Combination of Moodle Online Learning Application (Vilearning UNESA) and Google Classroom to Improve the Quality of Online Learning

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Abstract— **The majority of educational institutions switch to using online learning using a Moodle-based self-learning application platform. The Moodle application platform can accommodate several customizable online learning features. The State University of Surabaya provides Moodle-based online learning called VINESA (Vilearning UNESA). This VINESA application platform has many advantages, there are still some weaknesses, including access to complicated learning content. In this research, we want to combine the Moodle application platform with Google Classroom. The easy use of Google Classroom can overcome the shortcomings of the VINESA application. After integrating the two applications, we researched several criteria from combining these online learning applications, such as understanding the usage, access, and improving the online learning experience. From research with questionnaire data, we got data with 207 respondents that the initial understanding of online learning if using GC the majority 90% agreed that students were able to use it, whereas if using VINESA, the majority 52% were able to use it and 33% still expressed doubts with VINESA and the rest disagreed because of the difficulties involved. Experienced by students. The combination that we do aims to improve the quality of online learning, so we also collect data through questionnaires with data as much as 67% of students agreeing to add to the experience of accessing the latest educational technology, while the rest stated to facilitate access to online learning from VINESA and also as an alternative if experiencing VINESA access difficulties**

Keywords— Google Classroom, Moodle, Online Learning, VINESA

I. INTRODUCTION

During the current COVID-19 pandemic, we as teachers must work hard and think so that education continues without reducing the quality of education for students. Education is very important in improving the welfare of human life. We as educators continue to strive so that education can continue to be held. 2 giant IT companies develop educational technology in online learning. Google with its product Google Classroom (GC) with easy access and much-needed features. Moodle is open-source online learning that can be modified according to the user's needs. Vilearning UNESA (VINESA) is a local online learning program from UNESA (State University of Surabaya) based on Moodle, launched to support online learning for UNESA residents. The launch of VINESA is also used as a fulfillment of national accreditation. In using VINESA, there are still several obstacles such as difficulty accessing, creating complicated content, and understanding the features provided by UNESA is still minimal for users, especially UNESA residents. With the various advantages that GC has, we try to combine the two online learning platforms to complement each other. We can also be used as alternative learning media for both online learnings.

In personal behavior research, online learning is used to determine the nature and attitudes of individuals who usually use a measurement tool made by the researcher himself. The questionnaire used was a post-test for data collection after the activity was carried out. The measuring instrument used is question items that are considered indicators of certain behaviors, such as students' understanding of online learning GC and VINESA. The questions will be responded to by the students, who will be measured by their opinions about the online learning application. The use of question items follows the guidelines for the measurement scale used. Several measurement scales can be used in designing measurement scales in behavioral research, such as the Thurstone [1], Guttman [2], and Likert [3] scales. An individual questionnaire using scaled response frequency values.

The Likert scale uses several questions to measure individual behavior by responding to 5 choice points on each item with value weighting, strongly agree, agree, hesitate, disagree, and strongly disagree [4]. The ease of use of the Likert scale causes this scale to be used more by researchers.

In addition, we also use a questionnaire to find out several things about students' impressions of access to online learning with several questionnaire points that we and students' images have determined after the combination of the two applications.

This study aims to review the student's perspective from a combination of online learning that has been previously designed. The review results can be used as a reference in the future for better implementation of online learning.

II. Literature

A. Online Learning [5]

The term online learning has become popular in recent years, especially during the COVID-19 era, which has adopted the development of the Indonesian language to refer to online learning. Some experts also call mobile learning depending on the conditions or equipment used by students during the learning process.

Online learning has many benefits as part of technology-facilitated distance learning because teachers, students, and lecturers can interact without being limited by place and time. However, online learning requires good technology such as relatively good server capacity, stable internet network access, including uninterrupted electricity.

In addition, human resources also need adaptation on how to organize effective and efficient online learning. Online learning does not need to be considered a substitute for face-to-face learning in the classroom (conventional) because the two can complement each other. For this reason, there is the term blended learning between face-to-face and online. Each learning mode has its advantages and disadvantages.

B. Google Classroom [6]

We, as twenty-first-century lecturers, face a series of opportunities and challenges that no other lecturer in the history of education has ever met. In the last ten years, the explosion of technology has radically changed the educational landscape. This technology has provided tremendous benefits such as more efficient communication, better access to knowledge and resources, and increased student engagement. But because of its relatively new nature, the possibility of teaching programs in this advanced technology is not enough to prepare us to use technology effectively as teaching providers.

