

Evaluating Learning Management Systems in University: Evidence in University in North Sulawesi

Glenn D P Maramis

Department of Vocational Technology Education, Universitas Negeri Yogyakarta, Indonesia

Corresponding author: glenn david.2019@student.uny.ac.id

ARTICLE INFO

Article history:

Received: 10 January 2023; Received in revised form: 23 January 2023; Accepted: 26 February 2023;

Available online: 10 March 2023; Handling Editor: Mersy Elisabet Sumangkut

ABSTRACT

Learning management systems (LMS) have been established at universities around the world including at Manado State University to connect students and faculty without the confines of a traditional classroom. It is a digital software environment designed to manage user engagement and provide learning content and resources to students. The aim of this study is to evaluate the use of learning management systems in universities. The method used in this study is the combined methods we used, namely library research and surveys. The library research method also uses secondary data collected from informative articles, books, and magazines. The results of this study found that the LMS used in universities is generally good, this is because the LMS system has been introduced and teachers must use it in daily lectures as well, it is very important to determine the feedback from students as LMS users. Previous studies have demonstrated varying understandings of the impact of implementing LMS in higher education in universities around the world. Therefore, this article provides some insights into the Impact of Utilizing E-learning Technology or LMS. This study concludes that the use of post-covid-19 LMS has shown a fairly good increase both for providers of learning content, namely teachers and system managers, and on the user side, namely students so that learning activities at universities have experienced quite an increase.

Keywords: Analysis, E-learning Technology, Learning Management System, post Covid-19, university

INTRODUCTION

Learning management systems first appeared in the higher education sector in the late 1990s. In the early 2000s, the corporate world began adopting and adapting LMS software to help meet their learning and development (L&D) needs. And Today, corporate LMS is a \$2.5 billion business, and 79% of all LMS users are in the education industry. With the changing times that are increasing rapidly, especially in the field of digital technology, universities have an important role in supporting national research and technology. There is no doubt that online learning is the way of the future. This is what

then becomes support in the process of national development by creating an increasingly superior Indonesian nation globally. This technology and information have a fairly broad impact on human life, especially in the field of education to support teaching and learning processes to be more efficient and more effective. This educational technology also contributes to the learning abilities of various communication media, as well as facilitates the presentation of more concrete information data, especially in tertiary institutions (Batmetan, 2022). Universities must be able to take advantage of technological advances to improve management and teaching systems on campus, this also aims to increase innovation and teaching quality (Liando et al., 2022), so universities also need to work together with the academic community and industry players to be able to improve and create learning methods that will improve quality of college graduates (Batmetan & Palilingan, 2022). Universities must produce competitive and quality human resources so that students become leaders and thinkers of the nation who will determine the development of their country in the future (Batmetan et al., 2022).

This Learning Management System is a learning management system that is integrated online through an application. In dealing with the current Covid-19 outbreak situation, LMS plays a very important role in online learning activities, the only effort so that learning activities are not disrupted between teachers and students. Covid-19 is a new disease that has never been identified in humans. As of 30 January 2020, WHO has declared a public health emergency, one of which has become a global concern. With the pandemic, learning activities are carried out at each other's homes or online. The effectiveness of using LMS is influenced by many factors. Good adaptation and adoption also greatly determine the increase in LMS effectiveness (Saleppa et al., 2022). There are many things to consider when making the switch from offline to online like this. As Aydin and Tasci said, 4 factors determine e-learning, namely technology, innovation, people, and self-development. Of course, what needs to be considered for development is also the enthusiasm for learning or motivation to learn from the students themselves to use the LMS effectively. Not apart from the mission as a teacher, the resource persons here are encouraged to make learning materials more creative for students. The preparation of this article is an effort to achieve educational goals properly, in various objectives, many factors play an important and influential role in it, including the task and function of supervision aimed at improving the teaching and learning situation, to create a process of good interaction between education and students to achieve predetermined learning goals. Every teacher has a very important task in carrying out the learning process so that they can foster creativity, and critical thinking skills in solving problems and have motivation for students as a product of an education system. Regarding the obstacles to the spread of the Covid-19 pandemic and the presence of LMS technology, it can provide benefits for students to make it easier to access materials and assignments provided by teaching staff.

In the current era, lecturers and students are required to master information and communication technology to guarantee the implementation of the teaching and learning process for students online (Manggopa et al., 2022). The development of Information Technology which is growing rapidly requires students and teachers to master the world of IT. the use of e-learning as a learning medium during the Covid-19 pandemic is very suitable for application and has become a necessity for every user. Later this e-learning can be used for distance learning media both during the Covid-19 pandemic and after the pandemic ended. With E-Learning, later students and lecturers can send files related to learning materials and later this e-learning can gain insight and knowledge that does not only have to be face-to-face at school but later students and teachers can access the material. lessons through e-

learning both at home and where internet services are available. This e-learning program is intended for two levels of user access, namely lecturers and students. Each actor has different rights. access rights as an administrator for education data management, student data administration, and department administration. Access rights as a teacher can manage material, ask quizzes and discuss in the comments column. Access rights, because students can view material, work on questions and discuss in the comments column.

