

THE USE OF LEARNING MANAGEMENT SYSTEM (MOODLE) FOR TEACHING STUDENTS' ENGLISH GRAMMAR

Cahya Komara & Aida Nur Annisa

University of Muhammadiyah Prof. Dr. HAMKA, Jakarta, Indonesia

cahya.komara@uhamka.ac.id

aidanurannisa@gmail.com

Abstract

This research reports the application of Learning Management System (Moodle) for teaching students' English Grammar at short period of time around June to July 2020 in one private university at Jakarta due to the Coronavirus pandemic outbreak arisen in Indonesia. We all know that the pandemic of covid-19 has forced students to learn from home in which the application of Learning Management System (LMS) such as Moodle becomes very popular and optimal. Thus, this research is concentrated to check whether or not the LMS Moodle positively provide better English learning situation (specifically grammar) for students. To cover the answer, this research was applied quantitative method with simply pre-experiment design which involved 1 experiment class who studied General English. The class consisted of 32 students, and the instruments were Pre and Post Test of Grammar Tenses. The treatment was given for 6 meeting. The result showed that the t-test were 1.70 for t-table while t-observed was 7.20. Since $t_o > t_t$ ($7.20 > 1.70$), it can be concluded that the use of Learning Management System (Moodle) was truly effective to be utilized for teaching students' English grammar.

Keywords: Efl students, grammar, learning management system, moodle

Introduction

Since the obligation of learn from home (LFH) or school from home (SFH) finally released and implemented at march 2020 by Indonesian Ministry of Education (<https://setkab.go.id>), the use of online Learning Management System (LMS) have grown massively and significantly in education sectors. We all see and feel today, that plenty teachers and lecturers from secondary school to university level are struggle to utilize and adapt with the asynchronous LMS platforms provided by vendors besides synchronous Zoom or GoogleMeet. Google Classroom, Schoology, Edmodo, and Moodle are few platforms or examples of LMS that are used by teachers and lecturers in Indonesia these days (Komara, 2020). Truthfully, some experts have already exposed or predicted in early 2000 that the upraise trends of LMS application is undeniable in the modern era (Kats, 2010). Then, the Covid-19 pandemic variable generates extra acceleration of the use of LMS in education matters. This is a new posture of

education system that we face today, and it should be embraced in the positive way. The growth of LMS users and activities are definitely for the good of online teaching and learning practices as a respond of the emerge of pandemic situation happend in Indonesia.

Learning Management System (LMS) itself is widely known by a software or platform that can integrate technological and pedagogical features into a sophisticated online learning atmosphere (Cavus, 2011). According to Kats (2010) the concrete features that accessible in Learning Management System are content creation, communication, assessment, and administration. In this platform, the students and teachers or lecturers are also provided by communication menu like chatting or creating a discussion forum on the LMS. Both the students and teachers are handy to interact and entree courses, materials, documents, and etc (Cavus, 2011). Furthermore, they are easy to do plenty other activities such as taking quiz, survey, or assessment formats in order to know their scores and grades (Kats, 2010). Learning Management System is truly a home of virtual learning specifically in this current situation.

In accordance with this potential outcome shown by the use of Learning Management System (LMS) in education sector, it becomes more interesting to test the platform in the context of English language teaching and learning particularly grammar. Crystal (2017) simply explained that grammar is the study of words combination in aims to make sense between speakers. We know this as “the rules of language” which is strict to its pattern. Normally, students in Indonesia are exposed with all English skills and sub-skills taught by their teachers or lecturers. However, students are more likely concern with learning grammar, since they know it is important although difficult (Crystal, 2003; Al-mekhlafi and Nagaratnam, 2011; Komara & Tiarsiwi, 2021). It creates issue whether or not students who are generally success to learn English Grammar through online virtual learning of LMS than conventional learning or face-to-face they usually do. Therefore, it is exciting to do the pre-experiment to see the effect of learning Grammar through LMS.

