

Implementation of Project-Based Learning Using The Moodle Platform As An Alternative Learning Method In The Hybrid Life Era

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ABSTRACT

The COVID-19 pandemic forces all aspects of activities to be carried out at home, one of which is in the world of education to suppress the spread of COVID-19. Hybrid life is an inevitable condition, where educational activities are carried out remotely using various information technologies. This study aims to describe qualitatively and quantitatively the design of Project Based Learning lecture activities and their implementation in the office administration study program and the secretariat of the vocational education program, University of Indonesia. The results of this study indicate that the implementation of the online PjBL method uses the Moodle platform was effective. especially in honing students' critical thinking skills and showing good learning outcomes.

Keywords: Hybrid life, Zoom Fatigue, Project Based Learning, Pandemic, Covid

INTRODUCTION

After the COVID-19 pandemic entered Indonesia with the number of positively affected people with COVID-19 increasing, then in mid-March 2020 to reduce the number of COVID-19 sufferers, the provincial government and local governments produced policies in the world of education, namely temporarily eliminating face-to-face learning to be replaced with online learning (Fey in CNNIndonesia, 2020), one of which is in higher education, through the Ministry of Education and Culture the Government has prohibited universities from conducting face-to-face (conventional) lectures and ordered them to hold lectures or online learning (Kemendikbud Dikti Circular Letter No. 1 of 2020).

The implementation of the online method during the pandemic in Indonesia turned out to cause several problems, especially the unpreparedness of educational institutions in implementing the online learning process. Many educational institutions and educational participants are not accustomed to conducting online education, while the pandemic situation forces education to immediately change to carry out the online education process. One of the fundamental obstacles in this regard is how many people and governments have not seen ICT as a priority in educational infrastructure (Agus Pramusinto, Wahyudi Kumorotomo, 2005).

Some of the problems that cause the implementation of online learning to be less than optimal consists of at least two main factors, namely, first, the inequality in online learning infrastructure such as devices or networks that are not evenly distributed in Indonesia and the second factor is related to the capacity of educational institutions, including teachers who are not familiar with pedagogy in online learning. Furthermore, OECD research underscores that digital inequality in the education sector goes beyond the issue of access, but there is also a 'second gap' that separates those who have the competence and ability to benefit from technology from those who do not (OECD, 2010).

Online learning activities, during the pandemic, were still dominated by synchronous methods, relying on the Zoom cloud meeting

application as the most widely used application in the DKI Jakarta area (Haqien & Rahman, 2020). Synchronous itself is an online learning method that is oriented towards learning and is facilitated by direct, real-time and usually scheduled instructions (Muhammad Hanif Fahmi, 2020). The use of zoom is a face-to-face method like ordinary conventional learning, but only uses digital media.

Lectures using too much zoom are actually not in accordance with the implementation of online learning or PJJ, because the characteristics of online learning are open, independent learning, complete learning, using ICT, and using other educational technologies (Kemendikbud, 2013). The characteristics of online learning methods like this are carried out using a Learning Management System (LMS) such as Moodle, Edmodo and other applications, and generally many educational institutions are not accustomed to using LMS during the pre-pandemic period. Excessive use of zoom will cause zoom fatigue or feeling tired, restless or anxious during video conference activities. The term zoom in fatigue is actually not only limited to the use of the zoom application, but these complaints can also be felt when using the whatsapp video call, google meets, skype, facetime and other asynchronous learning platforms (Pustikasari & Fitriyanti, 2021). Zoom in fatigue also triggers a change in concentration on what is being done so that it affects one's productivity.

Several studies have shown that there is a significant relationship between zoom media, illness condition, frequency of eating, and time/duration with fatigue and there is a significant relationship between zoom media, time/duration and stress in students. It was further explained that online learning time of 8 hours has a 3.8 times risk of experiencing stress compared to learning time of < 8 hours (Muhammad Hanif Fahmi, 2020).

Seeing the problems in the hybrid life era as presented above, there must be an e-learning strategy of learning using LMS applications such as Moodle that allows learning participants to study independently according to their learning style and time, so that stress levels can be reduced to a lower level. This paper will present the implementation of the Project Based Learning

learning method using Moodle, in the Project Management Practicum course at the Office Administration and Secretarial Study Program, Vocational Education Program, University of Indonesia.

METHODOLOGY

The research approach used in this research is action research. Action research is a type of research that integrates research and action in a series of flexible cycles consisting of collecting data on the topic to be researched, analyzing and interpreting the data, making plans and introducing action strategies that will bring about positive change and evaluating these changes through data collection. further data, analysis and interpretation until the results are decided to be published. (Carol Munn-Giddings, 2001)

The purpose of research using action research methods is to provide alternative strategies for the process of improving services or work results in an institution, as well as developing action plans related to improvements that have been carried out at this time. In this study, the service improvement process was in the form of implementing PjBL learning plans using Moodle in project management practicum courses in the hybrid life era during a pandemic.