Lecturers today are poised to transform teaching and learning through the integration of technology in the classroom. The business sector thrives on technology, and many of the world's largest companies, such as Apple, Microsoft, Moodle, and Google, produce teaching technology [7]. The world has witnessed massive globalization thanks to the newfound ability to communicate instantaneously across the globe. Technology has changed the way we live. Likewise, technology can change the way we teach. As paradigms shift in other industries, emerging technologies offer compelling alternatives to replace or complement traditional educational methods.

Leveraging technology in new and exciting ways in the classroom is not only crucial for keeping our teaching styles fresh and relevant, but these new ways are also meaningful experiences for our students who will one day come out to work and live in a technology-driven world. Mixed learning is the practice of combining face-to-face teaching with online learning experiences. Many campuses encourage lecturers to incorporate blended learning techniques into traditional classroom models to provide students with a more diverse educational background. Our students are no longer restricted to just studying what we know or what the textbooks say. Instead, they have complete information on their gadgets. Thus, the aim of teaching should be not only to impart knowledge but also to assist students in seeking it effectively on their own.

In the blended learning model, the lecturer acts as a facilitator who guides students to ensure that they access new information in a safe, responsible, and focused way.

Google offers built-in creativity, productivity, and communication tools, increased efficiency, and cost-effective capabilities to provide an extraordinary opportunity to meet digital natives where they are and prepare them for life in the modern world. No single tool in this suite is more suited to meeting educational needs than Google Classroom [8]. Google Classroom is an app that helps teachers quickly and efficiently assign, collect, and return assignments to students [9]. Of course, it is easy to replace a formerly analog process with a digital strategy that can take advantage of Google Classroom technology, creating opportunities to do even more in the teaching process. The classroom can serve as the basis for a blended learning integration strategy. Google Classroom has many very exclusive features, including Google Meet, which is commonly used for meetings; Google Presentation, which can be used for online word processing; Google Sheets for processing numerical data or other data; cloud storage (GDrive) [10] and an application from Google which can be called GSuite.

C. Moodle [11]

Learning Management System (LMS) or Course Management System (CMS), also known as Virtual Learning Environment (VLE), is a software application used by educators, both universities/colleges and schools as internet-based online learning media (e-learning). Using LMS, lecturers/teachers/instructors can manage programs/classes and exchange information with students [12]. In addition, access to learning materials that take place within a predetermined time can also be done. The features available in the LMS for educational institutions are as follows:

- Management of user access rights (user).
- Management of courses.
- Management of teaching materials (resources).
- Management of activities (activity).
- Management of grades (grades).
- Displays scores (scores) and transcripts.

Management of e-learning visualizations that can be accessed with a web browser. The Learning Management System allows students and lecturers to enter the "digital classroom" to interact with each other (discuss, do online quizzes, etc.) and access learning materials anywhere and anytime if they are connected to the internet [13] as described in Figure 1.
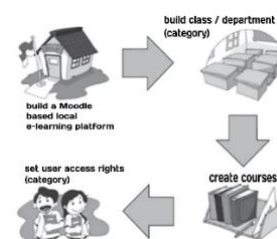

Fig. 1. Illustration of making e-learning moodle

Moodle is the most popular open-source program among existing e-learning programs. Martin Dougiamas first developed this Moodle application in August 2002 with Moodle version 1.0.

Advantages of Moodle LMS

Many things make Moodle different from the others, including:

- Simple, efficient, and lightweight, and compatible with many browsers.
- Straightforward installation.
- Multiple language support, including Indonesian.
- Availability of site management to make overall settings, module changes, and so on.
- Availability of user management (user management).
- Availability of good course management.
- Availability of video streaming modules [14], chat modules, polling modules, forum modules, journals, quizzes, workshops and surveys, and many more.

Some of the learning activities supported by Moodle are as follows:

- Assignment
  This facility is used to give assignments to online learning participants. Learning participants can access assignment materials and submit assignments by submitting a file of their work.
- Chat
  Teachers and learning participants use this facility to interact online using text dialogue (online conversation).
- Forums
  An online discussion forum between teachers and learning participants who discuss topics related to learning materials.
- Quiz
  Teachers use this facility to conduct online tests or tests (online tests).
- Surveys
  This facility is used to conduct polls.

