

## **Covid-19: Development of an Online Learning System with computer mediated communication is a solution?**

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### **Abstract**

The Covid-19 period was the hardest hit, and Indonesia was no exception. The social impacts that occur in the community include many things, one of which is in education, which makes students, teachers, and stakeholders have to move quickly to find real solutions. The Indonesian government 2020 has issued a policy to learn from, but many are still not ready to change the old pattern (offline) into a new pattern (Online)—using combined approach research between qualitative and quantitative (Mix Method). This research was conducted at UIN Sunan Gunung Djati Bandung. This study aims to improve/develop the existing Learning Management System (LMS) to be more effective and efficient. There are no students who are constrained in using the LMS in the future, both from a social and technical perspective.

Keywords: Social Problems, Education, Computer Mediated Communication. Learning

### **Abstrak**

Masa Covid19 merupakan pukulan terberat bagi dunia tidak terkecuali Indonesia. Dampak sosial yang terjadi di masyarakat meliputi banyak hal salah satunya di bidang Pendidikan yang membuat pelajar, pengajar dan pemangku kepentingan harus bergerak cepat untuk mencari solusi nyata. Pemerintah Indonesia sejak tahun 2020 sudah mengeluarkan kebijakan untuk pembelajaran dari akan tetapi masih banyak yang belum siap untuk merubah pola lama (offline) menjadi pola baru (baru). Menggunakan metode penelitian mix method. Penelitian ini di lakukan di UIN Sunan Gunung Djati Bandung. Penelitian ini bertujuan untuk menyempurnakan/mengembangkan lagi Learning Management System (LMS) yang ada menjadi lebih efektif dan efisien. Sehingga tidak ada mahasiswa yang terkendala dalam penggunaan LMS dimasa depan baik dari sisi sosial maupun dari sisi teknis.

Keyword : Masalah Sosial, Pendidikan, Komunikasi yang Dimediasi Komputer. Pembelajaran

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## **INTRODUCTION**

The development and growth of information and communication technology (ICT) are considered fast and provide convenience and convenience for everyone to find out and obtain information briefly (Aryanti, 2021). Everyone's need for information is easy and fast by connecting to the internet, which provides information services and facilities quickly without being hindered by time, space, and distance (Tubagus & Kom, 2021). This convenience provides speed and time efficiency for people who want to get information from distant sources. The development and growth of internet technology have emerged with various updated displays or applications, especially in education, namely as a learning process and means.

The current trend of world development has shifted from conventional methods to modern technology-based ones, in line with the development of the industrial revolution, which is currently entering the Industrial Revolution 4.0 (Mufidah & Trihantoyo, 2021). The indicator of the industrial era

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4.0 is marked by the rapid use of Information and Communication Technology (ICT) in various fields, including higher education. The role and function of ICT in organizations, both profit-oriented and non-profit organizations such as universities, is to support university business processes, which aims to improve university performance more effectively, efficiently, and accurately both in input, process, and output activities. at all managerial levels of the university, so it is hoped that the university's performance will be more optimal in serving customers, especially students.

The application of ICT at universities, of course, cannot be done without going through identifying needs and analyzing university goals. As a support system, the application of ICT must be in line with the university's business processes and must support university goals (Gumono, 2021; Mubarok, 2020). University goals should be set and stated clearly and measurably by the university, either strategic or long-term goals. The lack of clarity of university goals can cause the application of ICT to be misguided, misplanning, and make the investment that has been spent on ICT development be in vain. The alignment of Sunan Gunung Djati State Islamic University (UINSGD) is one factor that adds to the university's competitive advantage.

Several previous studies regarding the development of the Learning Management System have been carried out, but none have used McComb's theory (1994), so the author tries to describe these shortcomings in this study. For example, research by Bradley (2021) states that the presence of instructors in an LMS creates an interesting learning environment. Raza et al (2021) stated that social isolation made distance learning accepted by many parties, and Ahmed and Ganapathy (2021), the use of LMS requires teachers to increase innovation and high creativity. None of the three studies have used the theory we use, so it is hoped that new things will be found at the end of the research.