In compiling PjBL through the model, the ADDIE model is used. ADDIE model is one of the most common models used in the instructional design field a guide to producing an effective design. This model is an approach that helps instructional designers, any content's developer, or even teachers to create an efficient, effective teaching design by applying the processes of the ADDIE model on any instructional product. In fact, the elements made by following the ADDIE model can be used in any environment as online or face-to-face. In addition, this systematic process is represented in the acronym ADDIE, which stands for the important components in the process of creating the instructional design, which are Analysis, Design, Development, Implementation, and Evaluation. Each phase in ADDIE model is related to and interacts with each other (Nada Aldoobie, 2015).

RESULT AND DISCUSSION

The main purpose of using the Moodle LMS as a PjBL learning medium is to ensure that the online learning process carried out during the pandemic has met the online learning criteria set by the Ministry of Education and Culture through the Minister of Education and Culture of the Republic of Indonesia Number 109 of 2013 concerning the Implementation of Distance Education in Higher Education. Through the Moodle LMS, a learning process is designed that gives students the opportunity to study the material independently according to their learning style so that the problem of fatigue / zoom fatigue can be avoided.

Analyze

The analysis phase clarifies the instructional problems and objectives, and identifies the learning environment and learner's existing knowledge and skills (Dyah Ayu Mentari, Wiedy Murtini, 2013). The objective of the project management course is difficult due to the pandemic which causes this course to be conducted from home / Study From Home (SFH), while this course is included in the category of practical courses.

By using the Moodle LMS, an independent learning experience is designed, collaborating in compiling project management documents, implementing projects, evaluating and compiling a final project report.

Design

The learning model is designed using the Student Center Learning (SCL) approach. In this system, the learning process focuses more on the activeness of students physically, mentally, intellectually and emotionally in order to obtain learning outcomes in the form of a combination of cognitive, affective and psychomotor aspects. Lecture activities in the form of lectures are avoided because of the function of teachers and assistants as facilitators (Antika, 2014). Lecture models for conceptual topics are carried out by lecturers, while project discussions and practicums are carried out by lecturer assistants. To ensure that students study independently, materials and instructional topics are uploaded to <http://emas2.ui.ac.id>. Then for each new concept to be studied, students first look for the

concept using a specially provided lecture form called "conceptual notes". The learning method for the new concept is applied collaborative learning method with jigsaw puzzle technique. This jigsaw type learning is part of cooperative learning which is group learning in which each member is responsible for mastering certain material and teaches it to group members after studying with their respective expert groups (Herry Sudjendro, 2020).

The process of assessing the progress of student understanding uses collaborative learning methods consisting of Teams Achievement Division (STAD) and Team Game Tournament (TGT). The essence of STAD is that the teacher conveys the competencies and indicators that must be achieved then the students join in groups to divide and complete the tasks given by the lecturer. This model conditions students to study together in small groups to help each other. Classes are arranged in groups of 4 or 5 students, with heterogeneous abilities. The emphasis on providing an assessment at STAD is not on the individual but on the assessment of the level of achievement of group competence (UCTLE, 2019).

Team Game Tournament (TGT), is one of the collaborative learning methods that is also applied to this course. In this method, students after studying in their groups, each member of the group with the same level of ability will be brought together in a competition/tournament known as a "tournamens table" which is held at the end of each subject unit or weekend. the score obtained will contribute to the group's average score. The goals and success of the group are not only in terms of understanding a lesson, only working on solving problems but also learning something in groups (Mahardi et al., 2019). In this course, the "Tournament table" during the pandemic is done online using the Kahoot application which can be accessed on the <https://kahoot.it/> page.

Develop

All lesson plans are then transferred to the LMS moodle learning media which has been provided by the University of Indonesia at the address <https://emas2.ui.ac.id/>. E-Learning Management System (EMAS) version 2, is the latest version of Moodle LMS which at the time of

writing this paper was the MOODLE application version 3.11.4+.

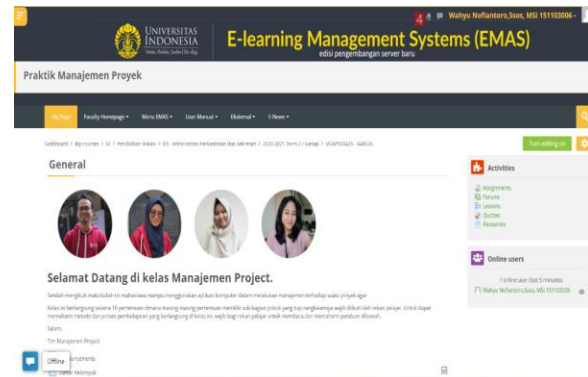


Figure 1.
Homepage Project Management Practicum Course

One part of the LMS that is important is the homepage, this section can be seen in figure 1. This section contains the introduction of the course team and greeting paragraphs, lecture descriptions, lecture objectives, learning methods and assessment methods.

