

PAPER • OPEN ACCESS

Learning Management System (LMS) Based On Moodle To Improve Students Learning Activity

To cite this article: N H S Simanullang and J Rajagukguk 2020 *J. Phys.: Conf. Ser.* **1462** 012067

Recent citations

- [Ganesh Dash *et al*](#)
- [Utilization of Moodle in Teaching Undergraduate Students in West Africa](#)
Kalyan Kumar Sahoo *et al*

View the [article online](#) for updates and enhancements.



240th ECS Meeting

Digital Meeting, Oct 10-14, 2021

We are going fully digital!

Attendees register for free!

REGISTER NOW



Learning Management System (LMS) Based On Moodle To Improve Students Learning Activity

N H S Simanullang¹, J Rajagukguk¹

¹ Department of Physics, Medan State University, Willem Iskandar Pasar V,
Medan Estate 20221, Indonesia

* nurhudashadriani@gmail.com

Abstract. Learning Management System (LMS) is an application software that used to help in the online learning process. Moodle is one of the most popular LMS applications and is very appropriate for online learning study. Moodle has various features that are able to support student activities online. Some learning activities supported by moodle are (1) Videos ; (2) Discussion forums; (3) Chat; (4) Materials; and (5) Quiz. This research is a quasi-experiment research that is research conducted to see the effect a treatment of the sample in this research is students. The aims of this research is to look at student learning activities that are learned in online using by LMS based Moodle applications.

1. Introduction

Technology has developed rapidly now both among adults and elderly. Technology has both positive and negative sides. However, technological progress cannot be avoided even though it has a negative impact. The world of education has become one of the platforms for technology to develop rapidly, therefore we must be able to build positive technology in the world of education. Education formal in Indonesia is education carried out at school take a face to face. This education long time as implemented and feel, however there are some problems that often appears when face-to-face. One of the problem is limited face-to-face time in class. Inefficient time efficiency becomes a problem for students to be able to do learning activity completely and accurately. Some student activity becomes stop when the learning time is over so that learning objectives are not able maximally. Students learning activity is the activities that will build students' knowledge if the student learning activity can not working well, then knowledge can not be perfectly in accordance with the learning objectives that have been set.

E-learning is a process education in electronic form through internet network or the internet with the use of management system for education [1]. The term e-learning is attempt to make a transformation of the learning process in schools or university into a digital to be connected to internet technology [2]. E-learning is one of the solutions to problems that often happens during learning, that it limited face-to-face time [3]. E-learning is able to make students to do learning activities completely without limited face to face time in class. E-learning is formed from the technology advances by involving LMS based on Moodle.

Learning Management System (LMS) is an application software used to assist in the learning process in E-learning [4]. According to Ryan K. Ellis in the book A Field Guide to Learning Management System (2009: 1), " Learning Management System, the basic description is a software application that automates the administration, tracking, and reporting of training events ". LMS has



two main objectives that is to make learning more independent and make it possible for LMS users to register, save, manage, publish learning via the web and print documents available through the LMS [5]. LMS provides flexibility for users to be able to create and manage learning in accordance with the aims and learning objectives[6]. There are 2 types of LMS, that is (1) Proprietary LMS such as: Apex Learning, Blackboard, Intralearn, SAP Enterprise Learning, Saba Software, and others; (2) LMS that are Open Source such as: A Tutor, Claroline, Dokeos, ILIAS, Moodle, Sakai, and others [7]. In this research, the researcher is chose Moodle because from the results of previous studies comparing several Open Source LMS applications from several sides, and stated that moodle is the most popular and best LMS application comparing to other LMS applications.

Moodle (Modular Object-Oriented Dynamic Learning Environment) was first made by Martin Daugiamas in August 2002 with Moodle version 1.0, all started when Martin saw many people who school that want to use the Internet beastly, so that to motivate Martin to build e-learning is Moodle [8]. Moodle is an application program that can transform learning media into web forms. The benefits of the use of the LMS uses Moodle as online is very important, there are resolve the limitations of which are frequency face to face in the class. Moodle is provided free of charge as open source software (under the GNU Public License). That's mean even though it has copyright, moodle is still given the freedom to copy, use and modifying. Moodle can direct work without modification on Unix, Linux, Windows, Mac [9]. Moodle becomes one of the ways to improve the effectiveness of learning [10]. By using moodle students can conduct learning activities online. With moodle students are given the freedom to be able to access various learning materials, interact with their teachers and friends [11] so that didn't make static learning. Moodle has several features that can support online learning activities. Several activities learning that support by Moodle are (1) Video ; (2) Discussion forums; (3) chat; (4) materials; and (5) Quiz [12].