Shortly, this research focuses on the use of Learning Management System (Moodle) for teaching students’ English Grammar. The selection of Moodle is based on statistical fact that Moodle is is the largest open source LMS with a total of 289 million users in 243 countries (<https://stats.moodle.org/>). Besides, it claims as number 1 or top LMS software used for teaching and learning online in Indonesia (<https://trends.builtwith.com>). The usage percentage is almost 65% compared to other LMS brands used by many lecturers, teachers, and students in Indonesia. So, additional research is needed to enrich the evidence about the benefits of Moodle LMS in teaching English grammar for students. The researchers put ultimate question: Does the application of Learning Management System (Moodle) effective for teaching students’ English Grammar? The findings will show how significant this LMS Moodle for the attainment of students towards English Grammar in small scale context.

Literature Review

Learning Management System of Moodle is based on acronym of “Modular Object-Oriented Dynamic Learning Environment”. It is a type of Learning

Management System that provides various learning features, integration of various tasks, multimedia presentation (both internal and external), electronic delivery of teaching materials (such as documents, presentations, audio and video files), synchronous and asynchronous teacher-student and student-student communication (for instance chats, forums, and the testing and assessment of students' work) (Suvorov, 2010). Moreover, Moodle is a platform which is developed and designed based on the concept of social constructivism theory whereas knowledge is achieved through social collaboration between users (Singh, 2014). This demonstrates the supremacy of Moodle compared to similar platforms existed.

As it is already mentioned previously, Moodle is one of the largest LMS used globally compared to similar platforms (Plomteux, 2013). At first, this system was developed by Martin Dougiamas to provide opportunities for educators and students for online interaction and collaboration (Dougiamas & Taylor, 2003). Then, the system got development such as there are three user roles in this platform; 1) Administrators create courses for teachers and manage general settings, 2) Teachers manage one or more subjects. It can fill this with information for students, and 3) Students can take part in different subjects to which they have wide access. The use of the Learning Management System Moodle is also popular among many English teachers, lecturers, and students including in the sub-area of grammar. learning Teaching and learning English can be done easily through the use and utilization of this Learning Management System Moodle.

The researches of the Learning Management System (Moodle) in the context of teaching or learning English skills has been widely carried out such as by Suppasetserree and Dennis (2010), Nikmah (2015), and Gunduz and Ozcan (2017). The three studies discussed the role of the Learning Management System (Moodle) which can support and help improve students' English skills. Suppasetserree and Dennis (2010) focused on students in Thailand while Gunduz and Ozcan (2017) focused on students in Turkey who used Moodle to learn English for all skills and components. Meanwhile, Nikmah (2015) focused on school students in Indonesia and the context of reading learning.

Meanwhile, the use of LMS Moodle in the context of learning grammar has been suggested, one of them by Plomteux (2013) who assessed that Moodle helped students to master grammar sub-skills in their remedial classes. Next, other researches by Eskandari and Soleimani (2016), Bataineh and Mayyas (2017), and Pumjarean et al (2017) have successfully explored Moodle with the type of experimental research. Eskandari and Soleimani (2016) conducted a trial using Moodle on 35 students in Iran with a focus on Conditional Sentence material. The results of their research presented students who learned grammar in a virtual Moodle environment, they had a better growth in grades than the control class. Next, Bataineh and Mayyas (2017) who conducted a Moodle trial on 32 samples of students in Jordan. The results of the study showed that 32 samples in the experimental class who studied grammar with Moodle can improve their grammar test results so that it had an impact on the success of English-speaking students. Lastly, the results of the same research context were also conveyed by Pumjarean et al (2017) in their journal that 54 students in Thailand had experienced an improvement in grammar scores after studying with LMS Moodle. The three

studies above proved positive results regarding the Moodle application for teaching and learning English grammar.