With LMS E-Learning, it allows students to flexibly pursue their educational process whenever they want, they can set their own time, and access e-learning websites according to their effective study time. The main advantage of LMS in tertiary institutions is that all educational materials can be collected in one place. Students can now access hard drives from a single platform instead of keeping separate student notes and learning resources and other important information. This reduces the risk of losing important data and makes online connections natural. First of all, cloud solutions allow students to view data from anywhere using a device with an internet connection. Distributing Learning Materials Effectively With LMS, all students can share learning materials both in class and remotely. Courses come with objectives, activities, and resources. This software even allows students to share textbooks online. Instead of bringing books to campus every day, students can include the latest topics on the class page. The aim of this study is to evaluate the use of learning management systems in universities.

METHOD

In this study, two combined methods were used, namely library research and surveys. The library research method also uses secondary data collected from informative articles, books, and magazines. This study is based on the author's opinion, supported by secondary data, and forms the basis for determining the debate on the use of learning management system (LMS) technology; used as online or online learning during this pandemic. This secondary data collection was carried out using the Science Direct database, Google Scholar, etc., with the criteria for articles in Indonesian and English, full text and also using keywords. The survey method is a data collection method in the form of a questionnaire, which is then distributed to respondents. Respondent responses in survey research allow researchers to make inferences and generalizations about the population the respondents represent. The reason for using this survey method is firstly the completeness of the data. The survey method is quantitative in nature, but in general, surveys conducted using simple statistical analysis tools (descriptive statistics) are usually simpler because they are only in the form of additional data or information. we use research instruments as in table 1

Table 1. research instruments

No	Question
1	How do you understand e-learning?
2	The university LMS E-learning system is easy to use
3	LMS E-learning system at university user-friendly

-
- 4 The LMS E-learning system makes it easy for me to share what I'm learning with my learning community
 - 5 How does your understanding of the use of e-learning improve the quality of learning (improvement of material dynamically, there is an interaction between lecturers and students intensive and communication learning without the limits of place and time) ?
 - 6 Learning interactivity through the LMS e-learning system provides a sense of pleasure/satisfaction
 - 7 The interactivity of learning through the e-learning system enhances motivation/enthusiasm to learn
 - 8 The interactivity of learning through the LMS e-learning system provides a sense of comfort/closeness between lecturers and students and fellow students student
 - 9 Having an LMS at university is enough to help the teaching and learning process during a pandemic
 - 10 The use of LMS at university already effective enough
 - 11 With the LMS at university, I can save time
 - 12 I often have difficulty accessing materials through the LMS
 - 13 Learning on campus and at LMS is the same
 - 14 The use of LMS at university has been effective for use in online learning today
 - 15 By using the LMS I can manage my study time and complete assignments on time
-

RESULTS AND DISCUSSION

The results of this study indicate the various factors analyzed. The results can be explained as follows: The Figure 1 explains how students understand e-learning. Based on the distribution of this questionnaire, the highest responses were obtained from respondents who understood 19 people (61.3%), really understood 7 people (22.6%), did not understand 5 people (16.1%), and did not understand 0.

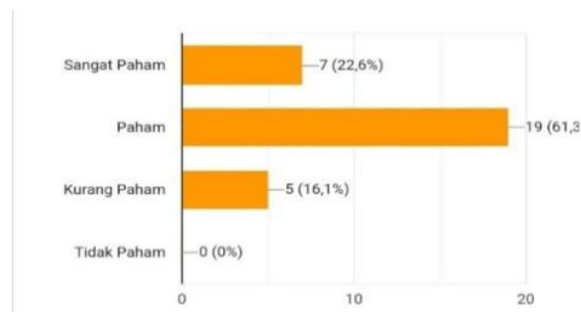


Figure 1. Result of students understand e-learning

Figure 2 explains the easy-to-use LMS E-learning system. Based on the distribution of this questionnaire, the responses to question 2 were obtained from respondents, namely the number of people who agreed 19 people (61.3%), Strongly agreed 7 people (22.6%), Disagree 5 people (16.1%) and Disagree 2 people (6.5%).

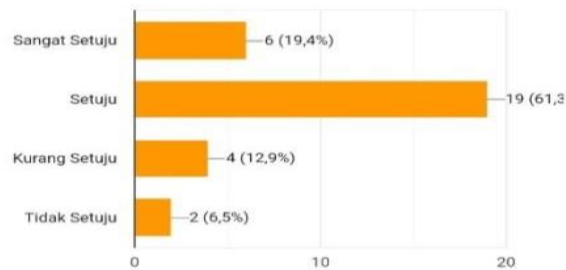


Figure 2. The easy-to-use LMS E-learning system

Figure 3 explains the university LMS E-learning system which is easy to use. Based on the distribution of this questionnaire, the responses to question 3 were obtained from respondents, namely number of people who agreed 15 people (45.1%), strongly agreed 6 people (19.4%), did not understand 9 people (29%) and disagreed 2 people (6,5).

