Using Moodle as Classroom Management, Assessment and Administrative Tools

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Abstract

Moodle is well known as an e-learning appliance that provides a cost-saving solution for institution as the learning management system and as accountability in assessing student's achievement. Moodle also provides additional plugin that is available for download and it can be installed freely without any charge needed. This research uses case study method since its purpose is to assess the effectiveness of Moodle in classroom management and assessment. The participants selected in this research are the students of English Study Program in University of Widya Dharma Pontianak in the academic year of 2021/2022 who were registered in Listening II subject. The data of this research were collected by using a questionnaire as the instrument and the data obtained were analyzed by using statistical analysis. The findings show that there were 63.69% of respondents who voted for positive responses related to Moodle usage as teaching learning instrument while 41.07% of respondents responded that Moodle is not suitable for substituting conventional based and 26.79% remained as abstain voters. Conventional based material used in traditional teaching learning consumes a lot of spaces not to mention the durability carried by the carrier.

Keyword: *E-Learning, Classroom management, Moodle, Assessment, Administrative*

INTRODUCTION

The COVID-19 pandemic that occurred in early March 2020 has changed the paradigm in humans in all fields and one of the areas that has been widely affected is the education sector. The development of learning methodology is inseparable from the development of science and technology where to meet the achievements in the development of IT (Informational Technology) infrastructure in an area that is affected or not affected, there are still several obstacles and one of the obstacles that become problems is financial constraints.

The common learning activities are still centered on classical activities where teaching and learning activities are carried out face-to-face in full which in general is in the morning until noon. The effective week of learning referring to the Minister of Education and Culture No. 81A of 2013 is a minimum of 34 weeks and a maximum of 38 weeks of effective learning week with an allocation of six hours of learning time per day and it mostly occurs at school.

The coverage of telecommunication services in each region is a problem in itself where most remote areas have not been reached by telecommunication services that are mobile or immovable. In addition to problems in the scope of telecommunications services, limited school facilities and infrastructure are also problem in the implementation of educational units in general even though the activities of educational units can be carried out as they should be.

According to Haryanto (2015), developments in the world of education cannot be separated from the dynamics of education that continue to develop. The speed of response in these changes in dynamics have an impact on developments in the competence, capabilities and skills of students, especially in significant changes in an era where information technology is constantly changing.

The outbreaks are not only affecting secondary school but also higher education sector. Higher education teaching hour is usually shorter than secondary school since the material delivered in more complex discussion and the activity day only limited to six days in common.

In the change of media, learning is also inseparable from the role of media as a social control that is developing rapidly in the technological age. The development of technology and information that continues to change makes individuals and even groups to change a learning pattern that was originally conventional to unconventional. This can be seen from the teaching-learning media as one of the concrete types of evidence that proves that teaching media can no longer continue to dwell on conventional media and one of them is the use of features provided by Google, namely Google Classroom. According to Griffiths (2017), changes in the learning system that occurred during the Covid-19 pandemic are categorized into the term deviance. Deviance is a deviation that occurs where the deviation has been agreed upon by the institution and the general public.

Distant classes for delivering effectivity in teaching learning process is never chosen before the outbreak. Unconventional method such as e-learning for continuity after normal teaching hour has become trend and self-learning carried after normal hour can be individually selected in order to enhance more delivered material. According to Nagler (2015), there are three basic things affecting learner's behavior towards classroom management which also affecting individuality based on their method in self-study, namely (1) learning involves changes in behavior, (2) behavior changes as results of consequences, and (3) behaviors are also influenced by classroom contexts.

THEORETICAL REVIEW

E-Learning

E-learning is a solution of overcoming classical way of delivering teaching learning process in a condition where student(s) are more focused to student centered learning. As the continuation of classroom activities, teacher usually transfers the discussed material(s) to other media so students can afford more time to access the material in different location. The future about modern learning will solely go through e-learning based on the effectiveness and the efficiency of its deployment. Chapelle (2003) mentioned that teacher needs to learn to use computer technology for constructing and implementing materials for teaching and assessing English.