The main task of higher education is tri dharma, namely the academic process, which includes teaching, research, and community service. Learning is the estuary of the academic process that occurs in higher education. Along with the development and availability of ICT facilities, the learning process has shifted by presenting this technology with online learning as a supplement, complement, or substitution. Concerning technology empowerment, this research was conducted to develop an Online Learning LMS Application System at the State Islamic University of Sunan Gunung Djati with pilot projects in several courses in the Communication Studies Program.

## **RESEARCH METHOD**

The research approach used is a quantitative descriptive approach, namely to explain the process of developing and implementing an online learning system. The research method used is a mixed-method between qualitative and quantitative. In this study, data will be collected from respondents using an online questionnaire and a Google form. This research method aims to explain the impact of communication effectiveness using the LMS application system in online learning at UIN SGD. As a pilot project, this research will be carried out in courses in the Communication Studies Program, Faculty of Da'wah and Communication, State Islamic University of Sunan Gunung Djati.

The variable in this study is the effectiveness of communication using a computer-mediated communication scale. The subjects in this study were students majoring in Communication Science, Faculty of Da'wah and Communication at UIN Sunan Gunung Djati Bandung, who had the following characteristics: (1) Active Communication Studies student status, (2) Learning using the Online LMS system.

The method used in this research is a questionnaire with the instrument used is a Likert scale, where the variables to be measured are translated into dimensions, dimensions are translated into sub-

variables, then the sub-variables are translated into measurable indicators. Finally, these measurable indicators can be used as a starting point for making instrument items in the form of questions or statements that need respondents' answers (Amirullah, 2015). The Computer-Mediated Communication scale in this study uses instruments compiled from aspects by McComb (1994) in the form of Access to Resources, Facilitates Quick Assignment Turnaround, Keep Course Records, Focused Participation. And analyzed with descriptive frequency data with a percentage for descriptive per question item.

## **RESULT AND DISCUSSION**

### **Learning Management System (LMS) and Moodle. Application Systems**

Application is software that operates on a system developed to perform a command. The application comes from the word "application," which is the application or use. Is the application of software developed to perform tasks according to instructions. There are three groups in the application: the first desktop application, the second application, and the third mobile application. This last group has a lot of users. The application can function and operate on various devices that are already equipped with the operating system (OS) on the device. The criteria that indicate the application has quality and benefits for the user are that it can meet user needs, run on multi-platforms, respond to instructions quickly, and require low resources (processor, memory, storage).

According to Simanullang and Rajagukguk (2020), Learning Management System, abbreviated as LMS, is a software or software for administrative purposes, documentation, finding materials, reporting an activity, providing training materials for online teaching, and learning activities that are connected to the internet. LMS is used to create web-based online learning materials and manage learning process activities and results. This LMS is often referred to as an e-learning platform or learning content management system (LCMS). In the LMS, some features can meet all users' needs in terms of learning.

According to Rahardja, Aini, and Zuliana (2016), the display in LMS, in general, should include the following, namely:

1. Administrative completeness includes semester learning plans (RPS), teaching methods, lecture schedules, student assignments for UTS and UAS, UTS and UAS exam schedules, reference sources, profiles and lecturer contacts, tracking, and monitoring.
2. Submission of lecture materials and materials and ease of access to reference sources.
3. Assessment (weekly, monthly, or semi-annual).
4. Online mid-term or end-of-semester exams and feedback collection.
5. Communication (between lecturers and students or between students, discussion or chat).

LMS facilitates students to be able to view lecture materials, assignments given by lecturers, upload assignments, assignment grades, and rankings based on the results of assignment scores obtained by students, know the modules presented in each semester, no assignments that must be done according to deadlines, and know the schedule. Presentations, online discussions with lecturers, and other resource persons.

LMS can build and develop a virtual or online learning environment used by universities so that lecturers can easily manage lectures and deliver or share information with all students in the learning process for the next semester. The online learning process can be completed quickly, completed in online sessions. This online learning activity is then known as E-learning. Examples of LMS include: Lecturer, blackboard, claroline, moodle, etc. Moodle provides open-source facilities, and programs in the learning

process are held in web form. This program provides a place for students to get lecture resources or materials. With Moodle, the lecturer will provide lecture materials or teaching materials, give or listen to assignments, facilitate electronic journals and other learning resources.