2. Methods

The type of research is Quasi Experiment that intended to know the influence of something imposed on the subject. This research begins with give selection of the right LMS moodle which is designed moodle according to the learning activities needed. Before going to moodle we applied moodle validated first to a validator who is an expert in e-learning media. Moodle that has been validated can be applied or used and measured the level of student activity using observation. Scheme of research implementation can be seen in Figure 1.

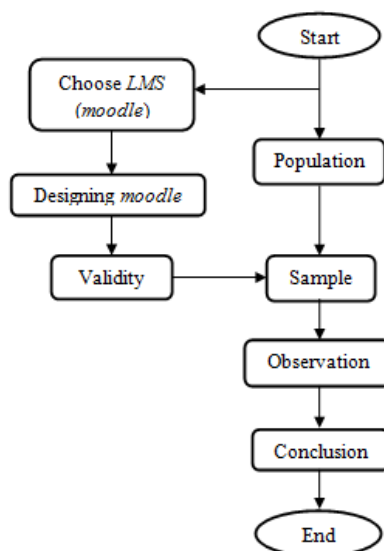


Figure 1. Scheme of research implementation

3. Results and Discussion

3.1. Moodle Design

In this research the LMS chosen is Moodle. Moodle is designed to support student activities in online. Next is the moodle appearance that has been designed for each student activity.

1. Moodle Login

To be able to access moodle, student must have their username and password to be registered by admin, that is teacher. After that student can login to moodle by accessing the link <http://e-learning.moodlecloud.com>. Student must insert username and password then click login. Login application moodle as shown in Figure 2.



Figure 2. Login Application Moodle

2. First Page Moodle

After success login to moodle, then the display of moodle will like a Figure 3. On this display will be seen courses, that have been created by admin and will be used in online learning. To be access to course, admin must activate student account. Finally, student can access and join the courses.



Figure 3. First Page Moodle

3. Activities in the Course

On a course that has been designed, there are some learning activities will be support student activities online. In this research, the course have five students activities on moodle. Every activities have different functions on learning. Activities in the course as shown in Figure 4.



Figure 4. Activities in the Course

3.2. Validity of Moodle E-Learning

Moodle that was designed in first was validated by two experts from the media validator. The aspects assessed in this validity are classified into three aspects: (1) Software; (2) Learning; and (3) Communication. From the result validity that researched do is obtained an average percentage of 91.67% and included in the criteria very well. The results of Moodle validity can be seen in the Figure 5.

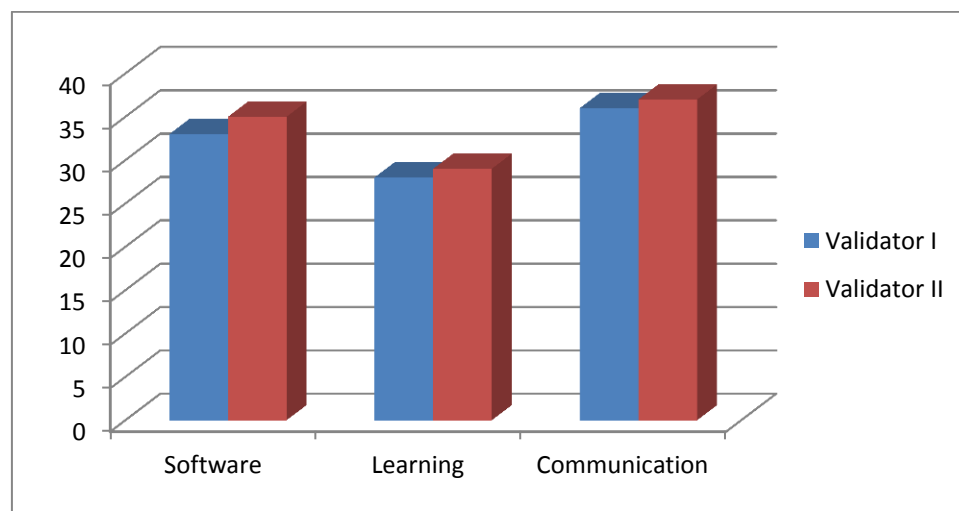


Figure 5. Data Results of Moodle Validity

3.3. Student Activities

In moodle there are five student activities that have been designed:

1. Video

The learning video presents a short video that has functions to construct the uniformity of students' first knowledge. Besides the learning video will be the motivation for students to explore the material that will be taught because with this video various questions will arise in the minds of students and will be a leap to dig deeper about the material to be taught. Learning video activities as shown in Figure 6.