Classroom Management

Classroom management is the ability or skills owned by an educator to manage the situation occurred in both regular and irregular teaching learning activity. In exercising classroom management, there are numbers of characteristics that might occur mostly in student's side that can be categorized as disruptive behavior. Korpershoek et al. (2014) explains that in classroom management, there are five types of action as the insurance of the classroom quality, namely (1) teacher/educator must develop caring, supportive relationships with and among students, (2) organizing and implementing instruction in ways that optimize students' access to learning, (3) encouraging students' engagement in academic tasks in which can be done in management method, (4) promoting the development of students' social skills and self-regulation, and (5) using appropriate interventions to assists students with behavior problems.

Assessment Test

Assessment test is an effort to obtain information from the learning process and outcomes to find out how well the student, class, or study program is performing compared to certain learning objectives/criteria/achievements. According to Tobin et al. (2015), there are

four steps in developing an assessment system, namely (1) identifying the institutional considerations that affect the evaluation process, (2) examining implementation considerations that guide the evaluation structure, (3) determining how data from the evaluation of online teaching will be used, and (4) designing summative process.

Moodle

Moodle is an open-source learning management system developed based on social constructionist pedagogy. It is a system that allows the student to learn based on their own point of view. The teaching learning process mostly concerns to student centered learning. There are many features provided by Moodle, such as (1) Assignment submission, (2) Discussion forum, (3) Document archiving, (4) Grading, (5) Chat, (6) Online calendar, (7) Online quiz. In addition to LMS platform, Moodle also serves as CMS (Course Management System).

Social Constructionist Pedagogy

Social constructivism in context of education is mostly focused on student centered learning. Social constructivism is the activity where information and activity are obtained in socialization between students. Brown (2000) explains that student improvement and classroom interaction are usually achieved through interaction. Interaction is the collaboration exchange of thoughts, feelings or ideas between two or more people. Through interaction, student's ability can be slowly developed and it is more possible in developing mentorship among classmates.

Online Teaching

Online teaching is a non-conventional teaching learning activity which delivers the same portion as conventional classes. Online teaching can be carried in two ways, namely live interaction by using video conference and assignment delivery. There are differences in teaching learning activity especially between conventional and non-conventional ways. Boettcher et al. (2016) mentions that the differences between online and conventional classes are getter smaller for two reasons: technology advances have made synchronous meetings and gatherings much easier, and brain and cognitive research have resulted in more active teaching learning strategies despite the environment being used.

METHODOLOGY

The method applied in this research was case study. Case study applied in this research is related to classroom management in administering presence system, examination process and the effectiveness in long term. Gall et al. (2003) mentions that there are four characteristics of case study, namely (1) the study of the phenomena by focusing on specific instances, (2) in depth study of each case, (3) the study of a natural phenomenon in its natural context, and (4) the study of the emic perspective of case study participants. In this research, the author is going to analyze the significant use of Moodle in classroom administration in administering classroom attendance and examination as well as the long-term usage for deploying e-learning appliances in Listening 2 class of English Study Program in University of Widya Dharma Pontianak. The author uses Moodle to measure the implementation and effectiveness in classroom management where the class management in question is the use of Moodle as a medium for recording attendance and a medium for giving exams or semester assessment processes.

In conducting the research, the author adopts Moodle and the data obtained from Moodle are from student's presence, questionnaire related to Moodle's effectiveness in classroom management and the examination results. After collecting the data, the author analyzes the

data collected to be used to justify the effectiveness of Moodle in future implementation for classroom management.

The author classified the research data by creating a table classification which consists of student's presence and the examination results available in Moodle. Case study applied in this research is to determine the effectiveness and the efficiency usage of Moodle in classroom management as the advance implementation for future usage as the substitution of paper-based administration.

The steps of case study in this research are defining the objectives in specific and clear terminology including (1) what problems encountered during Moodle's implementation and the solution to overcome the problem, (2) the proper infrastructure for implementing Moodle, and (3) how the students response related to Moodle's implementation in both presence system and examination.

The data were obtained from student's record stored inside Moodle's database and the data has been separated in two different parts, namely presence data and examination data. The steps of the data collection were preparing the infrastructure needed for Moodle's operation, managing student's user credential for accessing Moodle, creating course's credential needed, and categorizing separated parts into statistical data. The target data obtained from the research were students' votes related to Moodle's usage, students' presence system, and students' examination results.