According to Antonenko, Toy, and Niederhauser (2004), Modular Object-Oriented Dynamic Learning Environment, abbreviated as Moodle, is software created and developed for the learning process using the internet. Moodle is an application to support the learning process by utilizing information technology or electronic learning, or e-learning. Moodle is an open-source product (open source) under the GNU license or general public so that its use can be free. Using Moodle is very easy and practical by installing it on a computer and operating system that can run Hypertext Preprocessor (PHP) and supports structured query language (SQL) databases.

Moodle-based LMS application development must use a prototype method and approach. In the stages of the application creation process, it can be carried out using the Software Development Life Cycle (SDLC) rules. Below is a picture of the Prototyping Development Life Cycle Rules. see figure 1.

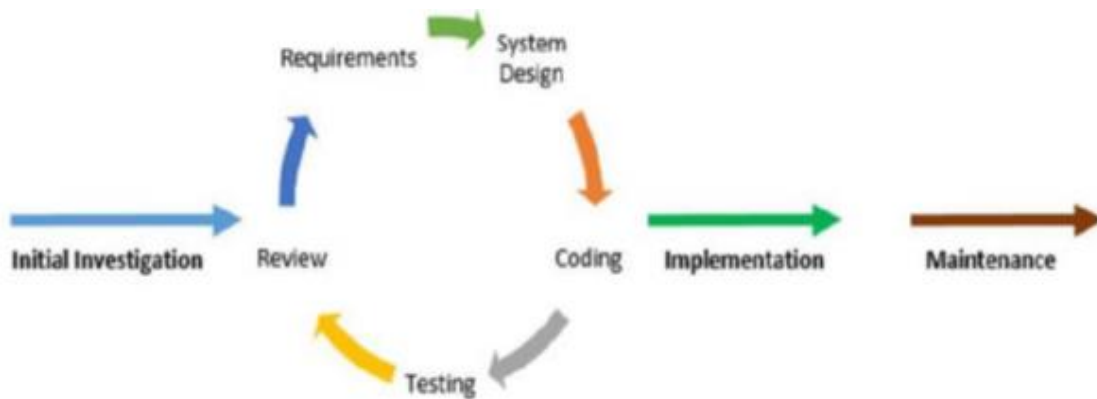


Figure 1. Prototyping Development Life Cycle

The LSM application that is connected to the internet will request data to the server, the database request will be connected first to the web service server and then will make a data request to the LMS server. LMS is a client application that uses web-based e-learning media. The data obtained by the server sends a response from the client application. Data sent using the internet to be received by client applications on the web and mobile platforms. The picture below explains the existence of a relationship between client devices, LMS, and web services. Application architecture describes the behavior of applications deployed in a business, focusing on how they interact with each other and with users. It is focused on the data consumed and produced by the application rather than its internal structure. In application portfolio management, applications are mapped to business functions and processes and cost, functional quality, and technical quality to assess the value provided see figure 2. Application architecture is used based on requirements and functionality. Because it will involve an interaction between applications, databases, and middleware systems functionally, this will help identify integration problems and gaps in functionality. A migration plan can then be drawn up for systems at the end of the software lifecycle or for which there are inherent technology risks.