D.   VINESA [15]

UNESA ViLearning is a Moodle-based online learning system designed explicitly as a means or facility that supports the teaching and learning process that is carried out without meeting face-to-face between lecturers and students. So that the State University of Surabaya can provide better and more effective information services for the teaching and learning process. The learning system is carried out through a computer or laptop device connected to an internet connection. A well-integrated system allows students to obtain all required lecture information and can run the learning system properly. The output obtained from this learning system is also not inferior to conventional lectures.

There are many advantages offered by this e-learning system, including flexible class schedules, learning rhythm according to student abilities, the material can be understood well, more energy, cost, and time-saving. In this Vilearning State University of Surabaya, several facilities are provided, including the management of students or students, the management of learning materials, the learning process, the management of learning evaluation, and the management of communication between students their facilitators. This facility allows learning activities to be managed without direct face-to-face meetings between the parties involved.

With the UNESA Vilearning, it is hoped that it can support the implementation of the learning process that can increase students' absorption of the material being taught. In addition, learning materials can be reviewed anytime and anywhere and can be well structured and scheduled.
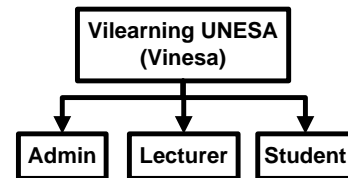

Fig. 2. UNESA Vilearning Structure

UNESA Vilearning Structure

UNESA Vilearning consists of 3 integrated access sections as described in Figure 2, including:
1. Student User Access
2. Lecturer User Access
3. Access User Admin
   Each has its access rights from the three existing access sections, each of which has differences from one another.

Lecturer Activities at Vilearning Unesa

Activities that lecturers can carry out at ViLearning Universitas Negeri Surabaya are explained as follows:
1. Login Vilearning UNESA
2. Create a new online class
3. Open an online class
4. Upload course materials
5. Edit course materials
6. Upload coursework
7. Upload exam questions
8. Create tasks
9. Insert PDF/Image/Audio/Video
10. Adding face-to-face video teleconference activities

Student Activities at ViLearning UNESA

Activities that lecturers can carry out at ViLearning Universitas Negeri Surabaya are explained as follows:
Login Vilearning UNESA via SSO (Single Sign-On UNESA)
1. View online lecture materials
2. View online coursework
3. View lecture participation
4. Edit Profile
5. View the online lecture badge according to the opened Course
6. See the UNESA Vilearning guide
7. View and create new activities on the calendar
8. Edit and delete activities on the calendar
9. See the ranking of lecture participants on the badge Menu
10. See the essential competencies of lectures

E.   Likert Scale

Scoring for data collection was used using a Likert scale. The Likert scale is a scale that contains five levels of answers regarding the respondent's agreement with the statements or statements put forward before the answer options provided. The modification of the Likert scale is intended to eliminate the weaknesses contained in the five-level scale; the change of the Likert scale eliminates the middle answer category based on three reasons, namely: (1) the category has a double meaning, usually means that it cannot decide or provide an answer, can be interpreted as neutral, agree or not, do not agree or even hesitate. (2) the availability of answers in the middle creates a tendency to answer to the middle. (3) the meaning of the category strongly agrees, disagree, strongly disagree is mainly to see the tendency of the respondent's opinion to agree or disagree. [4]

So in this study uses five alternative answers: strongly agree, agree, undecided, disagree, and strongly disagree. The Likert scale is used to measure attitudes, opinions, and perceptions of a person or group of people about social phenomena in online learning. Respondents can choose one of five alternative answers that are tailored to the subject's circumstances.

In collecting questionnaire data or questionnaires, which are used to obtain information from respondents. The questionnaire used is a type of choice questionnaire that asks respondents to choose an answer, one answer that has been determined. A score for alternative solutions in this questionnaire is assigned for each choice using a modified Likert scale. Thus, in this study, respondents in answering questions there are only five categories including strongly agree, agree, hesitate, disagree, strongly disagree, from the answers above have a weighted score with details in Table I:

TABLE I. SCORE WEIGHT

Answer	Score
Strongly Agree	5
Agree	4
Hesitate	3
Disagree	2
Strongly Disagree	1

III.   METHODOLOGY

This methodology chapter explains the combination of online learning applications we describe in the image of the research objectives, as illustrated in Figure 3.

