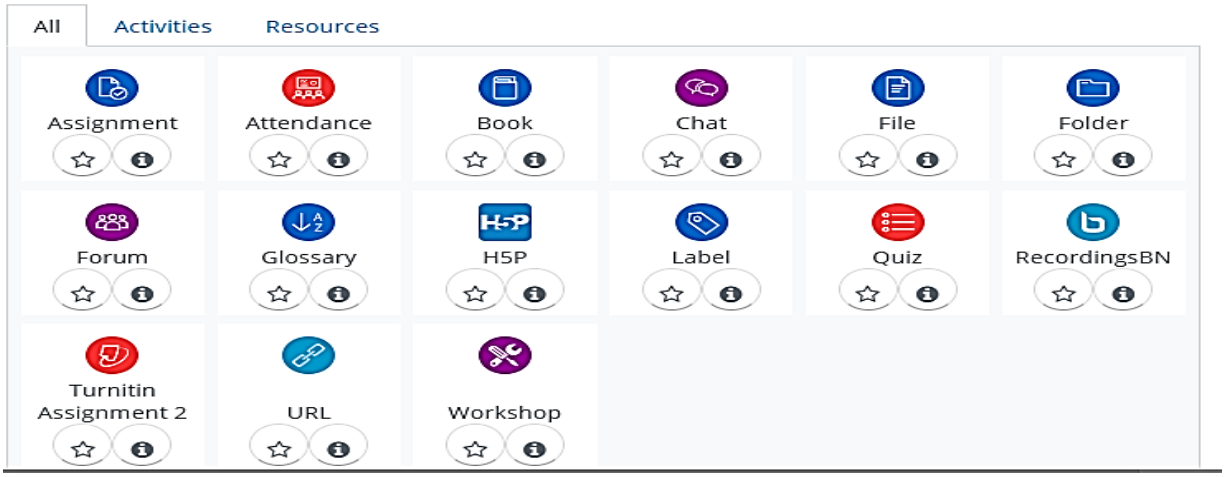
"AIOU has tried to be as supported as they can be for example they signed upon as well as jazz and that was huge step for universities and they are moving ahead and they are asking a service partner to give a subsidy in the internet collection and stuff but the students are coming from all sort of places in Pakistan recently I went to northern areas then I realized that there is no internet literally no internet no mobile network works no other providers their so I could totally see how difficult it's for the students to connect for these areas and some of them my

students reporting that the day of workshop the travel for like 15 kilometers and go to a place where is their internet so most of the challenges are at the user and where do not have the connectivity initially when all most 2 years ago when we started with LMS they were issues AIOU network and their own servers and stakes were those issues have already been sort and I really would appreciate the effort made at the University and have done a huge investment and in the infrastructure as well".

But Faculty indicated the most discontent with merging workload and technological issues, as students attended three to four courses and there was no Interco-ordination and planning structure in place for all of these course coordinators, causing the students to be overburdened.

The Usefulness of Pinned Apps on LMS (resources and activities blocks) for Learner's Engagement

Rank order statistics was used to prioritize the applications and which lead towards the development of a mechanism for optimization of use of more engaging applications.



Activity and resources block provided by LMS

The LMS provides various resources and activities block for users. Here teacher can use the desirable block according to learner need and content requirement. Here the rank order of usability highlighted which help to review the learner engagement enhancements components.

Table 5: Rank order of resources blocks

Rank	Resources blocks provided by LMS
1	URL
2	Folder
3	Book
4	RecordingsBN
5	File

5th is considered highest rank

In review about usability of learning resources available for students' engagements on LMS, table 5 explain that the URL was highlighted as top usefully, after this folder is used by most of tutor /instructors for students' engagements and knowledge enhancement. Book is ranked as 3rd most useful resource for students. Recording BN highlighted as 4th useful block. The file which mostly tutors/instructors highlighted as PowerPoint presentations ranked as 5th most useful resource in LMS FOR MPhil and PHD learners.

Table 6: Rank order for usefulness of activities blocks

Rank	Activities blocks provided by LMS
1	Assignment
2	Workshop
3	Quiz
4	Attendance
5	Chat

5th is considered highest rank

About review of activities offered on LMS for learner engagement table 6 highlight that the assignment was ranked as higher in usability, then workshop at 2nd level, then Quiz at 3rd level, attendance at 4rh level and chat at level 5th. Students rated online quizzes highly, indicating their preference for interactions focused on course content and including automatic feedback. This is potentially one affordance of the LMS which operates more effectively than a comparable activity in a regular classroom setting. While the nature of automatically scored quizzes places some restrictions on the types of knowledge that can be assessed, the instant feedback does provide students with timely feedback on their performance.

While other LMS tools in the interactive category, for example, discussion boards are more effective when replicated with attachments, online quizzes may be perceived as superior to classroom based assessments which usually take time to be marked and returned to students. In terms of interaction equivalence theory, it would appear that this particular LMS tool can be perceived as a very effective or even superior alternative to analogous traditional testing techniques.