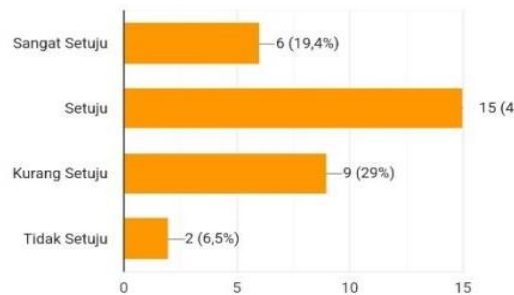


Figure 3. the university LMS E-learning system which is easy to use

Figure 4. explains the LMS E-learning System which can make it easier to share what is learned with the learning community. Based on the distribution of this questionnaire, responses to question 4 were obtained from respondents, namely the number of people who agreed 15 people (45.1%), strongly agreed 8 people (25.8%), did not agree 6 people (19.4%) and disagreed 3 people (9.7%).

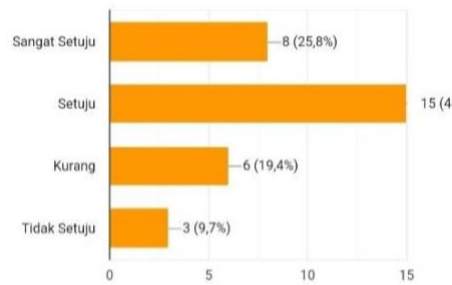


Figure 4. the LMS E-learning System which can make it easier to share what is learned with the learning community

Figure 5 explains students' understanding of the use of e-learning to improve the quality of learning. Based on the distribution of this questionnaire, the responses to question 5 were obtained from respondents, namely the number of people who agreed 20 people (64.5%), Strongly agreed 4 people (12.9%), disagreed 3 people (9.7%), Disagree 1 person (3.2%), Very good 2 people (6.5%) and 1 person (3.2%) Fairly good.

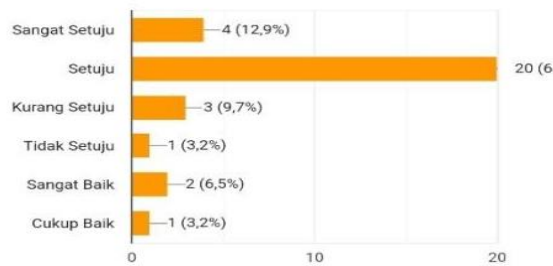


Figure 5. students' understanding of the use of e-learning to improve the quality of learning

Based on the distribution of this questionnaire, responses to question 6 were obtained from respondents, namely the number of people who agreed 17 people (54.8%), Strongly agreed with 4 people (12.9%), disagreed with 7 people (22.6%), and Disagree 3 (9.7%).

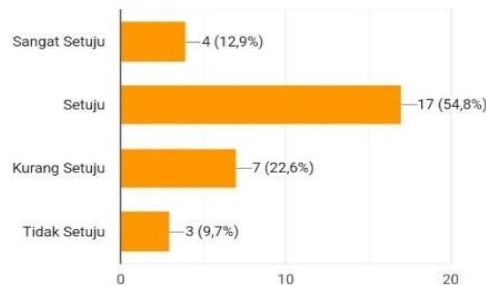


Figure 6. the Interactivity of learning through the LMS E-learning System which gives a feeling of pleasure/satisfaction.

Figure 7. explains the Interactivity of learning through the E-learning System increases motivation/enthusiasm for learning and gives a feeling of pleasure/satisfaction. Based on the

distribution of this questionnaire, responses to question 6 were obtained from respondents, namely the number of people who agreed 17 people (54.8%), Strongly agreed with 4 people (12.9%), disagreed with 7 people (22.6%), and Disagree 3 people (9.7%).

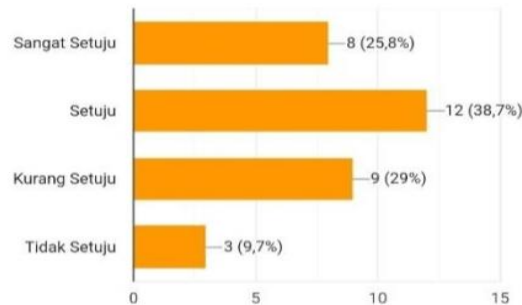


Figure 7. the Interactivity of learning through the E-learning System increases motivation/enthusiasm for learning and gives a feeling of pleasure/satisfaction

Figure 8 explains the interactivity of learning through the LMS E-learning System which provides a sense of comfort or closeness between lecturers and students and fellow students. Based on the distribution of this questionnaire, responses to question 8 were obtained from respondents, namely the number of people who agreed 15 people (45.1%), strongly agreed 6 people (19.4%), Disagree with 6 people (19.4%) and Disagree with 4 people (12.9%).

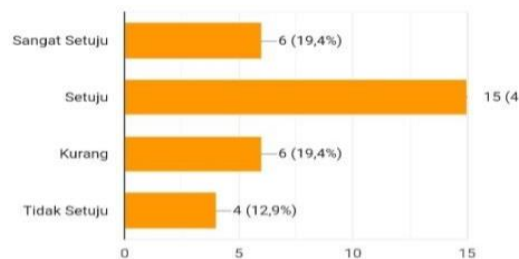


Figure 8. the interactivity of learning through the LMS E-learning System which provides a sense of comfort or closeness between lecturers and students and fellow students.