In this study, we use Google Classroom because the application is straightforward to use, so it can be combined with VINESA, which can be used as alternative learning from VINESA if there are certain obstacles, as a backup VINESA data if there is a server system disturbance, and can replace some of the features of VINESA that are felt it is difficult to use it to replace it with the GSuite application which is a feature of Google Classroom that many students understand
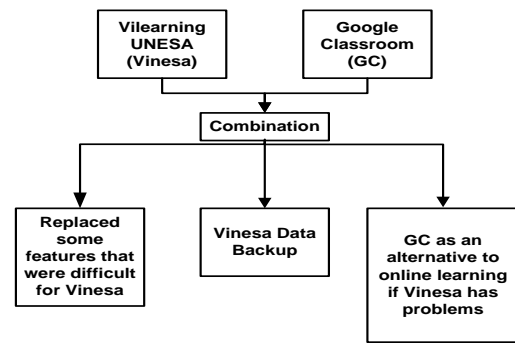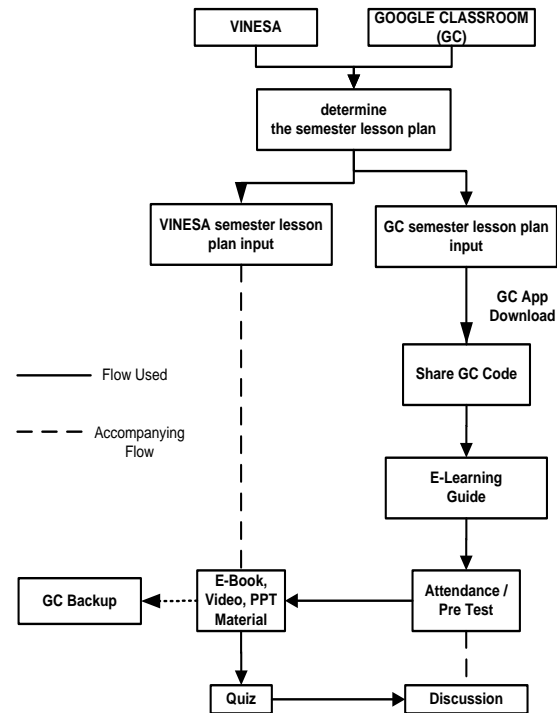

Fig. 3. Research Objectives

Fig. 4. Flowchart of the Design of a Combination of 2 Online Learning Applications Google Classroom and VINESA

In this study, what is described in Figure 4 is a flowchart about the use of a combination of 2 online learning applications Google Classroom and VINESA. Suppose at a particular time having difficulty accessing VINESA, the flow diagram used in the flow chart above. In that case, students need access through Google Classroom first, which can be accessed by mobile (via Android) or using a laptop. Then each lesson goes through several steps that have been determined in the flowchart image. In each class, students do several activities such as filling in attendance, studying the material, and taking quizzes. The last action of each student learning is expected to write questions in the discussion column in Google Classroom if there is material or something not understood in the material or the use of online learning features that have been developed determined.

In this study, we used several steps carried out to obtain research results. The stages that we do are as shown in the picture Research Step
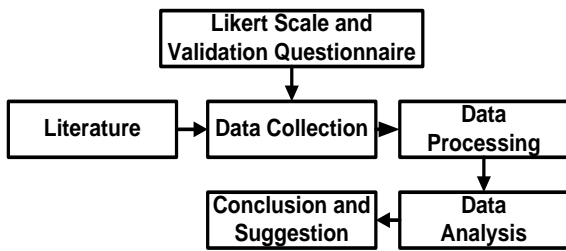
Fig. 5. Research Step

The activity stage for carrying out the research described in Figure 5 is the research step, namely the first to collect supporting references for activities using online learning applications.

By compiling items of questions that refer to the factors that influence the research. These factors are translated into a grid of research instruments developed into queries or statements to collect the statement items. The statement items must be an elaboration of the contents of the elements described above, then translated into existing indicators arranged items that can provide an overview of the state of these factors. The statements made are positive and relate to several things related to accessing online learning applications.

Then we conducted an online questionnaire using the Likert scale method. Questionnaires are carried out when the lecture is finished to provide an assessment of online learning. The questionnaire was conducted using a google form which was given positive questions about online learning applications.

In the questionnaire used for data collection, we used six questions about students' perspectives on using local online learning applications from UNESA (Vinesa) and global online learning applications that are very popular in the wider community. In addition, we used several positive questions and questions about student responses to the combination of online learning applications.