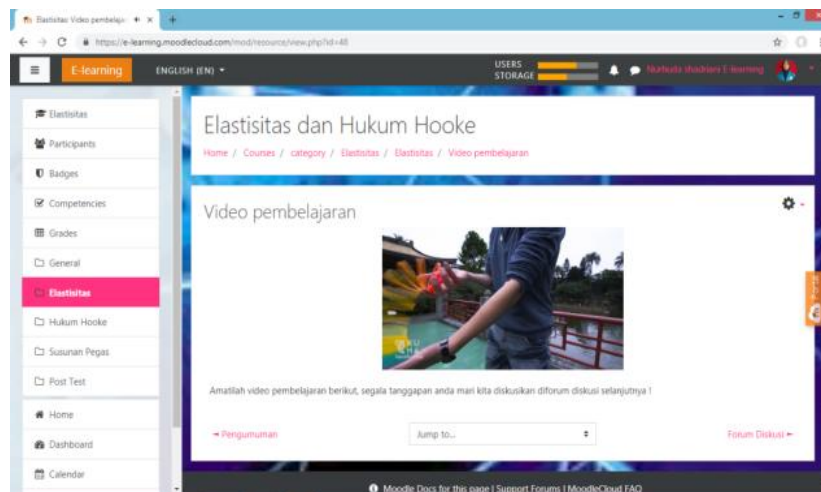


Figure 6. Learning Video Activities

2. Discussion forum

The forum activity discussion is a forum for conveying questions and answers that will be discussed together to be a hypothesis that will be reviewed for truth in the practicum. In this forum the teacher can see the activeness of students with the answers and responses given by students. Discussion forum activities as shown in Figure 7.

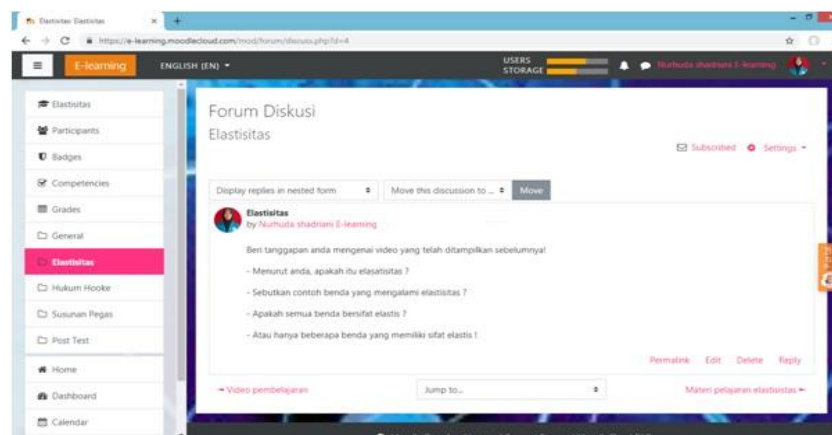


Figure 7. Discussion Forum Activities

3. Materials

This activity presents subject matter that will be discussed. The material will be presented in the form of PPT in order to increase students' enthusiasm in understanding it. This material will be a source of learning and guidance for students during the lesson. The materials activity as shown in Figure 8.

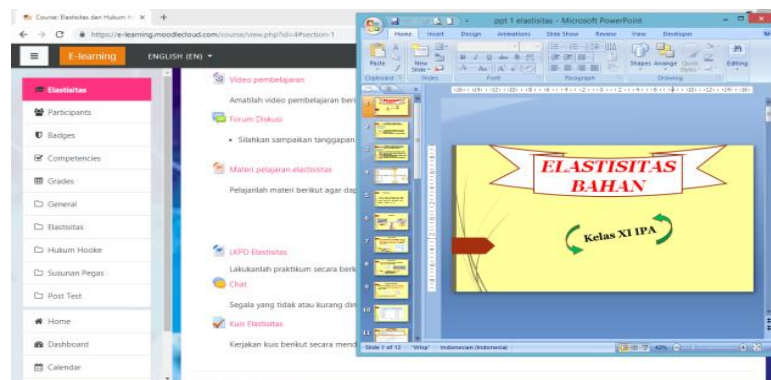


Figure 8. Activity Material Learning

4. Chat

One of activities that is often used and be favorite of students in moodle is chat. Chat activities are used by students to ask questions and discuss with the teacher and other friends about lessons that are not understood. Chat sent will be connected directly with the teacher and other students so that all can actively participate in responding to incoming chats. This activity is made so that students and teachers can still interact and communicate even though learning directly in online like a Figure 9.