FINDINGS AND DISCUSSION

Findings

There are three categories of data collected from the research related to the efficacy of Moodle in classroom management. The nine different responses were collected from 28 respondents and the results were taken from student's presence and examination results. There are ten responses collected from student's votes related to the research and the results of the vote are presented in the following figure.
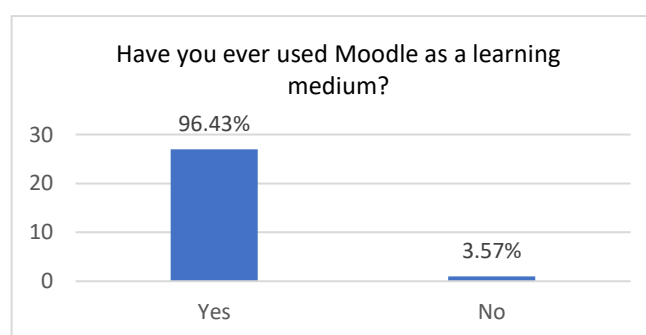

Figure 1. The number of Moodle users as learning medium

There are 96.43% of respondents have responded that they were familiar with Moodle as learning medium while only 3.57% of respondents have responded that they were not familiar with Moodle as individual.

Based on the data presented in Figure 2 below, 82.14% of respondents confirm that Moodle have provided full support for them in managing their attendance while the rest of 14.29% confirm that Moodle provided enough support in their attendance. 3.57% of respondents conclude that Moodle did not provide any support for attendance.
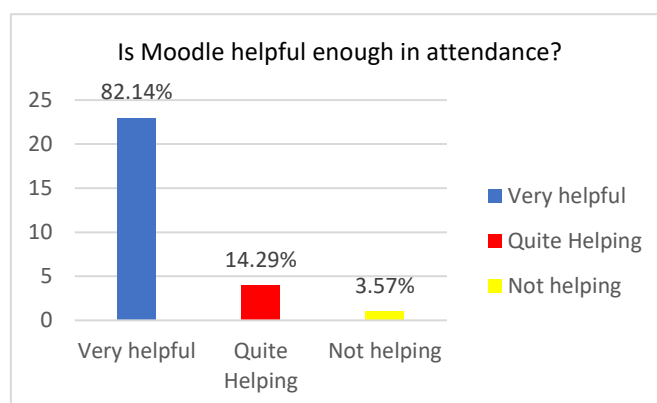
Figure 2. Moodle as supportive system for attendance

Attendance in conventional method is carried out in paper based but with the adoption electronic based system especially Moodle, the attendance system is well recorded since the students just have to log in into system and sign in their presence.
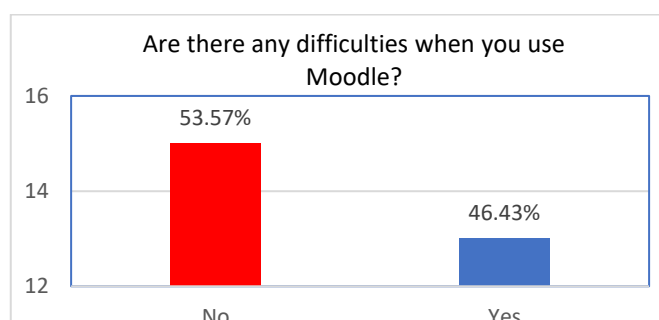

Figure 3. User who encountered problem when using Moodle

From the figure presented above, Moodle did not show any significant difficulties despite there are some respondents resulted in 46.53% encountering some difficulties when using Moodle. Some of the difficulties experienced by the students are slow moving site and trouble in logging in into the Moodle itself despite the user credential provided by the administrator.
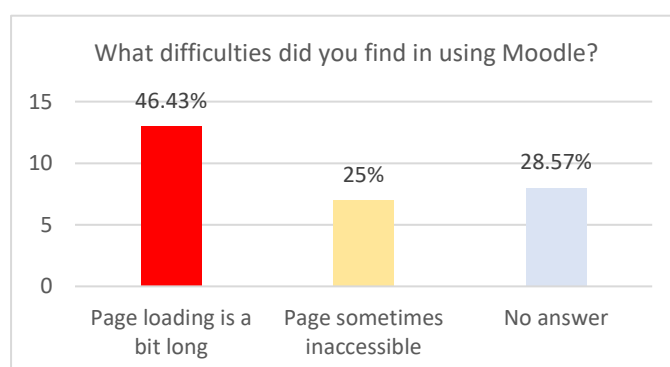