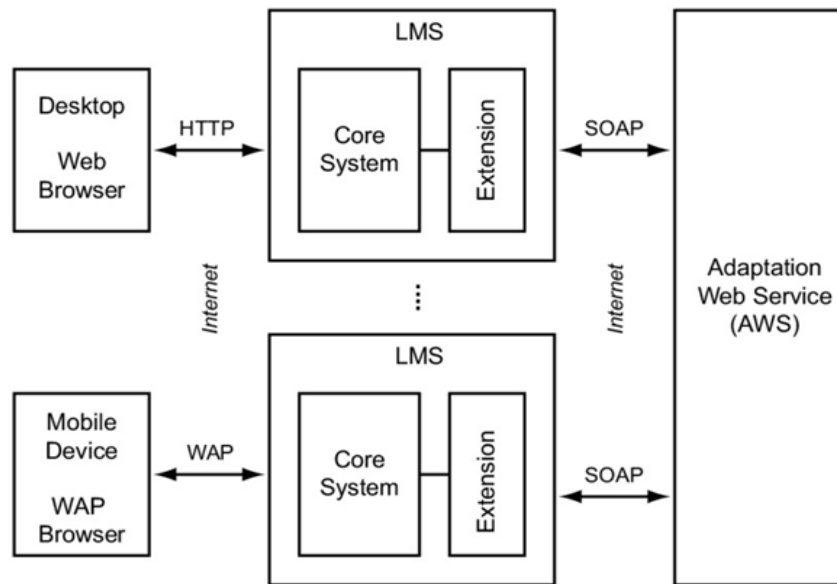


Figure 2 LMS System Architecture

Application architectures try to ensure that the suite of applications used by organizations to create composite architectures is scalable, reliable, available and manageable. The application architecture defines how multiple applications are prepared to work together. It differs from software architecture because it deals with the technical design of how a system is built. The following is the LMS application architecture in figure 3:

## eLMS : Architecture

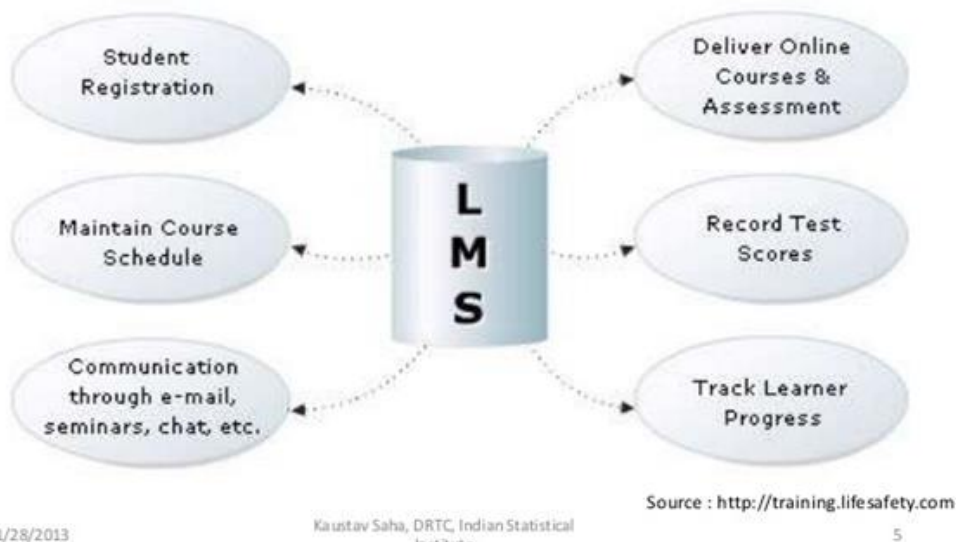


Figure 3 LMS Application Architecture

**Efektivitas Komunikasi Pada Sistem Pembelajaran Daring Di UIN Sunan Gunung Djati Bandung**

The research results on the effectiveness of communication in the online learning system at UIN Sunan Gunung Djati Bandung will be presented below.

**Access to Resources]Dimensions**

**Table 1. Respondents' Responses on the Access to Resources Dimension**

No	Question	Respondent's Answer					Effectiveness level
		Not Effective	Less Effective	Quite Effective	Effective	Very Effective	
1	Is the use of LMS effective in uploading learning materials at one time?	0	0	0	499	514	100.0
		0	0	0	49.3	50.7	
2	Is the use of LMS effective for students in accessing all materials anytime and anywhere?	0	0	0	531	482	100.0
		0	0	0	52.4	47.6	

Based on table 1, in the Access to Resources dimension, in question 1, as many as 499 respondents (49.3%) stated that the use of LMS was effective in uploading learning materials at one time, and as many as 514 respondents (50.7%) stated that the use of LMS was very effective in uploading learning materials at one time. In question 2, as many as 531 respondents (52.4%) stated that the use of LMS was effective for students in accessing all materials whenever and wherever and as many as 482 respondents (47.6%) stated that the use of LMS was very effective for students in accessing all materials anytime and anywhere.