Q-1. Comparison of First Understanding of the Use of Google Classroom (GC) and Vinesa Features

Q-2. Comparison of Some Difficulties Experienced by Students When First Using Google Classroom and Vinesa

Q-3. Easily Access Study Materials (Files/Videos), Access And Submit Assignments, As Well As Access Question And Answer Discussions In Google Classroom

Q-4. Easy Access to Study Materials (Files/Videos), Access And Submit Assignments, As well as Access Q&A Discussions on Vinesa

Q-5. The combination of Google Classroom and Vinesa can help me improve my learning

Q-6. The Learning Improvements Experienced When Combining Google Classroom Against Vinesa (Choose the One Most Experienced)

In questions 1 (Q-1) to question 6 (Q-6), we want to know the distribution of each online learning application to students' perspectives using Google Classroom and Vinesa.

IV. RESULT AND DISCUSSION

In analyzing the data for collecting questionnaire data about the effectiveness and efficiency of online learning here, we present and explain the data we have obtained in several tables.

TABLE II. QUESTION QUESTIONNAIRE Q-1

Opinion	Percentage GC	Percentage Vinesa
Strongly Agree	48%	19%
Agree	42%	33%
Hesitate	9%	33%
Disagree	0%	14%
Strongly Disagree	0%	1%

In Table II the Q-1 question questionnaire shows the percentage value of the agreement (strongly agree and agree) on the use of GC by 90% and the percentage of agreement with the use of VINESA by 52%, which means that students for the first time using online learning applications are more familiar with using GC than VINESA so that from this data we want to combine the two online learning applications.

TABLE III. QUESTION QUESTIONNAIRE Q-2

Opinion	Percentage GC	Percentage Vinesa
Login Access	6%	30%
Material Access (File/Video)	10%	19%
Access And Submit Assignments	19%	22%
Access Discussion Questions	19%	12%
No Trouble	46%	17%

In Table III, the Q-2 questionnaire shows that as many as 46% of students do not find it difficult while using Google Classroom. In contrast, from the use of VINESA, there are still many students who find it difficult to use VINESA.

TABLE IV. QUESTION QUESTIONNAIRE Q-3

Opinion	Percentage of material access in GC	Percentage of access and submit assignments in GC	Percentage of discussion access Q&A in GC
Strongly Agree	45%	52%	40%
Agree	38%	35%	36%
Hesitate	13%	11%	22%
Disagree	2%	1%	2%
Strongly Disagree	1%	0%	0%

In Table IV, most of the Q-3 questionnaires agree on the ease of access to some of the features found in Google Classroom because they are easier to use.

TABLE V. QUESTION QUESTIONNAIRE Q-4

Opinion	Percentage of access to materials in Vinesa	Percentage of access and submit assignments in Vinesa	Percentage of discussion access Q&A on Vinesa
Strongly Agree	19%	22%	15%
Agree	33%	35%	28%
Hesitate	30%	30%	39%
Disagree	16%	10%	16%
Strongly Disagree	1%	2%	1%

Table V of the Q-4 questionnaire states that in addition to most students using the VINESA online learning application, there are several students with a reasonably high percentage ranging from 30% and 39% expressing their doubts about using the VINESA online learning application, including more complicated access. Then Google Classroom so for that reason, we wanted to design by combining the two online learning applications.

TABLE.VI. QUESTION QUESTIONNAIRE Q-5

Opinion	Percentage
Strongly Agree	30%
Agree	41%
Hesitate	24%
Disagree	3%
Strongly Disagree	1%

In Table VI, the Q-5 questionnaire states that there is a high percentage of student approval if the two online learning applications are combined to complement each other, and Google Classroom can be used as a backup if you find it difficult to access VINESA at a particular time.

TABLE VII. QUESTION QUESTIONNAIRE Q-6

Opinion	Percentage
Increase Experience Access To The Latest Educational Technology, Especially Online Learning	67%
Easy Access To Material/Task/Discussion Q&A	14%
As An Alternative, If Difficulty To Access Vinesa	19%

In Table VII, the question questionnaire Q-6 states that the increase in learning experienced by students when combining the two applications is that the majority of students think that the combination of the two online learning applications can be used as a means to increase the experience of accessing the latest educational technology, especially online learning so that it can be used as an increase in understanding. to access online learning.

V. CONCLUSION

From the analysis and discussion carried out previously, we can conclude in general terms on the questionnaire data that we have done that most students understand the use of Google Classroom better than VINESA. However, VINESA is local online learning provided by UNESA that we should be proud of and start using more often in online learning. With the combination of Google Classroom and VINESA online learning applications that have been designed, most students agree with a percentage of 71% and students feel this combination of online learning according to most students stated that it can be used to increase the experience of accessing the latest educational technology, especially online learning which can be used as quality improvement online learning

Future research is expected to use applications other than Google Classroom if there are applications that are easier to understand, which will be combined with VINESA.

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