Figure 9. explains the LMS at unima which has been quite helpful in the teaching and learning process during a pandemic. Based on the distribution of this questionnaire, the responses to question 9 were obtained from respondents, namely the number of people who agreed 11 people (35.5%), strongly agreed 13 people (41.9%), disagreed 6 people (19.4%), and disagreed 1 person (3.2%).

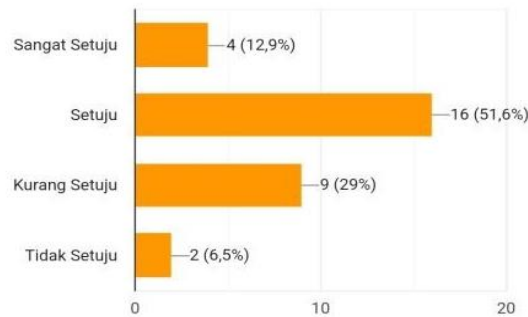


Figure 9. the LMS at university which has been quite helpful in the teaching and learning process during a pandemic.

In Figure 10. explains the use of unima which is quite effective. Based on the distribution of this questionnaire, the responses to the 10th question were obtained from respondents, namely the number of Agree 16 people (51.6%), Strongly Agree 4 people (12.9%), disagreed 9 people (29%), and disagreed 2 people (6.5%).

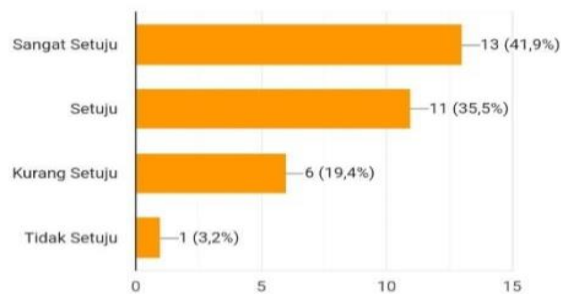


Figure 10. the use of unima which is quite effective

In Figure 11 explains the use of university which is quite effective. Based on the distribution of this questionnaire, the responses to the 11th question were obtained from respondents, namely the number of people who agreed 16 people (51.6%), Strongly agreed 4 people (12.9%), Disagree 9 people (29%) and Disagree 2 people (6.5%).

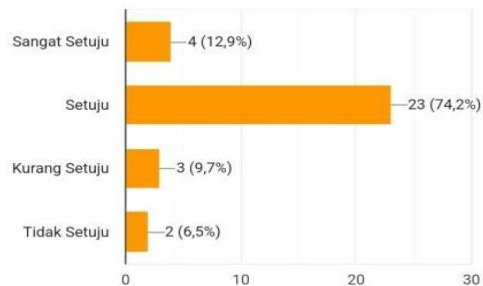


Figure 11. The use of university which is quite effective

In Figure 12. explains the difficulties in accessing material through the LMS. Based on the distribution of this questionnaire, the responses to the 12th question were obtained from respondents, namely the number of people who agreed 12 people (38.7%), Strongly agreed 5 people (16.1%), Disagree with 11 people (35.5%) and Disagree with 3 people (9.7%).

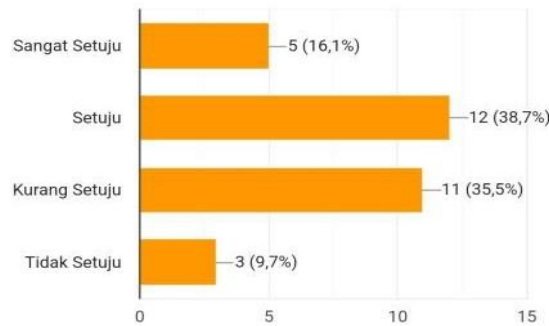


Figure 12. The difficulties in accessing material through the LMS

Figure 13 explains that learning on campus and at LMS is the same. Based on the distribution of this questionnaire, responses to question 13 were obtained from respondents, namely, the number of Strongly Agree 1 person (3.2%), Agree 7 people (22.6%), Disagree with 17 people (54.8%) and Disagree with 6 people (19.4%).

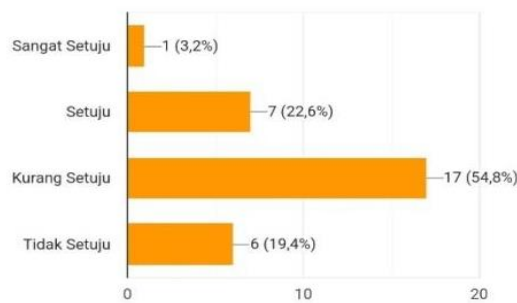


Figure 13. That learning on campus and at LMS is the same

Figure 14 explains that the use of LMS at Unima is effective enough to be used in online learning. Based on the distribution of this questionnaire, the responses to the 14th question were obtained from respondents, namely the number of people who strongly agreed 5 (16.1%), agreed 17 people (54.8%), Disagree with 5 people (16.1%) and Disagree with 4 people (12.9%).