In the Indonesian context, research examining the use of the Learning Management System (Moodle) in the English grammar area is still relatively few or rare. One of them by Thamrin et al (2019) revealed the survey findings or perceptions of 34 school students who studied English grammar using Moodle were good, and LMS Moodle increased students' motivation to learn grammar. Unfortunately, this study was limited to perception and did not carry out a trial that could provide comprehensive quantitative data regarding the presence or absence of significant changes in learning outcomes of grammar using the Moodle LMS. Therefore, this study will explore quantitative pre-experiment of the LMS Moodle used in Grammar online class, and thoroughly involving a specific sample context in order to reveal the impact of implementing this LMS Moodle. This research is focused to expose the gap.

Method

This research was conducted at the first semester students who studied General English in Communication Science Study Program, Faculty of Social and Political Sciences, Prof. Muhammadiyah University. Dr. HAMKA which is located at Campus A Jalan Limau II, Kebayoran Lama, South Jakarta. The timing of this research was between 3 June and 30 July 2020. The researchers applied quantitative method with a pre-experimental research design that involved simply 1 experimental class. This pre-experimental design or type was useful for measuring the effectiveness of using the Learning Management System (Moodle) used in small-scale students and more measurable trial (8 meetings) in a group of subjects studied. Fraenkel et al (2012) and Creswell (2014) agreed that quantitative methods with pre-experimental design are a form of testing a particular theory by examining 1 context of the research subject.

To notice first, 1A class has been selected as the experiment class with total 32 students. The researchers used research instruments in the form of pre-test and post-test with 30 questions of English tenses. The pre-test and post-test are used to see the differences before treatment and after treatment in the experimental class using the Learning Management System (Moodle). Researchers then calculated as well as analyzed the results of pre-test and post-test data by following the calculation of Kadir (2010) experimental analysis procedures, such as: 1) data frequency distribution analysis, 2) pre-test data requirements through the Liliefors normality test and Fisher homogeneity test, 3) and finally hypothesis testing (t-test) with the help of SPSS 25. Meanwhile, for getting final result, the researcher tested the hypothesis by following the t-test formula from Sudjana (2005).

Findings and Discussion

Findings

To give clear findings, the researchers put the score of pre-test and post-test of 32 students in the form of tabulations first below:

Table 1. The Score of Pre-test and Post-test Experiment Class

No	Respondents	Scores	
		Pre-Test	Post-Test
1	R-1	63	66
2	R-2	66	76
3	R-3	54	53
4	R-4	56	76
5	R-5	66	76
6	R-6	47	56
7	R-7	56	73
8	R-8	70	83
9	R-9	60	80
10	R-10	53	66
11	R-11	43	73
12	R-12	46	63
13	R-13	54	73
14	R-14	50	73
15	R-15	75	76
16	R-16	46	73
17	R-17	53	76
18	R-18	66	80
19	R-19	54	76
20	R-20	63	80
21	R-21	75	83
22	R-22	70	80
23	R-23	50	60
24	R-24	40	50
25	R-25	63	76
26	R-26	50	56
27	R-27	40	60
28	R-28	63	53
29	R-29	66	73
30	R-30	46	53
31	R-31	43	63
32	R-32	60	63
Average		56,56	69,37
Lowest Score		40	50
Highest Score		75	83

As we can see from table shown above, there have been collected 32 students' pre-test and post-test score. Overall, there were some differences in pre-test score compared to their post-test results. In addition, the mean score of 32 students' pre-test was shown by simply 56.56 average, meanwhile the mean score of students' post-test showed such upgrading by 69.37 average. Shortly, it can be initially known that the post-test mean score of 32 students were majority increased compared with their previous pre-test mean scores.