Figure 4. Difficulties encountered when using Moodle

The difficulties experienced by students when using Moodle are mostly dominated with website duration when loading. Longer webpage processing might affect students' schedule especially during examination since the time duration keep on rolling despite the difficulty experienced by students. Another difficulty is that the webpage is sometimes inaccessible

when needed which shares the same burden as webpage processing takes some time for complete processing. Slow moving webpage did not only affect students resided in urban area but also the students in rural area. In their study, Lase and Zaluchu (2022) explain about the problems occurred during online classes where infrastructure also affects other cases besides financial and social interaction. For infrastructure, not all telecommunication infrastructure can guarantee more to sustainability since regulation restricts the operator to distribute more completely to sustain community in large scale. Financial issue is also the problem in which the case involving financial issue refers to the number of budget allocation that must be allocated by either individual or institution to purchase additional quota/credit to engage the effectivity in online classes.
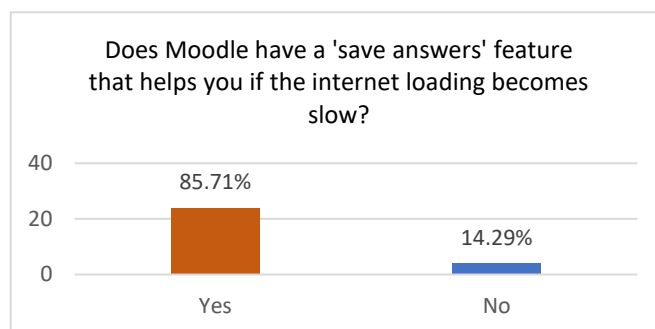

Figure 5. 'Save answer' feature provided by Moodle in response to internet delay

Despite the difficulties experienced by the student's as mentioned in the previous finding, Moodle provides the feature which enables the students to save their progress in the middle of examination in order to anticipate the problems that might occur during the activity. 85.71% of respondents agree with the feature since the feature saves a lot of time when the system suddenly becomes slow or some other technical problems might occur. Meanwhile, 14.29% of respondents did not use the feature during exam so when either problems occurred, some or even other progress by student's were not stored or saved by Moodle.

'Save answer' feature available in Moodle contains a side effect during implementation related to technological problems. Dymek et al. (2022) mentions that during online classes, complexity appears. The phenomenon appears like online discussion between classmates in maintaining contact as well as corresponding to their other friends. Such cases may also emerge as side effect like cheating or exchanging answers between classmates or friends. Social issue in this manner also concerns as the effect of 'save answer' feature available in Moodle.
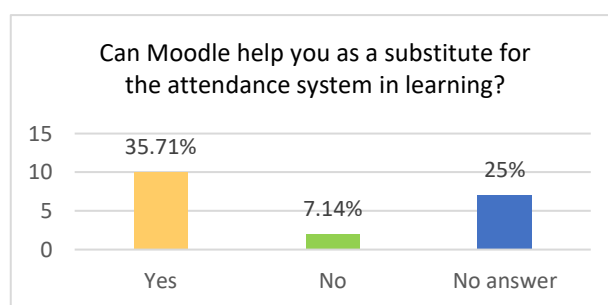

Figure 6. Moodle functioned as attendance system

During normal occasion in classroom activity, there is also an attendance system available to monitor the student's attendance. Beside as an LMS, Moodle also provides an attendance system for recording the students' activity and the feature is called 'Attendance'. 35.71% of respondents agree that Moodle is possible as substitute for the other attendance system especially the paper-based attendance system.
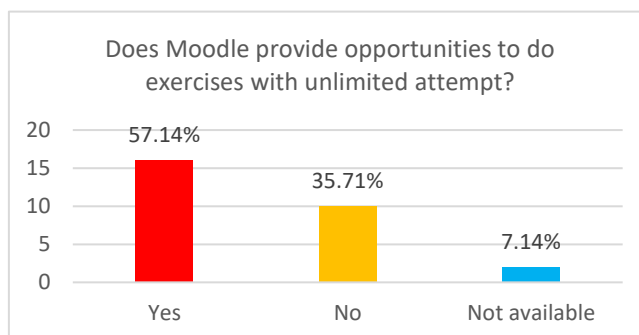
Figure 7. Unlimited attempt in assessing student's academic achievement