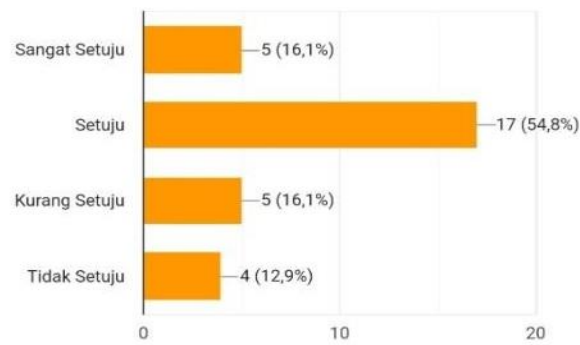


Figure 14. The use of LMS at university is effective enough to be used in online learning.

In Figure 15. explains the use of LMS to manage study time and complete assignments on time. Based on the distribution of this questionnaire, responses to the 15th question were obtained from respondents, namely, the number of Strongly Agree 9 people (29%), Agree 14 people (45.2%), Disagree with 7 people (22.6%) and Disagree with 2 people (6.5%).

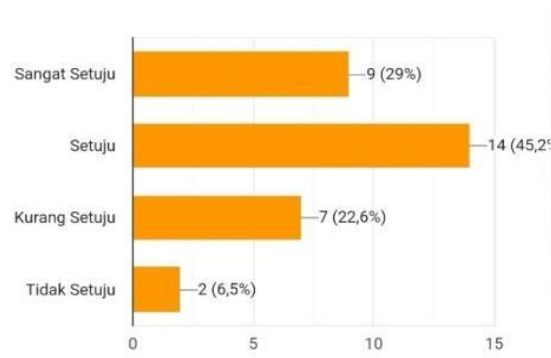


Figure 15. the use of LMS to manage study time and complete assignments on time

Learning Management System (LMS) is an online portal that connects lecturers and students. This technology provides a way for class material or activities to be shared easily and allows lecturers and students to interact outside the classroom (Adzharuddin in Squillante et al., 2014). With the Internet easily available and accessible in many places, it's easier for students and instructors to access assignments than ever before. Recent advances in learning technology have completely revolutionized e-learning to meet the growing needs of learning and e-learning. Advanced learning software now offers enhanced data collection and supports activities such as Learning Mobile and Gamification to achieve greater engagement, increase productivity, and encourage continuous learning and skills development. Research by the Brandon Hall Group shows that 54% of companies that invest in learning technology experience increases in productivity and engagement. In addition, 91% of these organizations also reported a stronger relationship between learning and organizational performance. LMS can save you time. It is estimated that e-learning saves up to 45% of your organization's time compared to classroom

learning. LMSs provide better engagement and retention LMSs allow you to easily incorporate quizzes, situation scenarios, and other interactive elements into your training. Gamification, messaging, and forums also contribute to a vibrant learning ecosystem. LMSs help universities maintain the integrity of their educational programs by enabling educators to develop courses effectively and efficiently, deliver instruction, facilitate communication, encourage collaboration among students, assess student success, and provide other learning resources for support. This information can be analyzed to detect patterns and gaps in learning for necessary remedial student support and overall classroom improvement.

Administrators can access class-based and university-wide reports to provide informed planning enhancements and professional development. Within the LMS, educators can integrate/align standards with curriculum/resources and assessments, and monitor student progress, activities, and other achievements for individual student learning goals and overall improvement initiatives/strategies. Teachers can set specific individual learning goals for students and give them immediate feedback on areas for improvement. The rapid development of new media, namely information and communication technology, makes the world feel smaller and space is not far away. Starting from the simplest means of communication in the form of radio and television to the internet and cell phones with wireless application protocols. Communication technology develops very quickly and enters the minds of many people. Communication technology can shape many ways of thinking, perspectives, life choices, and life goals, even the language of human communication is inseparable from technological developments. Internet users in Indonesia will reach 202.6 million people in early 2021. This number has increased by 15.5 percent or 27 million people compared to January 2020. Indonesia's total population currently stands at 274.9 million people. This means that internet penetration in Indonesia will reach 73.7 percent in early 2021 (Qadir, 2003:2). Communication technology facilitates human activities related to communication and everything related to human interaction. Advances in communication technology have also led to the availability of various types of sophisticated communication tools, one of which is a smartphone and the internet. Communication technology is increasingly helping people's lives, providing access to information that is not limited to humans and can facilitate communication (Qadir, 2003: 3). The development of communication technology has a major positive impact on human life. The Internet acts as an information conduit for new information and communication technologies. The Internet also makes it easier for users to communicate with people in the region and people around the world. According to a study by the Center for Innovation Policy and Management (CIPG), the level of internet penetration in Indonesia is currently the highest in Asia, currently reaching 51%. Even more surprising is the number of cell phone users. In 2016, it is estimated that there are around 371.4 million active mobile numbers in Indonesia. This number is even higher than the projected population of Indonesia (Saefullo, 2020). Almost all countries in the world use the internet, including Indonesia. In Indonesia alone, internet users are growing rapidly every year. Internet in Indonesia is used by many sectors, one of which is education.