Next, two pre-requisites analysis; *Lilieforse* test and *Fisher* test were applied to verify the normality and homogeneity of both pre-test and post-test scores of experiment class. The researchers need to put hypothesis on the context as follows: H_i (The data of experiment class is not normally distributed if <0.05) and H_o (The data of experiment class is normally distributed if > 0.05). The findings can be seen in the following table 2 and 3 below:

Table 2. Normality Pre-Test

X	Zi Score	Zi Range	F (Zi)	S (Zi)	S(Zi) - F (Zi)
40	-1,750792812	0.4599	0,039990803	0,03125	-0,008740803
40	-1,750792812	0.4599	0,039990803	0,0625	0,022509197
43	-1,433668076	0.4236	0,075833503	0,09375	0,017916497
43	-1,433668076	0.4236	0,075833503	0,125	0,049166497
46	-1,11654334	0.3665	0,132094815	0,15625	0,024155185
46	-1,11654334	0.3665	0,132094815	0,1875	0,055405185
46	-1,11654334	0.3665	0,132094815	0,21875	0,086655185
47	-1,010835095	0.3438	0,156047681	0,25	0,093952319
50	-0,693710359	0.2549	0,243931934	0,28125	0,037318066
50	-0,693710359	0.2549	0,243931934	0,3125	0,068568066
50	-0,693710359	0.2549	0,243931934	0,34375	0,099818066
53	-0,376585624	0.1443	0,353240787	0,375	0,021759213
53	-0,376585624	0.1443	0,353240787	0,40625	0,053009213
54	-0,270877378	0.1064	0,393242672	0,4375	0,044257328
54	-0,2709	0.1064	0,393242672	0,46875	0,075507328
54	-0,270877378	0.1064	0,393242672	0,5	0,106757328
56	-0,059460888	0.0199	0,476292509	0,53125	0,054957491
56	-0,059460888	0.0199	0,476292509	0,5625	0,086207491
60	0,363372093	0.1406	0,641836527	0,59375	-0,048086527
60	0,363372093	0.1406	0,641836527	0,625	-0,016836527
63	0,680496829	0.2517	0,751905035	0,65625	-0,095655035
63	0,680496829	0.2517	0,751905035	0,6875	-0,064405035
63	0,680496829	0.2517	0,751905035	0,71875	-0,033155035
63	0,680496829	0.2517	0,751905035	0,75	-0,001905035
66	0,997621564	0.3389	0,84076855	0,78125	-0,05951855
66	0,997621564	0.3389	0,84076855	0,8125	-0,02826855
66	0,997621564	0.3899	0,84076855	0,84375	0,00298145
66	0,997621564	0.3899	0,84076855	0,875	0,03423145
70	1,420454545	0.4222	0,922262304	0,90625	-0,016012304
70	1,420454545	0.4222	0,922262304	0,9375	0,015237696
75	1,948995772	0.4738	0,974352035	0,96875	-0,005602035
75	1,948995772	0.4738	0,974352035	1	0,025647965

Table 3. Post-Test Normality

X	Zi Score	Zi Range	F (Zi)	S (Zi)	S(Zi) - F (Zi)
50	-1,929780876	0.4726	0,026816997	0,03125	0,004433003
53	-1,630976096	0.4484	0,051447682	0,0625	0,011052318
53	-1,630976096	0.4484	0,051447682	0,09375	0,042302318
53	-1,630976096	0.4484	0,051447682	0,125	0,073552318
56	-1,332171315	0.4082	0,09140195	0,15625	0,06484805
56	-1,332171315	0.4082	0,09140195	0,1875	0,09609805
60	-0,93376494	0.3238	0,175212579	0,21875	0,043537421
60	-0,93376494	0.3238	0,175212579	0,25	0,074787421
63	-0,634960159	0.2357	0,2627272	0,28125	0,0185228
63	-0,634960159	0.2357	0,2627272	0,3125	0,0497728
63	-0,634960159	0.2357	0,2627272	0,34375	0,0810228
66	-0,336155378	0.1293	0,36837685	0,375	0,00662315
66	-0,336155378	0.1293	0,36837685	0,40625	0,03787315
73	0,361055777	0.1406	0,640971124	0,4375	-0,203471124
73	0,361055777	0.1406	0,640971124	0,46875	-0,172221124
73	0,361055777	0.1406	0,640971124	0,5	-0,140971124
73	0,361055777	0.1406	0,640971124	0,53125	-0,109721124
73	0,361055777	0.1406	0,640971124	0,5625	-0,078471124
73	0,361055777	0.1406	0,640971124	0,59375	-0,047221124
76	0,659860558	0.2422	0,745328341	0,625	-0,120328341
76	0,659860558	0.2422	0,745328341	0,65625	-0,089078341
76	0,659860558	0.2422	0,745328341	0,6875	-0,057828341
76	0,659860558	0.2422	0,745328341	0,71875	-0,026578341
76	0,659860558	0.2422	0,745328341	0,75	0,004671659
76	0,659860558	0.2422	0,745328341	0,78125	0,035921659
76	0,659860558	0.2422	0,745328341	0,8125	0,067171659
80	1,058266932	0.3531	0,855033118	0,84375	-0,011283118
80	1,058266932	0.3531	0,855033118	0,875	0,019966882
80	1,058266932	0.3531	0,855033118	0,90625	0,051216882
80	1,058266932	0.3531	0,855033118	0,9375	0,082466882
83	1,357071713	0.4115	0,912620787	0,96875	0,056129213
83	1,357071713	0.4115	0,912620787	1	0,087379213

