

# E-Learning Moodle SMK PGRI 1 TANGERANG

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**Abstract**

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Over the past 10 years, many educational institutions around the world have developed a variety of online learning media available to students. Online learning media makes the concept of educational institutions more flexible and resilient, especially in SMK PGRI 1 Tangerang. This research aims to create Moodle e-learning media to be used as learning media for SMK PGRI 1 Tangerang. The survey included data collected from 283 students, focusing on student and teacher perceptions of learning in Moodle. The data was processed using SPSS 26, and analysis of the data obtained revealed various factors associated with the implementation of Moodle's pedagogical, technical and managerial approach. The results show that people familiar with Moodle recognize the importance and usefulness of Moodle because it can be easily accessed from any web-enabled location. They are happy with Moodle and feel the importance of Moodle. Moodle also helps them better understand and learn subjects by changing the web content of the course, especially if students prefer the face-to-face method, but support online Moodle activities as the preferred method of learning.

## I. INTRODUCTION

Demand for online educational materials is increasing, especially in vocational high schools (SMK). These materials provide flexibility in learning while also giving students a greater sense of responsibility. During group face-to-face learning, teachers have immediate feedback on student activity and academic progress. A teacher can understand a student's academic performance through verbal interaction with the student, and he or she can continuously monitor student activity and identify students who are falling behind. This is different from online learning, especially mass courses. Teachers and students have less face-to-face time, so need to identify students who may not be able to complete assignments [1]

Researchers who made observations with teachers and students at the Vocational High School (SMK) PGRI 1 Tangerang. Based on the results of observations, it is known that students are bored with the way the teacher teaches, teaching all subjects, namely the lecture method. Teachers tend to use less innovative and diverse media, limited to the blackboard. This situation is still far from the expectations of students who want to use information and communication technology in learning. Students want to learn to be done anytime and anywhere without being limited by space and time. Learning can even be done through their hands by utilizing existing smartphones. The impact of all that is that the learning outcomes of students are still far from the minimum standard of completeness of the predetermined criteria. Schools have provided learning media by utilizing the development of information and communication technology such as the availability of infocus. This school also has computer laboratory facilities equipped with internet connection access[2]

Teachers must be able to make new innovations in E-learning developed with LMS must be dynamic and comprehensive by including learning materials and able to accommodate learning systems that regulate the role of teachers, students' roles, learning management, utilization of learning resources, monitoring learning developments and evaluation systems. One of the supporting software for the LMS model used is Moodle. Moodle (Object Oriented Modular Dynamics Learning Environment) is a freely usable software package designed to develop internet based learning activities and websites. Some of the facilities provided by learning by developing learning media are packaged in such a way that learning is more interesting, interactive and effective and efficient in its use. One solution to the problems found in the PGRI 1 Tangerang Vocational High School (SMK) is using the latest

information and communication technology to improve the quality of education[3]

The learning concept currently used at SMK PGRI 1 Tangerang is Cyber. The word Cyberschool consists of two syllables, Cyber, which means cyberspace in the world of information technology, and Schule, which means school. So an online school is a school that uses the internet/virtual space learning model. Cyberschool combines the use of computers and the Internet. The concept of e-schools is closely related to distance learning (distance learning), edupay, e-schools, virtual schools, e-education, e-classrooms and other forms of distance learning that differentiate or honor students. Network-based school aims to improve the quality of education in SMK PGRI 1 Tangerang[4],[5]

Technology in education is commonly called e-learning. The benefit of using e-learning facilities is to facilitate the learning and learning process. Electronic learning can be an alternative solution and technology to be used in learning methods that suit the demands. The process of implementing e-learning requires a system that is able to manage online learning, the system commonly used is known as LMS (Learning Management System). Some of the facilities provided by Moodle include: reading menu, chat task menu, forum menu, options menu, quiz menu, and so on. Moodle is an application program that can convert learning media into a web form. The benefits of using an LMS using Moodle online are very important, including according to the needs of teachers and students who want a learning process that is easily accessible anytime and anywhere.[6]

## II. RELATED WORKS/LITERATURE REVIEW

### A. Learn about learning media

Considering the various definitions above, it can be concluded that a learning media is any substance and technology in the learning process that helps teachers facilitate the transfer of materials to students in order to facilitate the achievement of learning objectives[7], Technically, learning media as learning resources are as distributors, transmitters, liaisons and others.