The Internet plays an Important role in education because many students use the Internet themselves. The Internet has different characteristics from existing media (print and electronic). The internet has many benefits that are used by some circles, especially students in their learning.

Access to information for learning is now very open because of the emergence of the internet. Thus, the rapid internet technology can create a learning system that can facilitate learning which is commonly referred to as e-learning. Learning is designed using electronic or computer systems in such a way as to support learning (Michael, 2013:27). E-learning is an educational system or concept that utilizes information technology in the teaching and learning process. The existence of this e-learning was also used by several universities in Indonesia, one of which was Manado State University. E-learning has made it easy for communication between students and educators because communication can be done outside the classroom more easily and can be done anytime, anywhere. With e-learning, the lecture process does not have to gather in class and come to campus. Manado State University has an e-learning learning application called the Learning Management System (LMS). Learning facility users

This Management System (LMS) is Manado State University Lecturers and Students, and how to access it is through the LMS.unima.ac.id website. This system can help lecturers plan and create a syllabus, manage learning materials, manage student learning activities, manage grades, recapitulate student attendance, display grade transcripts, and manage e-learning displays. Because it is based on a digital application, in addition to making it easier for lecturers to plan online learning processes, it also makes it easier for students to access learning content from anywhere and anytime. Alias & Zainuddin 2005 added, LMS is a technology in the form of a networked web-based software application that is used to plan, implement, and assess bold learning processes (Alias and Zainuddin, 2005), LMS provides a way for instructors to design and deliver content. Learning, assignments, and integrating participation. Students, as well as assessing student achievement decisively. LMS can also give students the ability to use interactive features such as private chats, face-to-face videos, and discussion forums. Educational content and materials from the learning management system (LMS) Stored media can be reopened if necessary so that students can use the media as access to teaching and learning opportunities for students and teachers. As an example. Catalog of courses, lecture materials, discussion forums, quizzes, assignment uploads, glossaries, and discussions with students and other instructors. Online learning provides students with flexible and efficient pathways to access course materials, communicate with instructors, interact with classmates, participate in different online activities, and take assessments. Learning management systems have been widely used by postgraduate students as support in the form of blended learning at universities or colleges. According to (Fitriani, 2020) the Learning Management System (LMS) is an information technology system created to manage and support the learning process, deliver material, and a place for teachers and students to collaborate. Or According to (Anggriawan, 2019) LMS is also often defined as software that can store administrative needs, documentation, reports of activity, teaching and learning activities, and online activities. So it can be concluded that LMS is a software system that is used as an intermediary medium between teachers and students where it functions as a manager, supporter, and conveyer of material. In addition, LMS also manages administration, documentation, activity reports, and teaching and learning activities.

Therefore, during the Covid-19 pandemic when learning went online, the use of LMS was felt to be very important and needed. Many benefits can be felt by teachers and students if this LMS can be implemented properly and correctly. Among them is the first practical, as the results

of research (Anggriawan, 2019) stated that 92.50% of teachers agree with this option and 93.59% of students also agree that with the LMS learning becomes practical. Other studies also reveal the same thing, namely research conducted by (Haeruman et al., 2021) who agree with this option because LMS can be accessed anywhere, anytime, and without any additional costs other than internet quota. Second, it makes it easier for students to understand the material, this is in line with the statement from (Wibowo et al., 2014) that there is an additional understanding of the concept of the material for students after using the LMS. In addition, (Wati et al., 2021) show the same results where the presence of LMS tools such as Chamilo increases student understanding, this can be seen from the pretest and posttest scores which are at 0.582. Third, improve student learning outcomes. In the process of learning and teaching student learning outcomes become a benchmark for teachers in determining whether or not students pass the material, therefore in online learning LMS can improve student learning outcomes as research results from (Listiawan, 2016) where only 2.44% of all students who failed to pass the mathematics material using the LMS. Then, (Yana & Adam, 2019) also stated the same thing where the three LMS platforms that he used for research had the same results in increasing student learning outcomes. Likewise, the results of research (Setiawan & Aden, 2020) also prove that by using the LMS their academic abilities can increase. The fourth attracts students' interest, this is following research from (Listiawan, 2016) which states that 78.95% of lecturers and students are interested in learning to use the LMS. In addition to the advantages described above, the effectiveness of LMS does not only exist on one platform but also throughout such as Google Classroom which was researched by (Santosa et al., 2020), Schoology which was researched by (Widayoko, 2021), Moodle researched by (Pratama, 2018), and other applications such as Schoology, Quizlet, and Canvas researched by (Yana & Adam, 2019). Then this LMS is also not only good for certain subjects or courses but for various kinds of science as studied by (Listiawan, 2016), (Haeruman et al., 2021), and others. Also good for humanities subjects as researched by (Mualimah et al., 20 CE)