**Facilitates Quick Assignment Turnaround Dimension**

**Tabel 2, Respondents' Responses to the Facilitates Quick Assignment Turnaround Dimension**

No	Question	Respondent's Answer					Effectiveness level
		Not Effective	Less Effective	Quite Effective	Effective	Very Effective	
3	Is the use of LMS effective in submitting assignments online?	0	0	0	478	535	100.0
		0	0	0	47.2	52.8	
4	Is the use of an effective LMS able to speed up the assessment process?	0	0	0	500	513	100.0
		0	0	0	49.4	50.6	
5	Is the use of LMS effective in accelerating feedback from lecturers to assignments done by students?	0	0	353	322	338	100.0
		0	0	34.8	31.8	33.4	

Based on the table 2 above, on the Quick Assignment Turnaround dimension, in question 3, as many as 478 respondents (47.2%) stated that the use of LMS was effective in sending assignments online. As many as 535 respondents (52.8%) stated that LMS was very effective in sending assignments. By online. In question 4, as many as 500 respondents (49.4%) stated that the use of an effective LMS was able to speed up the assessment process. As many as 513 respondents (50.6%) stated that the use of a very

effective LMS was able to speed up the assessment process. In question 5, as many as 353 respondents (34.8%) stated that the use of LMS was quite effective in accelerating feedback from lecturers to assignments carried out by students, as many as 322 respondents (31.8%) stated that the use of LMS was effective in accelerating feedback from lecturers to the tasks carried out by students. As many as 338 respondents (33.4%) stated that LMS was very effective in accelerating feedback from lecturers to assignments carried out by students.

**Dimensions of Keep Course Records**

**Table 3. Respondents' Responses to the Keep Course Records Dimension**

No	Question	Respondent's Answer					Effectiveness level
		Not Effective	Less Effective	Quite Effective	Effective	Very Effective	
6	Is the use of LMS effective for students in the learning process?	0	0	337	361	315	100.0
		0	0	33.3	35.6	31.1	
7	Is the use of LMS effective for filling attendance for students?	0	0	0	522	491	100.0
		0	0	0	51.5	48.5	
8	Is the use of LMS effective for students in obtaining learning materials?	0	0	332	354	327	100.0
		0	0	32.8	34.9	32.3	
9	Is the use of LMS effective in helping students in collecting assignments?	0	0	362	352	299	100.0
		0	0	35.7	34.7	29.5	
10	Is the use of LMS effective for students in doing Quis?	0	0	294	349	370	100.0
		0	0	29.0	34.5	36.5	
11	Is the use of LMS effective for students in working on exam questions?	0	0	347	334	332	100.0
		0	0	34.3	33.0	32.8	

Based on the table 3 above, in the Keep Course Records dimension, in question 6, as many as 337 respondents (33.3%) stated that the use of LMS was quite effective for students in the learning process, as many as 361 respondents (35.6%) stated that the use of LMS was effective for students in the learning process. And as many as 315 respondents (31.1%) stated that LMS was very effective for students in the learning process. In question 7, as many as 522 respondents (51.5%) stated that the use of LMS was effective for filling attendance for students. As many as 491 respondents (48.5%) stated that LMS was very effective for filling attendance for students. In question 8, as many as 332 respondents (32.8%) stated that the use of LMS was quite effective for students in obtaining learning materials, as many as 354 respondents (34.9%) stated that the use of LMS was effective for students in obtaining learning materials, and as many as 327 respondents (32.3 %) stated that the use of LMS was effective for students in obtaining learning materials. In question 9, as many as 362 respondents (35.7%) stated that LMS was quite effective in helping students collect assignments. As many as 352 respondents (34.7%) stated that LMS was effective in helping students collect assignments. As many as 299 respondents (29.5%) stated that LMS was very effective in helping students collect assignments. In question 10, as many as 294 respondents (29.0%) said that LMS was quite effective for students in doing Quis, as many as 349 respondents (34.5%) stated that the use of LMS was effective for students in taking Quis. As many as 370 respondents (36.5%) state that LMS can be effective for students in doing Quis. In question 11, as many as 347 respondents (34.3%) stated that LMS was quite effective for students working on exam questions. Many as 334 respondents (33.0%)

stated that LMS was effective for students in working on exam questions. As many as 332 respondents (32.8%) stated that LMS was very effective for students in working on exam questions.