### B. Information Technology in Education

Information technology can simply be viewed as the science needed to manage/manage information so that information can be easily searched or recovered. Meanwhile, in its implementation to be able to manage the information properly, quickly, and effectively, it is necessary to use computer technology as an information processor and communication technology as a remote information transmitter. To utilize information technology in the educational process, there are several development steps that can be taken, including the following: (1) designing and creating database applications, which store and process academic data and information, both lecture systems, assessment systems, curriculum information, education management, as well as learning materials; (2) designing and creating learning applications based on portals, webs, interactive multimedia, which consist of tutorial applications and learning tools; (3) optimizing the use of educational TV as enrichment material in order to support the improvement of the quality of education; and (4) implementing the system in stages starting from a smaller scope to expanding, so as to facilitate the management of the use of IT in the process of providing education[8]. The word media comes from Latin and is the plural form of the word medium which literally means intermediary or introduction. Media in the teaching and learning process is used to facilitate the flow of communication between educators and students[9]

### C. E-Learning

E-Learning is a relatively new learning technology in Indonesia. To simplify the term, electronic learning is shortened to e-learning. This word consists of two parts, namely 'e' which stands for 'electronica' and 'learning' which means 'learning'. e-Learning means learning by using electronic device assistance services. So in the implementation of e-learning using audio, video or computer equipment or a combination of the three [10].

E-Learning Is A Form Of Information Technology Applied In The Field Of Education In Virtual Form. Through Elearning Learning is No Longer Restricted By Space And Time. Learning Can Be Done Anywhere And Anytime. Self-Learning Based on Student Creativity Conducted Through E-Learning Encouraging Students To Analyze And Synthesize Knowledge, Explore, Process, And Utilize Information, Produce Writing, Information And Knowledge Of Their Own. Learners are stimulated to do scientific exploration. E-Learning Is Done Through The Internet, So Learning Resources Are Not Only Teachers, But Also Anyone In Various Parts Of The World. Facilities That Can Be Used By Students To Learn Through E-Learning Include: E-Books, E-Libraries, Interaction With Experts, Email, Mailing Lists, News Groups, World Wide Web (Www), And Others.[8]

E-learning has largely helped students improve their ability to develop customized learning solutions that are more focused on adaptive and personal e-learning environments[11].

**D. Moodle**

Moodle is an Open Source Course Management System (CMS), also known as Learning Management System (LMS) or virtual learning environment (VLE). It has become very popular among educators worldwide as a tool to create dynamic online websites for their students. Many institutions use it as a platform to offer courses entirely online, while some just use it to add face-to-face courses. “Moodle is a very useful and great platform for online learning. Moodle allows educators to control and manage all features of course content and delivery using one integrated system[3]

Moodle is an educational management tool that supports education, content creation and distribution for students as well as the interaction between all stakeholders (students, teachers, supervisors, coordinators, and facilitators). , learning is enhanced by technology, students can gain effective motivation and support from others, and explore opportunities for interactive language learning in meaningful contexts[6]

III. METHODS

**A. Research design**

The approach used in this research is the method quantitative, because this research data is in the form of numbers, because it has met scientific principles, namely: concrete/empirical, objective, measurable, rational, and systematic. this method called the correlation quantitative method because the research data is in the form of numbers and analysis uses statistics and looks for relationships between variables[12].

**B. Population and Sample**

Population as a generalization area consisting of objects/subjects that have certain qualities and characteristics determined by the researcher to be studied and then draw conclusions [13].

Based on the understanding of the population above, the population in this study will be students of SMK PGRI 1 Tangerang

The sample is part of the number and characteristics possessed by that population. To calculate the number of samples to be used, the Slovin formula will be used, because the population is very large, the researcher simplifies the number of samples. The slovin formula is :

$$n = \frac{N}{1 + N(e)^2}$$

Information :

n = sample

N = Total population

e = error rate

Based on the above formula, the researcher determines the error rate of 5%, so that the sampling in this study is:

$$n = \frac{975}{1 + 975 (0,05)^2} = 283$$

**C. Data analysis method**

1. Questionnaire

Questionnaires or questionnaires are a number of written questions that are used to obtain information from respondents in terms of reports about themselves or things they know, this instrument uses an attitude scale model or a Likert scale. The attitude scale is designed to measure pro attitudes and very negative positions to positive positions [14].

2. Likert scale

Likert scale is a scale that can be used to measure attitudes, opinions and perceptions of a person about a particular object or phenomenon. This phenomenon has been specifically defined by the authors hereinafter referred to as research variable[13].

Table 1. Likert Scale

No	Information	Skor Positif	Skor Negatif	Skor
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1.	Very good	5	1	81 – 100
2.	Well	4	2	66 – 80
3.	Enough	3	3	50 – 65
4.	Not enough	2	4	30 – 49
5.	Very less	1	5	< 30

Source : [14]

### 3. Validity test

Validity or validity is showing the extent to which a measuring instrument is able to measure what it wants to measure. put forward a measurement instrument is said to be valid if the instrument can measure something exactly what it wants to measure. If  $r_{count} < r_{table}$  with a significance level of 0.05. If  $r_{count} > r_{table}$ , then the instrument is declared invalid and if  $r_{count} > r_{table}$ , then the instrument is declared valid [12].