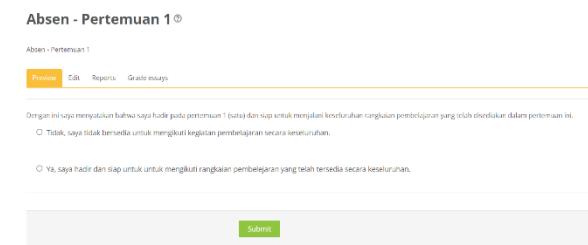


Figure 2.
Attendance – feature lesson

For recording attendance in one session, the lesson feature is used, which is available in Moodle. In the attendance section, a statement will be given that students will be committed to attending lecture activities for one full week. This is to ensure that lecture activities are not only face-to-face but also various other learning experiences such as discussing, doing independent assignments, collecting materials and various other activities.

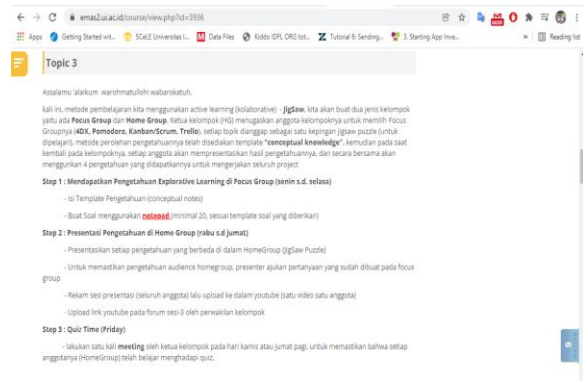


Figure 3.

The learning process uses the Jigsaw method

The Jigsaw-collaborative learning method is given using Moodle, like figure 3 above for concept competence. This section explains how to implement the Jigsaw learning method, where students will be divided into two groups, namely home groups and focus groups. Students will learn a new concept in the focus group, and will return to their home group to present the new knowledge they have acquired in the focus group.

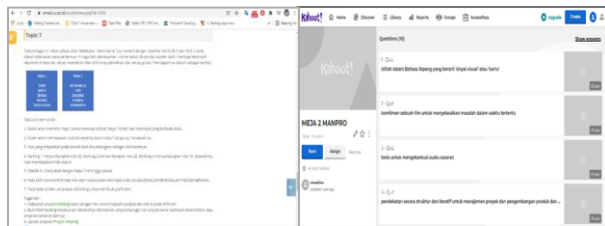


Figure 4.

Learning Process – Table Tournament (TGT)

The process of taking score for conceptual competencies is carried out using TGT or Team Game Tournament. Figure 3 as shown above is the LMS part of the Moodle which contains an explanation of the implementation of TGT in this course. Quiz on the TGT quiz model is followed by one representative of the group members and will be competed through a table tournament, during a pandemic the table tournament is carried out in synchronicity using kahoot.id.

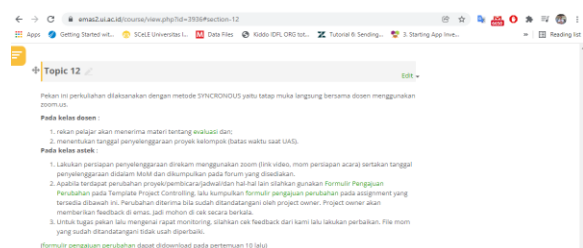


Figure 5

Learning Poces – Synchronous

The learnig process during a pandemic, this course does not transfer conventional learning to digital, so lectures are not fully carried out synchronously through the Zoom application or Ms Teams. However, trying an online learning method using a variety of devices, both asynchronous and synchronous. Synchronous activities are carried out when reflecting on the collaborative learning process, both in concept classes and practicum classes.

Implement

The Project Management Practice course is a practical course. For practical courses held during the covid period, there are challenges. Due to the final competence of this course, students are required to be able to carry out a project based on the applicable project implementation standards based on PMBOK – Project Management Book of Knowledge. Project implementation documentation, starting from Project Initiate, Project Planning, Project Controlling, to project Closing, is prepared in full and its progress is monitored by regular lecturer assistants every week.

In this course, students carry out a project cycle, starting from setting project initiation to project closing online, each home group is free to use any application to discuss, any discussions related to working on the final project will be recorded through Minutes of Meeting and recorded using youtube. The process of recording this activity becomes part of the practice that will be monitored by lecturers and assistants. The minutes of the meeting and the youtube link are recorded in the form as shown in figure 6.