The attempt provided by Moodle helps students in preparing their readiness before exam. The data presented indicates that unlimited attempt as prepared by the system administrator resulted in 57.14% of votes. The number of percentages proves that besides preparing readiness, unlimited attempt also supports the students in familiarizing the test management especially the immediate issue of test results by showing the results from each attempt in the provided time.
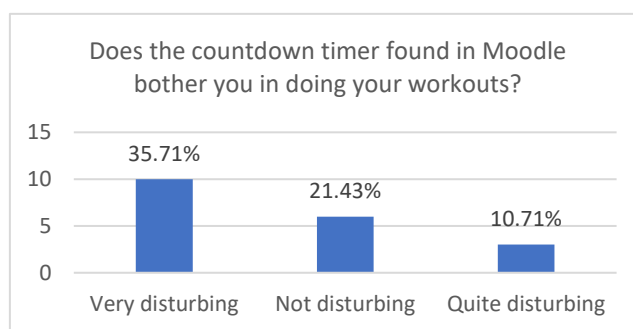

Figure 8. Moodle's countdown timer feature as indicator

Countdown timer displayed during activity disturbed the students during their attempt. Figure 8 shows that 35.71% of respondents confirm that the countdown timer displayed during examination urged or even forced them to speed up their works. In addition to issue in time duration, 21.43% of respondents confirm that they were not disturbed with countdown timer since the additional time is available to anticipate system downtime if unwanted case really happens during session.

Figure 9 below reveals that the use of Moodle as learning medium results in 67.86%. The result indicates that the students were still doubt to adopt Moodle as their learning medium. Some features in Moodle troubled the students like webpage loading duration which troubles the student when pursuing time efficiency.
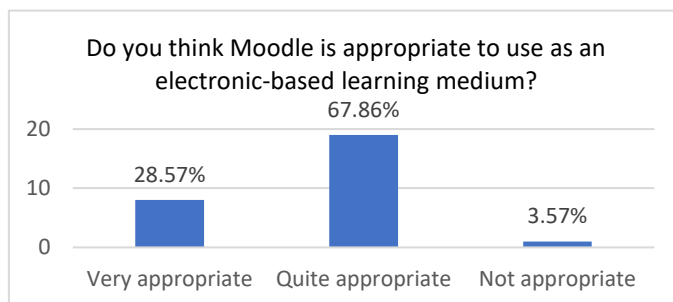

Figure 9. Number of respondents related to Moodle as learning medium

Discussion

Conventional method especially paper-based administration applied in both attendance and examination provides physical evidence as the prove of authenticity. Bach et al. (2007) mentions that there are four challenges effecting education sector in applying technology in teaching learning, namely (1) the quality and the suitability of IT implementation, (2) knowledge management in IT system administration, (3) time management or spending needed to do mentoring as the preparation for IT implementation, (4) culture and technology advancement.

Implementing Moodle in education has two types that usually appear during implementation and each of the implementation has its own challenges. Financial case also plays the major part in implementing Moodle in large scale such as preparing the physical infrastructure like purchasing larger server and subscribing higher bandwidth for stability and sustainable. The second type of implementation for clients, especially educational institution, is applying remote subscription without needing any large number investment in dealing with purchases. Such cases are common for the IT advance in the 21st century as the emerging of cloud technology.

Buchner (2016) mentions that there are three basic things related to Moodle's implementation that usually appear during pre-implementation stages. Those basic things are flexibility, scalability, and cost. The three basic things represent the policy making in each institution as individual. Flexibility has two different options in adopting Moodle whether the implementation can be physical infrastructure or cloud hosted. Scalability is about how many participants that the infrastructure itself can handle in separate session or how many concurrent users are in the same time based on the technical specification provided. Finally, the cost plays the major role deciding both flexibility and scalability. Economy is the key factor in applying modernization in all sector including education sector and technological implementation. The three basic things in applying Moodle can be seen below as the standard specification required.