### 4. Reliability Test

A measurement instrument is said reliable if the measurement is consistent and accurate. So the instrument reliability test is carried out with the aim of knowing the consistency of the instrument as a measuring tool, so that the results of a measurement can be trusted. Measurement results can be trusted only if in several times the measurement is carried out on the same subject group, relatively the same results are obtained, as long as the aspects measured in the subject are indeed hasn't changed. To test the reliability in this study [14].

## IV. RESULTS

In this study, researchers conducted a discussion based on the results of research on the use of Moodle as an E-Learning learning model at SMK PGRI 1 Tangerang. Based on 9 items, questions refer to the relationship between the Moodle E-Learning system and students towards Moodle E-Learning as a learning model to achieve effectiveness, willingness, satisfaction, and comfort during the learning process.

The following shows the Moodle E-Learning SMK PGRI 1 Tangerang:



Figure. 1. Login menu

Students can access E-Learning by going to the login menu and entering the user name and password

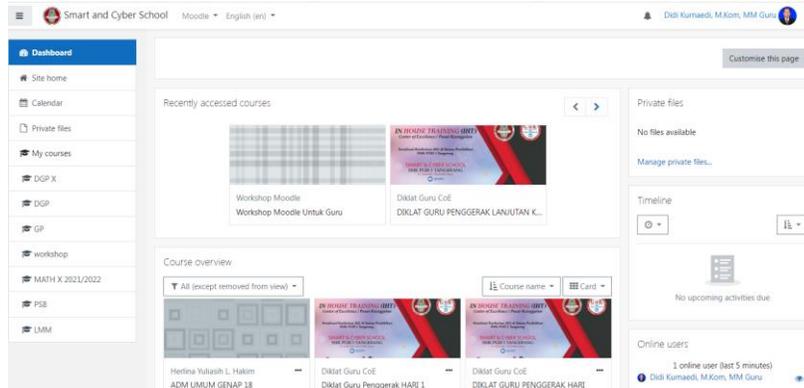


Figure 2. Dashboard Menu

After logging in, students enter the subject dashboard and select a subject

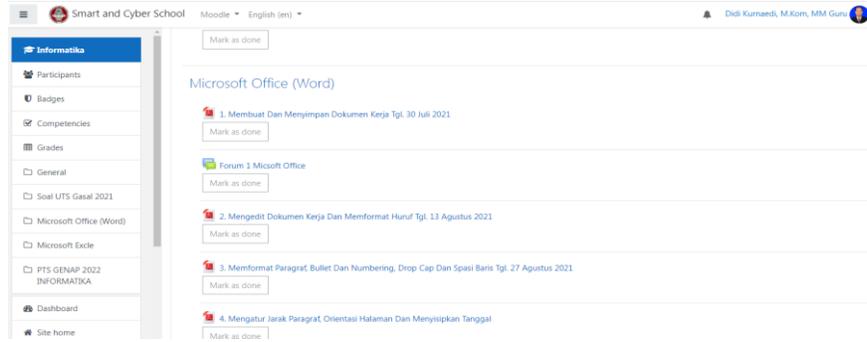


Figure 3. Teacher's Menu in the Field of Study  
 After entering the subject, students can follow the lesson.

### V. DISCUSSION

The use of technology as an E-Learning learning model using Moodle shows the effectiveness, willingness, and satisfaction of students' learning by having E-learning accounts. The following picture below is the level of use of Moodle E-Learning:

Table 2.  
 Internet access speed at school supports E-Learning

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very less	4	1.1	1.1	1.1
	Not enough	25	6.7	6.7	7.7
	Enough	78	20.8	20.8	28.5
	Well	157	41.9	41.9	70.4
	Very good	111	29.6	29.6	100.0
	Total	375	100.0	100.0	

Based on the results of the analysis, it can be seen that the speed of internet access in schools supports E-learning in learning at SMK PGRI 1 Tangerang in Internet access speed in schools supports E-learning with the results Very good 29.6 %, 41.9% Well, 20.8% Enough, 6.7% Not enough, 1.1% Very less. Where the speed of internet access is very good in the application of E-Learning learning using Moodle.