From the calculation of *Liliforse* Normality test using SPSS above, it was found that data is **normally distributed**; thus, H_0 was accepted. Afterwards, the researchers must test and compare the pre-test and post-test scores through the Fisher's homogeneity test. The hypothesis was proposed first; H_0 (The variance data of experiment classes is homogeneous if $F_{\text{observed}} < F_{\text{table}}$), then H_a (The

variance data of experiment classes is not homogeneous $F_{\text{observed}} > F_{\text{table}}$). The results were exposed in table 4 below:

Table 4. Pre and Post-Test Homogeneity

Class	Test	Fisher		Sig	Remark
		F			
Experiment	Pre	100.887	112	1.84	Homogen
	Post	89.67			

Based on the table 5 above, it was obtained that the pre-test variance (s^2) score of experiment classes showed that $F_o < F_t$ which was smaller was $1.12 < 1.84$. It means the data was homogeny (H_o is accepted). Last, the t-test was conducted to determine the significant differences of pre-experiment class. The hypothesis was H_o is rejected if t-observed is higher than t-table. The degree of freedom (df) was 31, and t-table was 2.02. The result was shown in table 6 below:

Table 6. T-Test

Symbol	T-Test			Remark
	df	t_o	t_t	
\bar{x}_1	31	7.20	1.70	H_o Rejected / H_i Accepted

The result of table 6 above evidently showed that that t-observed (7.20) was smaller than t-table (1.70) which was $7.20 > 1.70$. It can be summarized that H_o is rejected and H_i is accepted. In conclusion, the LMS Moodle is accurately positive in helping students to master English grammar tenses. The researchers then visualized the final finding into curve below:

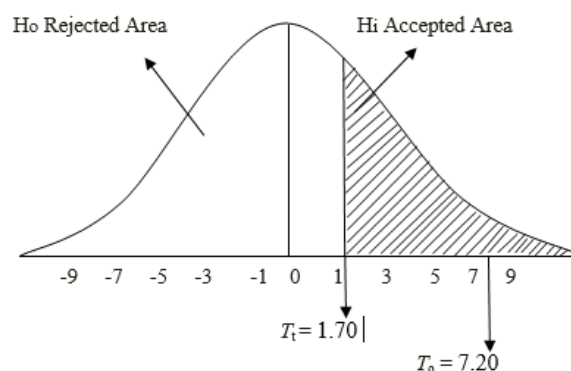


Figure 1. The T-Test Curve

Discussion

From findings of this research, it was acknowledged that there was a significant change or development seen from the average score of 32 students' grammar pre-test and post-test of experiment class. This was strong indication that there was a positive impact experienced by students after using and learning English grammar through LMS of Moodle. The t-test result which was $7.20 >$

1.70 in alpha (α) 0.05 presented that this research effectively rejected H_0 . Therefore, LMS Moodle can be claimed as effective to gain 32 students' grammar competence. The writer believes that this is because the complete features or menu of LMS Moodle that affords easiness. The students can learn English grammar as good as face to face learning. According to Chinyio and Morton (2006), the foremost principle of online learning platform is user friendly. Yildirim, Temur, Kocaman, and Göktaş (2004) supported this by stating LMS including Moodle must be designed dynamically, flexible, customizable and adaptable for the students as the main customers or users.