Table 1. Technical specification for applying Moodle based on flexibility and scalability

Max number of concurrent users	Recommended setup
1 (to experiment locally)	Desktop, laptop, memory stick
20 (single class)	Public server or https://moodlecloud.com/en/
100 (small school / company)	Shared server
250 (large school / company)	Dedicated server
500 (medium-to-large college)	Dedicated application and database servers
+500 (university/corporate)	Load-balanced cluster

In addition to Buchner (2016), basic installation does not require many resources since the page content is only adopted to apprehend minor application such as attendance system and examination. The front page of Moodle LMS for this research can be seen in the following figure below.
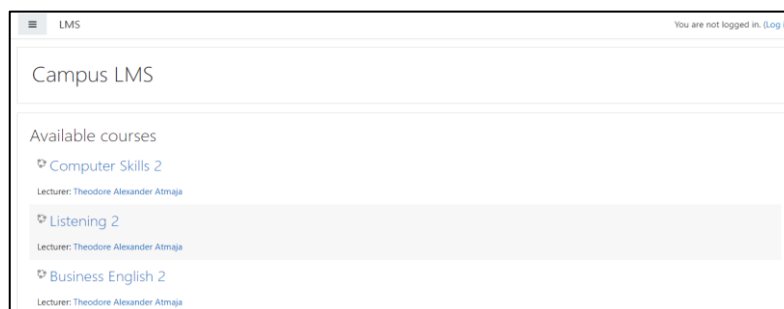
Figure 10. Moodle LMS main pages (http://noc7.ddns.net)

Each course listed in Moodle is organized by system administrator and the students from different courses are prepared and enrolled into specified courses and only assigned or enrolled students can have access to certain courses. Another feature provided by Moodle which supports the attendance system is the attendance plugin. Attendance system in Moodle is available through download and is categorized as plugin or additional feature. The feature enables the system administrator or teacher assigned by system administrator to manage students' attendance. The attendance is also included along with activity log or journal. The Moodle attendance system can be seen in the following figure.
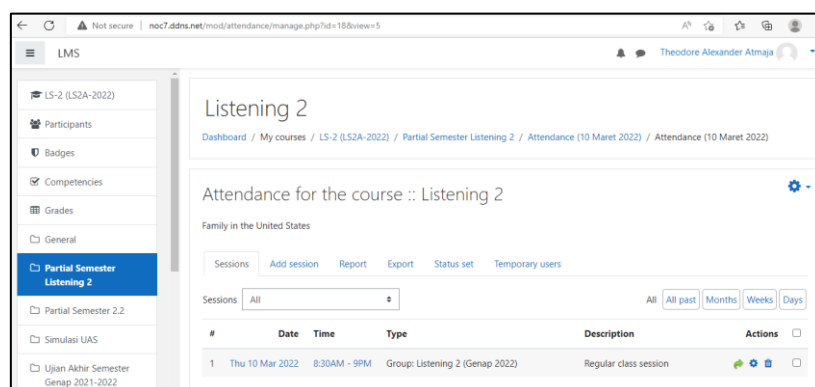

Figure 11. Moodle LMS attendance system

A process of learning activity either by live on site or virtual environment involves gadgets such as laptop, smartphone and other live interaction equipment. Traditional teaching-learning process usually encounters a live interaction between mentor/tutor and participant(s). In some case of additional learning processes, e-learning is another solution of solving the problem.

Administrative feature like attendance is another tool to assess students' behavior in class participation. The category of behavior mentioned in this part is students' credibility in managing their responsibility in marking their attendance. Ayres et al. (2022) mention that besides attendance feature, Moodle proves effective as teaching learning tool with the built-in feature such as discussion forum in enabling students to collaborate more in doing their task and a number of different question pools in delivering variation of student's assessment.

Watkins et al. (2011) mention that in managing e-learning, there are three things that need to be considered before implementing e-learning: time, place, and given assignment. The implementation of Moodle during covid-19 outbreak has managed the efficacy of surviving the teaching learning process and administration system especially in managing the examination. The following figure shows the related Moodle implementation for examination management.
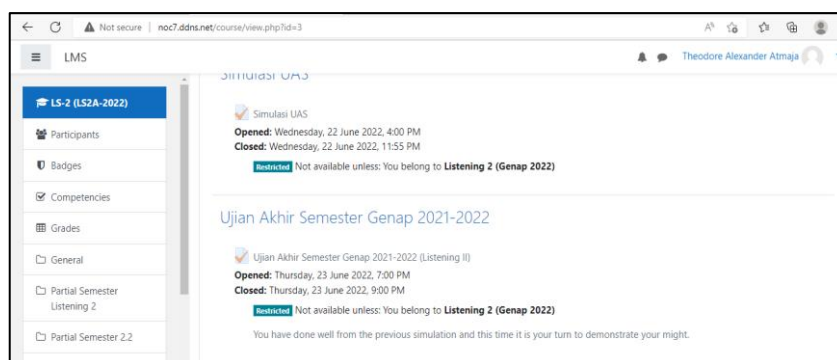