Figure 6

Minutes of Meeting

The progress of project implementation is monitored using the Moodle LMS using the controlling document uploaded through the feature assignment in the Moodle LMS. For the discussion process to be recorded using YouTube, the link is submitted to the forum feature on LMS Moodle, other students can comment and provide input asynchronously through the forum feature on the progress of the project to be worked on.

In this course, the final exam form is the final project report which contains a complete report on the project implementation process starting from project initiation, project planning, project controlling, to project closing. In the final report, apart from the standard document from PMBOK, an evaluation of the implementation of activities and lessons learned on each activity is also prepared.

The assessment process uses a rubric that is delivered in advance to lecture participants in a transparent manner. The socialization of the rubric is carried out at the beginning of the lecture, so that all students know the type of assessment carried out. The entire process of project activities is recorded standardly using standard project documents provided entirely on the Moodle LMS, including how to use it.

Evaluate

Pada akhir perkuliahan untuk mengukur tingkat keberhasilan pelaksanaan mata kuliah menggunakan LMS moodle dilakukan pengukuran keberhasilan dengan menyebarkan kuesioner kepada seluruh peserta mata kuliah. The questionnaire on the success of the implementation of Project Based Learning is derived from the concept of discovery-inquiry learning, using seven indicators of success. (1) aspects of student and teacher interaction; (2) able to motivate/increase students' interest in learning; (3) the competence to understand the subject matter; (4) critical, effective and efficient thinking competence; (5) good time management competence; (6) good learning outcomes; (7) the suitability of the learning model with the characteristics of the subject (Jokopitoyo, 2016). In this study, a quantitative approach was used by distributing questionnaires to all Project Management Practicum course participants. The sampling technique used is total sampling. This

was done because the number of course participants was only 21 participants, so researchers could distribute questionnaires to all course participants because they were still fully accessible by researchers. Questionnaire data consists of 7 dimensions with 31 questions using a Likert scale with a score of 1 to 4. The type of data with a Likert scale is ordinal data, so that data analysis is carried out by determining the tendency of scores from indicators and dimensions, by calculating the mode value, using percentages.

Tabel 1. Student Perceptions of the implementation LMS Moodle

		Sangat Tidak Baik	Tidak Baik	Baik	Sangat Baik
01	Student interaction with lecturer	1%	10%	60%	29%
02	Motivate	5%	17%	56%	23%
03	Understanding Learning Materials	0%	5%	50%	45%
04	Critical Thinking	0%	0%	68%	32%
05	Time Management	0%	7%	56%	37%
06	Better Students Learning Outcome	0%	3%	52%	44%
07	Suitability of the Application of Learning Model	0%	10%	65%	25%
Student Perceptions of the Successful Implementation of PjBL		1%	7%	58%	34%

Based on table 1 above, we can conclude that the implementation of the PjBL method in the project management practicum course at the Office Administration and Secretarial Study Program, Vocational Education Program - University of Indonesia, has been successful, this is indicated by a score of 92% of respondents agreeing that the implementation has been successful. Then when viewed from the seven dimensions that make up the successful implementation of PjBL, it can be seen that the fourth dimension, namely critical thinking, is the dimension with the highest level of approval, namely 100%. All respondents stated that the implementation of PjBL sharpens students' ability to think critically. The next dimension that is considered successful in improving students' abilities is the dimension of improving learning outcomes, which is 97%, then the third dimension is an increase in understanding of learning materials by 95% and the fifth dimension is time management with an approval rate of 94%. From the seven dimensions, one dimension is seen with the lowest value, namely the second

dimension, namely increasing learning motivation. Based on the survey results, it can be seen that in this dimension the approval value in the questionnaire is only 79%. This happens because many assignments cause students to feel tired

CONCLUSION

The application of learning in the hybrid era during the pandemic can be done well using the Moodle LMS. The learning process during this pandemic, the learning process should not move the conventional face-to-face learning process to only face-to-face learning using zoom or gmeet. The existence of government regulations that prohibit the holding of face-to-face offline, can be used as a momentum for universities to implement all the characteristics of online learning in accordance with the regulations set by the government, namely Permendikbud RI Number 109 of 2013 concerning the Implementation of Distance Education in Higher Education. Implementation of online lectures using LMS Moodle, provides flexibility for teachers to create materials asynchronously so that the learning process becomes more diverse, not only face-to-face, but must use technology. The results of the evaluation of the implementation of Project Based Learning using LMS Moodle, can be said to be successful, this can be seen from the 7 dimensions of successful implementation of PjBL in the project management practice course, all of them are considered successful, this can be seen from 92% of the total respondents stating that the implementation of PjBL has proven successful.

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