Above and beyond, Learning Management System (LMS) Moodle tends to be genuinely effective and efficient in supporting and facilitating students' English learning grammar since it is like a something organic and stimulating for students. Students may perform finding learning materials, conducting task submission, and completing quiz in single LMS Moodle. Turnbull, Chugh, and Luck (2020) have argued that LMS including Moodle suited with students' need to get knowledge and evaluate their achievement. In addition, the use of LMS Moodle, the researchers believed, it has shaped enjoyable learning for students in context of grammar. Learning grammar through LMS Moodle truly provided positive outcome for the students.

Conclusion

Based on the results of statistical calculations and research data analysis carried out through the t test, it is known that the value of t-observed is greater than the value of t-table, namely $7.20 > 1.70$ (with degrees of freedom = 31 and a significance level of 5%). That is, H_0 is connivingly rejected and the hypothesis (H_i) is successfully accepted. Thus, the researchers concluded from the results of this study that the use of the Moodle Learning Management System (LMS) was effective in having a positive and effective impact on improving student learning achievement of English grammar. In addition, the results of this study also confirm that the Moodle Learning Management System (LMS) platform is suitable to be applied to semester students in pandemic conditions where learning at Prof. Dr. HAMKA uses online or digital mode through e-learning classroom.

In connection with the conclusions described in the previous section, the authors can give some suggestions such as, the Moodle Learning Management System (LMS) platform has a positive impact on improving students' English grammar skills, so it is necessary to develop better, more measurable, and varied online learning material content according to the existing grammar learning theme. Next, by using the Moodle Learning Management System (LMS) Platform, researchers open opportunities and encourage other researchers to use this LMS in learning other English language skills such as reading, vocabulary, or writing which also requires students to actively learn online. Last, Researcher also hopes that the results of this study can be a reference and supporting literacy for implementing the Moodle Platform Learning Management System (LMS) in other subject areas or subjects, so that they can add to the knowledge of education which will also enrich sources or evidence pre-existing research.

References

- Al-mekhlafi, A. M., & Nagaratnam, R. P. (2011). Difficulties in teaching and learning grammar in an efl context. *International Journal of Instruction*, 4(2), 14–17.
- Bataineh, R. F., & Mayyas, M. B. (2017). The utility of blended learning in EFL reading and grammar: A case for moodle. *Teaching English with Technology*, 17(3), 35–49.
- Cabinet Secretariat of the Republic of Indonesia. Education minister to coordinate online education upon schools closures. <https://setkab.go.id/en/education-minister-to-coordinate-online-education-upon-schools-closures/>. Published March 16, 2020. Accessed April 25, 2021.
- Cavus, N. (2011). Investigating mobile devices and LMS integration in higher education: Student perspectives. *Procedia Computer Science*, 3, 1469–1474. <https://doi.org/10.1016/j.procs.2011.01.033>
- Chinyio, E., & Morton, N. (2006). The effectiveness of e-learning. *Architectural Engineering and Design Management*, 2, 73–86.
- Creswell, J. W. (n.d.). *Research design qualitative, quantitative, and mixed method approaches*. New York: SAGE Publications, Inc.
- Crystal, D. (2003). Language choices: Political and economic factors in three European states. In *Cambridge University Press* (2nd ed.). Cambridge: Cambridge University Press.
- David Crystal. (2017). *Making sense: the glamorous story of english grammar*. Oxford: Oxford University Press.
- Dougiamas, M., & Taylor, P. C. (2003). Moodle: using learning communities to create an open source course management system. *Proceedings of the EDMEDIA 2003 Conference*, Honolulu, Hawaii. <https://dougiamas.com/archives/edmedia2003/>
- EasyLMS. History of LMS. <https://www.easy-lms.com/knowledge-center/lms-knowledge-center/history-of-lms/item10401>. Accessed April 21, 2021.
- Eskandari, M., & Soleimani, H. (2016). The Effect of Collaborative Discovery Learning Using MOODLE on the Learning of Conditional Sentences by Iranian EFL Learners. *Theory and Practice in Language Studies*, 6(1), 153. <https://doi.org/10.17507/tpls.0601.20>
- Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). How to Design and Evaluate Research in Education, 8Th Edition. In *McGraw-Hill Higher Education* (Issue 0). McGraw-Hill.
- Gunduz, N., & Ozcan, D. (2017). Implementation of the moodle system into efl classes. *profile: issues in teachers' professional development*, 19(1), 51–64. https://doi.org/10.15446/profile.v19n_sup1.68571
- Kadir. (2010). *Statistika untuk penelitian ilmu-ilmu sosial*. Jakarta: Rosemata Sampurna.
- Kats, Y. (2010). *Learning management system technologies and software solutions for online teaching: Tools and applications*. Hersey, PA: IGI Global.
- Komara, C. (2020). Students ' view of learning management system (lms) used in online english learning class during covid-19 pandemic period. *Language*