Based on the explanation above, the Learning Management System has a lot of good and positive influences on the conditioning of learning and teaching during online learning as it is today. Starting from its practicality, it can improve student learning outcomes, can increase student motivation, and makes it easier for students to understand the material. Therefore, the results obtained from the study of the article above show that the Learning Management System is effective for implementation by educational units, especially during online learning. Although there are some deficiencies in the results of the research (Widayoko, 2021) such as the level of student participation in discussions is very low, obstacles in submitting assignments, and inadequate internet networks. These things can still be anticipated by the teacher's role which must be emphasized again, where the teacher looks for learning methods that can increase the level of student participation in discussions, in addition, communication between students and teachers should not be interrupted so that if there are obstacles in submitting assignments or networking Inadequate internet can be assisted or facilitated by the teacher. E-learning is a form of information technology applied to the education sector in the form of a website that can be accessed anywhere via the internet. E-learning is a fundamental and logical consequence of the development of information and communication technology. With e-learning, students (students or students) do not need to sit in class and listen to each teacher directly, everything can be

obtained through e-learning. The benefits of e-learning are shortening study time and making learning costs more efficient. E-learning facilitates interaction between students and material, students and lecturers, or teachers with lecturers and classmates. Students can share information, and can repeatedly consult learning materials at any time to further strengthen their mastery of learning materials. Through e-learning, teachers and lecturers will also find it easier to update learning materials that are their responsibility according to the needs of the latest scientific developments, develop themselves or conduct research to add insight and control the learning activities of their students. Study anytime, anywhere (time and place are flexible). The advantages of using e-learning include flexibility, saving teaching and learning time, reducing travel costs, and the overall cost of education (infrastructure, equipment, books), and covering a wider geographical area. E-Learning features, namely content related to learning objectives. Using teaching methods such as examples and practices to assist learning, using media elements such as sentences and images to distribute content and learning methods. Elements of e-learning, namely what, how, and why e-learning includes content, namely information, and pedagogical methods, namely technology that helps people learn what is learned, how to use sentences and pictures by computers, why, and aims to help students achieve goals study or to complete the work. An important aspect of e-learning is the creation of formal and informal learning solutions, providing access to various learning resources, be it content or people, supporting groups or people to learn together, and bringing non-student learning into learning. The LMS provides in-depth insights that help schools and universities make more informed decisions. It also provides more insight into student performance than grades, attendance, and performance evaluations. The system can analyze records and other extracurricular activities status and generate comprehensive reports. In other words, it provides data to track learning progress. Therefore, the results obtained from the study of the article above show that the Learning Management System is effective for implementation by educational units, especially during online learning. Although there are some deficiencies in the results of the research (Widayoko, 2021) such as the level of student participation in discussions is very low, obstacles in submitting assignments, and inadequate internet networks.

CONCLUSION

This study concludes that overall, the evaluation of e-learning implemented at universities in North Sulawesi shows that the university has succeeded in implementing online learning technology that is effective and provides benefits to all parties involved in the learning process. Evaluation of e-learning at universities can help improve the quality of online learning and measure the success of its use. If the evaluation results show that e-learning at universities has given good results, several conclusions can be drawn, including E-learning at universities is effective in improving the quality of learning and providing a more interactive and flexible learning experience for students. E-learning has helped universities improve learning accessibility, especially for students who are far from campus or who have limited mobility. A positive evaluation of e-learning shows that the university has succeeded in implementing effective and efficient online learning technology. Good evaluation results can provide confidence for university managers to continue to develop and improve the use of e-learning as part of their learning strategy. A good evaluation can also provide an impetus for universities to promote e-

learning as part of their marketing strategy and attract prospective students who seek flexibility in learning.

REFERENCES

- Batmetan, J. R. (2022). Model Enterprise Architecture for Information Technology Services in Universities. *International Journal of Information Technology and Education*, 1(4), 18–34.
- Batmetan, J. R., Mamonto, J., Muyu, R., & Poluakan, C. (2022). Evaluation of Incident Management in University using IT Infrastructure Library Framework. *International Journal of Information Technology and Education*, 1(2), 103–108.
- Batmetan, J. R., & Palilingan, V. R. (2022). Management Model Development for The Techno-Entrepreneurship Learning Sustainability in Higher Education. *Indonesian Journal of Business and Entrepreneurship (IJBE)*, 8(3), 345.
- Bouchirika, Phd, I. (2022). Learning Management Systems for Education: Features, Benefits, and Challenges. Retrieved from <https://research.com/software/learning-managementsystems-for-education>
- Chahal, K. (2021, Nov. 1). Features of Learning Management Systems (LMS) for Improving Teaching and Learning. Retrieved from https://www.researchgate.net/publication/356578898_Features_of_Learning_Management_Systems_LMS_for_Improving_Teaching_and_Learning
- Chosa, I. (2011). Analysis Of The Relationship Of Multimedia Implementation In Learning Management System To Student Ability In Master Master Learning. Retrieved from https://www.academia.edu/5498774/analisis_hubungan_implementasi_multimedia_pada_learning_management_system_terhadap_kemampuan_mahasiswa_dalam_penggunaan_materi_pembelajaran
- Fakhruddin, AM ., Putri, LO ., Tanzilla Sudirman, PRA ., Annisa, RN ., & Berlian As, RK. (2022). LMS (Learning Management System) Effectiveness for Managing Distance Learning in Education Units. *Tambusai Journal of Education*, 6(2), 10026–10033. <https://doi.org/10.31004/jptam.v6i2.4010>
- Haydar, A., Priharsari, D., & Wicaksono, S. (2022). Learning Management System Analysis of Experience Students in Distance Learning (Case Study: FILKOM UB). *Journal Development of Information Technology and Computer Science*, vol. 6, no. 10, p. 4638–4645, ISSN 2548-964X.
- Ilmadi, I., Herlina, E., Isnurani, I., & Safari, D. (2021). Analysis of student satisfaction in online learning using lms moodle. *Histogram: Journal of Mathematics Education*, 5(2), 159–171. doi:<http://dx.doi.org/10.31100/histogram.v5i2.979>
- Learning, T. (2018). Management Systems, and How do you Choose One?. Retrieved from <https://360learning.com/blog/what-are-learning-management-systems-lms/>
- Liando, O. E. S., Kapahang, M. R., & Batmetan, J. R. B. (2022). Cloud Security Adoption Factors in Educational Institutions. *International Journal of Information Technology and Education*, 1(3), 117–123.