Findings and Discussion

The current study explored that instructors/tutor perceived that LMS along with tasks and tools helpful in students engagement and satisfactory level. Online education system is increasing day by day. According to the needs of educational improvements in different areas and places it is taking place to bring good challenges between students.it increase the influence of satisfaction, interaction, communication and learner characteristics. A student who could not attend face to face lectures can easily take online class by far places. If an online class is well organized, instructional designed and measured by teachers it become so beneficial for learners. According to this research LMS is a software which helpful for a teacher to use different strategies, plans which help students and make them satisfied with online system. Researcher explain that it indicates the self-regulation and learning orientations play important parts in students satisfaction and it is success of online learning system (Rapanta, Botturi, Goodyear, Guàrdia, & Koole, 2020).

Tutor /instructors perceived student satisfaction about learning is linked with quality time they spend in learning process so LMS is proving satisfactory level platform as progress is remarkable after a first semester connectivity issues. Technological challenges is basically key challenge highlighted by tutor/ instructors who working as course coordinator at AIOU for MPhil and Ph.D. level. These challenges are related to lack of internet and other electronic devices. There also come rural and urban areas problems. In rural areas there are shortage of electronic devices. The students and people who belongs to these areas always find difficulty in online systems. They have no laptops, computers and other facilities which they can use in their education. Although online system has played a good role in distance learning (Ferri, Fernando, Grifoni, and Guzzo, 2020).

On LMS tutor/instructor use URL, PPTs, books and other component to engage students so according to student opinion it is engaging and learning oriented platform but due to technological challenges and time barrier some time it is difficult to enjoy that pace of engagement.

Students' level of satisfaction and accomplishment in the learning environment are reflected in high levels of satisfaction with the use of LMS. This satisfaction is the result of the sum of a student's feelings and attitudes as a result of aggregating all of the expectations and benefits that a student hopes to receive from a learning management system (Ghaderizefreh, 2018).

Covid-19 has given a boost to the open education system. LMS tools facilitating interactivity (Park, 2015). Teacher should use different methods to engage students with proactive behaviors which are difficult to obtain in online classroom. A teacher should be well trained in technological skills. Although students are usually used to learn with digital devices but they may not be prepared to receive remote teaching. May be they find it difficult. So this is all the responsibility of a teacher to have a language competence in terms of digital skills. In many countries they experimented online learning and classes especially in emergency situations. During the pandemic lockdown all the student were asked to connect for their lesson in online learning classes. Moreover due to lack of proper digital devices students were forced to use smart phones for their learning. Universities also started online courses to reduce their costs. However experts and researchers think that the community of learners and teachers can built by increasing human cyber interactions.

Students can effortlessly collaborate on various activities using an LMS because they do not need to be in the same physical location to communicate with one another but they only need to be engaged in the system at the same time. Even introverted may find it easier to participate in class discussions if they don't have to worry about being in the spotlight or being interrupted before they finish. At light of the foregoing, students in Iranian institutions can readily connect with instructors and curriculum designers via discussion forums in LMSs. Payamnoor and Farhangian LMSs (2014) for example are two of Iran's most powerful LMSs, allowing students and teachers to communicate and exchange knowledge at any time.

Conclusions

- Using an LMS to assist classroom instruction does not solve all of education's difficulties. However, students who use an LMS to access learning resources when they need them, discover them quickly, engage with teachers and classmates, feel in control of their learning, and submit assignments have a few benefits over those who do not.
- With the increase of online learning system researcher took interest to know that how satisfactory the online system is. Researcher examined several factors regarding online learning system. Teachers' used different methods to define student satisfaction. According to teachers 'an online study have positive emotions, managing of time, self - regulations and good experience for the students. Researcher easily measured the results

of online learning system with the student's last semester experience which definitely explain their achievements of the whole year.

- Online learning become one of the tactics that higher education adopted to address many challenges. In the past two years the growing rates in online classes are increasing day by day. It means that many students are online. These online learners are not only enrolled in online classes but also engaged in web based academics. So the researcher take the result that mostly students took interest in online studies. They like to learn from online classes and online study designs involve them in studies.
- A teacher student interaction is very important in online learning class. A major challenges for students to create and built a social networking with teachers. In the emergency situation where teachers and parents both are in difficult challenges have to face and work remotely. It produces a problem which is faced by physical and mentally by students have not their own personal rooms. It creates a good, social and innovative environment for students.
- The current study found that students' overall satisfaction was linked to their pleasure with technology, with accessibility being the most often mentioned source of dissatisfaction. Even when using the best-designed online course, several tutors have noted that students' technical challenges can contribute to an inefficient learning experience.

Recommendations

- Although the experiences are good enough by both teacher and student, but researcher assess that there is a need for individual instruction phase which contains motor and physical skills.
- If the LMS supports self-paced courses, students can study at their own pace. They can genuinely focus on what they need to study, no matter how quickly, after peer pressure has subsided. They can spend extra time on a difficult subject if necessary, or they can skip over the material they already know.
- It has been argued that online office hours may be added to make the communication between instructor and learners advantageous.
- The lack of face-to-face interaction is compensated for by effective feedback and communication from tutors/instructors, which engages students in online learning.
- Informal feedback has also been linked to improved communication among peers and instructors since it provides suggestions for maintaining or improving performance.
- With this it is also recommended to use LMS for formative assessment so then feedback can be given to students' time to time. Further research can be conducted to investigate the teaching methods and strategies used be tutors/instructors and the feedback methods used by them for students' progress.

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