- Teacher Training and Education International Conference, Sebelas Maret University, Surakarta, West Java, Indonesia Proceeding*, 71–85.
- Komara, C., & Tiarsiwi, F. (2021). *Exploring Indonesian EFL Learners' Perception of English Learning Grammar*. 6(2), 459–470.
- MoodleStatistics (2020). History of LMS. <https://stats.moodle.org/>. Accessed April 21, 2021.
- Nikmah, M. (2015). Developing moodle – based interactive online media to teach narrative reading in sman 13 semarang. *Vision: Journal for Language and Foreign Language Learning*, 4(1), 53. <https://doi.org/10.21580/vjv4i11633>
- Plomteux, B. (2013). Moodle to the Rescue to practice grammar in remediation classes. *ICT for Language Learning*, 102–105.
- Pumjarean, W., & Muangnakin, Patcharee Tuntinakhongul, A. (2017). The development of blended e-learning using moodle's lms for efl gramatical and writing instuction for first- year students in the english major. *Journal of Education and Social Sciences*, 7(1), 81–89.
- Singh, J. (2014). *How to use Moodle 2.7*. Moodle.org: Learnpub. <https://moodle.org/mod/data/view.php?d=55&rid=6824>
- Sudjana, N. (2005). *Metode statistika*. Bandung: Tarsito.
- Suppasetserree, S., & Dennis, N. (2010). The use of moodle for teaching and learning english at tertiary level in thailand. *International Journal of the Humanities*, 8(6), 29–46. <https://doi.org/10.18848/1447-9508/CGP/v08i06/42964>
- Suvorov, R. (2010). Using moodle in ESOL writing classes. *TESL-J*, 14(2).
- Thamrin, N. S., Suriaman, A., & Maghfirah, M. (2019). Students' perception on the implementation of moodle web-based in learning grammar. *IJOLTL: Indonesian Journal of Language Teaching and Linguistics*, 4(1), 1–10. <https://doi.org/10.30957/ijoltl.v4i1.552>
- Builtwith. Learning Management System Usage Distribution in Indonesia. <https://trends.builtwith.com/cms/learning-management-system/country/Indonesia>. Accessed April 21, 2021.
- Turnbull, D., Chugh, R., & Luck, J. (2020). Encyclopedia of Education and Information Technologies. *Encyclopedia of Education and Information Technologies*, August, 0–7. <https://doi.org/10.1007/978-3-319-60013-0>
- Yildirim, S., Temur, N., Kocaman, A., & Göktas, Y. (2004). What makes a good LMS: An analytical approach to assessment of LMSs. *Proceedings of the Fifth International Conference on Information Technology Based Higher Education and Training, ITHET 2004*, 125–130. <https://doi.org/10.1109/ithet.2004.1358150>