- Manggopa, H. K., Kumampung, D. R. H., & Batmetan, J. R. (2022). Understanding of Reading Literacy of Z Generation in the Digital Era: Evidence from North Sulawesi. *International Journal of Information Technology and Education*, 2(1), 210–219.
- Mardinger, R. (2021, May 21). What is an LMS? | Choosing the Right Learning Management System. Retrieved from <https://www.docebo.com/learning-network/blog/what-is-learningmanagement-system/>
- Munir, M. (2010). THE USE OF LEARNING MANAGEMENT SYSTEM (LMS) IN HIGHER EDUCATION: A CASE STUDY AT UNIVERSITAS PENDIDIKAN INDONESIA. *Journal Educational Horizon*, 1(1). doi:<https://doi.org/10.21831/cp.v1i1.222>
- Munir Munir, Muhammad Nurul Multazam, Chairil Anwar Korompot. (2022). Benefits and Difficulties in Using Learning Management System (LMS) in Paragraph Writing Class: A Study of a Lecturer's and Her Students' Perception." *ojs.unm.ac.id. JoEELE*, Jan. 1 2022. Web. Nov. 29 2022.
- O'Connor, M. (2020). 7 benefits of using a Learning Management System (LMS). Retrieved from <https://synergy-learning.com/blog/7-top-benefits-of-using-alearningmanagementsystem-lms/>
- Ohiri, M. (2022). LXP Vs LMS: Benefits, Features, Users, Content Compared To Help You Choose In 2023. Retrieved from <https://www.educate-me.co/blog/lms-vs-lxp-differences>
- Pratomo, IWP, & Wahanisa, R. (2021). Utilization of Learning Management System (LMS) Technology at Unnes During the Covid-19 Pandemic.
- R, A., & Retnowardhani, A. (2022). Satisfaction Level of Postgraduate Student E-Learning Users Best Private University in Jakarta. *ITEJ (Information Technology Engineering Journals)*, 7(1), 9 - 21. <https://doi.org/10.24235/itej.v7i1.97>
- RMIT University, A. (2019). Utilization of Learning Management Systems (LMSs) in higher education systems: A case review for Saudi Arabia. Retrieved from https://www.researchgate.net/publication/331694881_Utilization_of_Learning_Management_Systems_LMSs_in_higher_education_system_A_case_review_for_Saudi_Arabia
- Saleppa, M. L., Waworuntu, J., & Batmetan, J. R. (2022). Analisis e-Learning Readiness Pada Sekolah menengah Kejuruan. *Edutik: Jurnal Pendidikan Teknologi Informasi Dan Komunikasi*, 2(2), 184–192.
- Sam, Noer & Idrus, Reski. (2021). Development of E-Learning Media Based on Learning Management System (LMS) in the Era of the Covid-19 Pandemic. *Basicedu Journal*. 5. 4271-4280. 10.31004/basedu.v5i5.1503.
- Setiaji, A., Wulandari, DR and Hadisuddin 2022. Utilization of the learning management system (lms) as a learning media in the faculty of social sciences and political science, tadulako university. *Kinesics*. 9, 1 (May 2022), 62-70. DOI: <https://doi.org/10.22487/ejk.v9i1.337>.
- Team, G. (2021). The Pros & Cons of Learning Management Systems. Retrieved from <https://www.goguardian.com/blog/learning-management-systems-pros-cons>
- US Department of the Interior, B. (2020, Nov. 22). Learning Management System (LMS). Retrieved from <https://www.bie.edu/landing-page/learning-management-system-lms>
- Wibowo, A., Akhlis, I., & Nugroho, S. (2015). Development of a Web-Based LMS (Learning Management System) to Measure Students' Understanding of Concepts and Character. *Scientific Journal of Informatics*, 1(2), 127-137. doi:<https://doi.org/10.15294/sji.v1i2.4019>