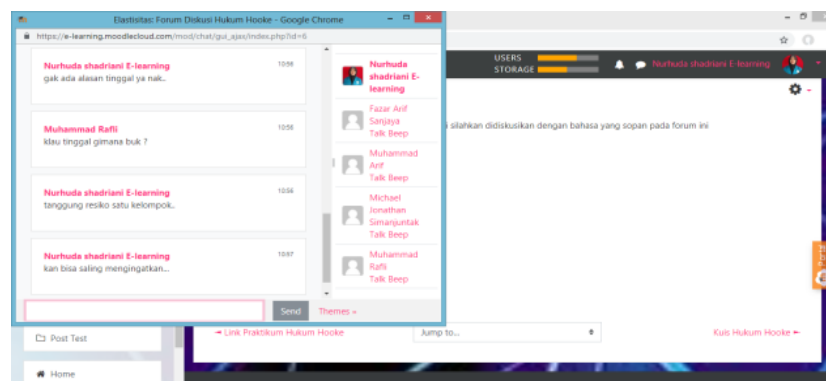


Figure 9. Display Chat Activity

5. Quiz

Quiz activities are designed to assess the ability of students on the subject matter that has been taught. Figure 10. Is quizzes that will be done by students. In this page there is a predetermined time limit and at the end of the quiz the results of student answers will be immediately displayed as a manifestation to increase student motivation and student knowledge

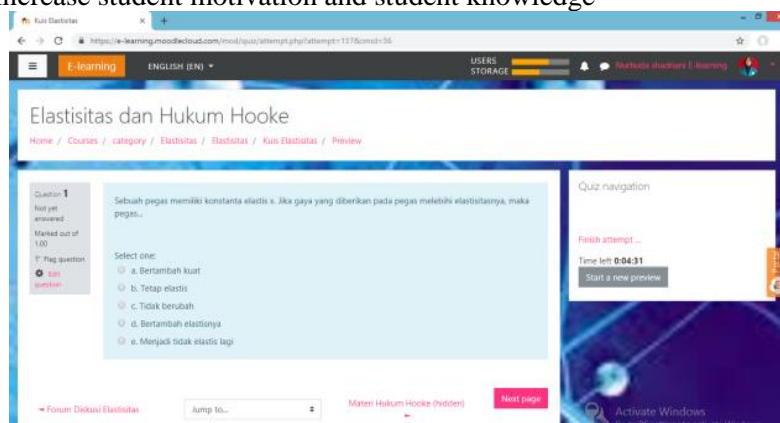


Figure 10. Display Quiz Activity

3.4. Learning Activity Assessment

The observation in this research is the observation to ward research subjects that do to know activities student is used LMS based moodle. There are ten indicators that will be assessed during learning are: neatness and order of students, discipline, readiness of learning support tools, readiness to receive subject, attitudes and behaviors, listening, answering questions, asking and responding to learning, discussion, and working on assignments. Assessment of student learning activities carried out by observers who have been determined by researchers.

The development of student learning activities has experience increased by using LMS based Moodle. The observations made indicate the average student learning activity is in the range of 83% - 90% which is the illustrates that each of indicators is in the very active category.

4. Conclusion

Based on the research results obtained, it can be concluded that the Moodle-based LMS can increase student learning activities though in even online. Thus each student learning activity can be carried out well without any constraints on the limitations of face-to-face time in class.

5. References

- [1] Chourishi D, Buttan C K, Chaurasia A and Soni A 2011 Effective E-Learning Through Moodle *International J. of Research (IJATER)* **1** : 34-38
- [2] Hanum N S 2013 Keefektifan E-Learning Sebagai Media Pembelajaran (Studi Evaluasi Model Pembelajaran E-Learning SMK Telkom Sandhy Putra Purwokerto), *J. Pendidikan Vokasi* **3** : 90-102.
- [3] Husamah 2014 *Pembelajaran Bauran (Blended Learning)*, Prestasi Pustaka, Jakarta.
- [4] Rusli M, Dadang H and Ni-Nyoman S 2017 Innovative Learning Multimedia , ANDI, Yogyakarta
- [5] Kurniawan M 2016 Use of ' F-Learn ' Moodle as a Learning Management System (LMS) at Satya Wacana Christian University, Proceedings of MMP 2016 **9** : 677-686
- [6] Hunt T 2013 Moodle: Basic Concept Lecturer Guide, Faculty of Education, Create
- [7] Cavus N and Teyang Z 2014 A Comparison of Open Source Learning Management Systems *J. of Procedia* **143** : 521-526
- [8] Haskari F A 2012 Modules for Using Moodle (Modular Object-Oriented Dynamic Learning Environment) *Sriwijaya University*, Palembang
- [9] Faesal A and Dasriani N G 2015 Design and Development of E-Learning Based Learning Aid Media for Programming Subjects *Matrix J.* **14** : 1-7
- [10] Sari A P Baedhowi and Cicilia D S I 2017 The Use of Learning Media with Moodle Approaches to Improve The Quality of Education: A Literature Study, *J. of ASSEHR* **158** : 54-59
- [11] Jebari K, Boussedra F and Ettouhami A 2017 Teaching Information Systems Management With Moodle, *Ijet Paper* **12** : 4-16
- [12] Suartama K and Dewa K T 2014 E-Learning Based on Moodle, Graha Ilmu, Yogyakarta