Figure 12, Examination management in Moodle

CONCLUSION AND SUGGESTION

Conclusion

To conclude, the respondents averagely deliver positive responses related to Moodle's implementation in classroom management. The unlimited attempt features in Moodle also help the students in the preparation of examination in the following day of schedule. Although there were some problems discovered when using Moodle, the problems found during usage were considered as glitch and improvement of system administration for future usage will be beneficial for both system administrator and students in substituting paper-based usage for classroom activity. Digital adoption and implementation have travelled slowly and penetrated several sectors in society as a manner of delivering simplicity in system management.

Suggestion

Moodle implementation for classroom management especially in carrying attendance and examination are possible to substitute conventional media. For attendance system, the system provides attendance feature such as plugin and possible for download. In addition to attendance system feature, Moodle is also able to post studying material and the storage management is delivered using embedded link so the storage spaces available in Moodle will be much smoother for storing student's data for their progress record. Exercise delivered and supported by unlimited attempt also helps the students preparing themselves for the upcoming activity like examination.

REFERENCES

Ayres, J. R. & Behrend, M. B. (2022). A systematic review on trends in using Moodle for teaching and learning. *International Journal of STEM Education*, 13. https://doi.org/10.1186/s40594-021-00323-x

Bach, S., Haynes, P., & Smith, J. L. (2007). *Online Learning and Teaching in Higher Education.* New York: Open University Press.

Boettcher, J., & Conrad, R. M. (2016). *The online teaching survival guide* (2nd ed.). San Francisco, California, USA: Jossey-Bass A Willey Brand.

Brown, D. (2000). *Teaching by principles.* San Francisco: Longman.

Buchner, A. (2016). *Moodle 3 Administration.* Birmingham: Packt Publishing.

Chapelle, C. (2003). *The changing world of English language teaching.* Des Moines, Iowa, USA: John Benjamins Publishing Company.

Dymek, D., Grabowksi, M., & Paliwoda Pekosz, G. (2022). Impact of Covid-19 Pandemic of Student's Online Behavioral Pattern. *Journal of e-Learning and Higher Education*, 2. https://doi.org/10.5171/2022.881022

Gall, M. D., Gall, J. P., & Borg, W. R. (2003). *Educational Research: An Introduction* (7th ed.). New York: Pearson Education Inc.

Haryanto. (2015). *Teknologi Pendidikan.* Yogyakarta: UNY Press.

Korpershoek, H., Harms, T., de Boer, H., van Kuijk, M., & Doorlaard, S. (2014). *Effective classroom management strategis and classroom management programs for educational practice.* Groningen: GION onderwijs.

Lase, D. & Zaluchu, S. E. (2022). Parents' perceptions of distance learning during COVID-19 in rural Indonesia. *Journal of Education and Learning (EduLearn)*, 2. https://doi.org/10.11591/edulearn.v16i1.20122

Purwanti, E., & Vania, G. (2021). Classroom management: Applying appropriate strategis to enhance effective teaching. *Journal of Foreign Language and Teaching, 6*. https://doi.org/https://doi.org/10.18196/ftl.v6i1.10638

Sieberer-Nagler, K. (2015). Effective Classroom-Management & Positive Teaching. *English Language Teaching, 9*, 2. https://doi.org/10.5539/elt.v9n1p163

Tobin, T., Mandernach, B., & Taylor, A. (2015). *Evaluating Online Teaching.* Ohio, Cleveland, USA: Jossey-Bass.

Watkins, R., & Corry, M. (2011). *E-Learning Companion A Students Guide to Online Success.* Massachuset, Boston: Wadsworth Cengage Learning.