**Dimensions of Focused Participation**

**Table 4. Respondents' Responses to the Dimensions of Focused Participation**

No	Question	Respondent's Answer					Effectiveness level
		Not Effective	Less Effective	Quite Effective	Effective	Very Effective	
12	Is the use of LMS effective for students in communicating individual students with lecturers?	0	240	265	260	248	100.0
		0	23.7	26.2	25.7	24.5	
13	Is the use of LMS effective for students in communicating in groups with lecturers?	0	234	266	244	269	100.0
		0	23.1	26.3	24.1	26.6	

Based on the table 4 above, in the Focused Participation dimension, in question 12, as many as 240 respondents (23.7%) stated that the use of LMS was less effective for students in communicating with students individually with lecturers, as many as 265 respondents (26.2%) stated that the use of LMS was quite effective. For students communicating with students individually with lecturers, as many as 260 respondents (25.7%) stated that LMS was effective for students in communicating with students individually and with lecturers. As many as 248 respondents (24.5%) stated that the use of LMS was very effective for students. In communicating with students individually with lecturers. In question 13, as many as 234 respondents (23.1%) stated that the use of LMS was less effective for students in communicating in groups with lecturers, as many as 266 respondents (26.3%) stated that the use of LMS was quite effective for students in communicating in groups with lecturers, as many as 244 respondents (24.1%) stated that the use of LMS was effective for students in communicating in groups with lecturers. As many as 269 respondents (26.6%) stated that LMS was very effective for students in communicating in groups with lecturers.

**Discussion**

Online learning is a solution to a pandemic (Asmuni, 2020). However, in Indonesia, many are still not ready for this kind of change in learning patterns (Dewi, 2020; Haryadi & Selviani, 2021). UIN Sunan Gunung Djati is one of the universities that has immediately responded to this since the government's policy was implemented to conduct online learning processes. Since then, UIN Sunan Gunung Djati has started the development of an LMS, namely E-Learning for Knowledge Sharing (e-know), which is still being developed to improve services to students and teaching staff.

There are still shortcomings in several things from the data obtained, especially on the participation variable. 23% consider LMS to make student-teacher communication less effective. This is because teachers are still not using the conference feature in the E-Knows application. Learning the communication relationship between students and teaching staff is an important thing that must be considered (Mustopa



& Hidayat, 2020). The teacher must be able to provide direction so that students can understand what the teacher wants at each meeting.

LMS use at UIN Sunan Gunung Djati is considered quite successful with the high achievement of using E-Know. The main thing that must be considered in developing E-Know with server strengthening is to make it easier for students to access applications (Hafiyah, 2021). The shift from the old pattern (offline) to the new (online) is not bad. The teaching staff is reminded to continue to improve their skills in both the material and technical fields. In addition, innovation in learning must also be carried out so that students cannot lose motivation to take lecture activities seriously. Because online, we as teaching staff are limited in seeing students' performance (Roswirman et al., 2021).

This study argues that the learning system through computer media (E-Know) has been going well and is growing every semester. The evaluations obtained are corrected, and solutions are given. If a broader situation is drawn in Indonesia, implementing a Learning Management System (LMS) is the right decision to make, even though it has some problems at the beginning. Still, all of them are getting used to it, and it can even be an alternative to the learning process even though it is not in a COVID-19 condition.

## **CONCLUSION**

This system can perform its functions properly and efficiently. The test results show that the functions in the application are all running well, and the functions of the buttons and other features have been adjusted to the system flowchart design. The best way to replace offline learning during the Covid-19 period is the online system. The usefulness of the communication system via computer is quite effective and favored by students. Every university, of course, has its features in making an online learning system. It's just that the ease of access and the strength of the network are the main things to think about in the development of this online learning system.

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