Table 3  
 I can use the system to actively collect and manage knowledge.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very less	5	1.3	1.3	1.3
	Not enough	4	1.1	1.1	2.4
	Enough	41	10.9	10.9	13.3
	Well	212	56.5	56.5	69.9
	Very good	113	30.1	30.1	100.0
	Total	375	100.0	100.0	

Based on the results of the analysis, it can be seen that I can use the system to actively collect and manage knowledge in learning at SMK PGRI 1 Tangerang in Internet access speed at school supports E-learning with the results Very good 30.1%, 56.5% Well, 10.9% Enough, % 1.1 Not enough , 1.3 % Very less. Where students are very enthusiastic in implementing E-Learning learning by using Moodle.

Table 4  
This system is a time-saving tool for sharing knowledge

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very less	2	.5	.5	.5
	Not enough	6	1.6	1.6	2.1
	Enough	42	11.2	11.2	13.3
	Well	202	53.9	53.9	67.2
	Very good	123	32.8	32.8	100.0
Total		375	100.0	100.0	

Based on the results of the analysis, it can be seen that this system is a time-saving tool for sharing knowledge in learning at SMK PGRI 1 Tangerang in terms of internet access speed in schools that support E-learning with the results Very good 32.8%, 53.9% Well, %11.2 Enough, % 1.6 Not enough, % 5 Very less. Where students strongly agree that the application of E-Learning learning by using Moodle can save time.

Table 5  
I have confidence in using the system to gather useful knowledge

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very less	2	.5	.5	.5
	Not enough	8	2.1	2.1	2.7
	Enough	47	12.5	12.5	15.2
	Well	199	53.1	53.1	68.3
	Very good	119	31.7	31.7	100.0
Total		375	100.0	100.0	

Based on the results of the analysis, it can be seen that I have confidence in using the system to collect useful knowledge in learning at SMK PGRI 1 Tangerang in confidence in using Moodle at school with the results Very good 31.7%, 53.1% Well, %12.5 Enough, 2.1% Not enough, 5% Very less. Where students strongly agree that in the application of E-Learning learning using Moodle is useful in learning

Table 6  
I intend to use the system to obtain information

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very less	3	.8	.8	.8
	Not enough	4	1.1	1.1	1.9
	Enough	27	7.2	7.2	9.1
	Well	214	57.1	57.1	66.1
	Very good	127	33.9	33.9	100.0
Total		375	100.0	100.0	

Based on the results of the analysis, it can be seen that I intend to use the system to obtain information in learning at SMK PGRI 1 Tangerang in confidence in using Moodle at school with the results Very good 33.9%, 57.1% Well, 7.2% Enough, 1.1% Not enough, 0.8% Very less. Where students strongly agree that in the application of E-Learning learning by using Moodle to obtain information

Table 7  
I intend to use the system for knowledge construction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very less	3	.8	.8	.8
	Not enough	6	1.6	1.6	2.4
	Enough	40	10.7	10.7	13.1
	Well	210	56.0	56.0	69.1
	Very good	116	30.9	30.9	100.0
Total		375	100.0	100.0	

Based on the results of the analysis, it can be seen that I intend to use the system for knowledge construction in learning at SMK PGRI 1 Tangerang in confidence in using Moodle at school with the results Very good 30.9%, 56.0% Well, 10.7% Enough, 1.6% Not enough, 0.8% Very less. Where students strongly agree that in the application of E-Learning learning by using Moodle for knowledge construction in learning.

Table 8  
 I am satisfied with the system speed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very less	8	2.1	2.1	2.1
	Not enough	7	1.9	1.9	4.0
	Enough	48	12.8	12.8	16.8
	Well	189	50.4	50.4	67.2
	Very good	123	32.8	32.8	100.0
	Total	375	100.0	100.0	

Based on the results of the analysis, it can be seen that I am satisfied with the speed of the system in learning at SMK PGRI 1 Tangerang in confidence in using Moodle at school with the results Very good 32.8%, 50.4% Well, 12.8% Enough, 1.9% Not enough, 2.1% Very less . Where students strongly agree that in the application of E-Learning learning by using Moodle they are satisfied with the speed of the system in learning.

Table 9  
 I am satisfied with the quality of the system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very less	5	1.3	1.3	1.3
	Not enough	8	2.1	2.1	3.5
	Enough	35	9.3	9.3	12.8
	Well	182	48.5	48.5	61.3
	Very good	145	38.7	38.7	100.0
	Total	375	100.0	100.0	

Based on the results of the analysis, it can be seen that I am satisfied with the quality of the system in learning at SMK PGRI 1 Tangerang in confidence in using Moodle at school with the results Very good 38.7%, 48.5% Well, 9.3% Enough, 2.1% Not enough, 1.3% Very less . Where students strongly agree that in the application of E-Learning learning by using Moodle they are satisfied with the quality of the system in learning.

## VI. CONCLUSIONS

From the results of the analysis of research conducted regarding Moodle E-Learning for the learning process using it can be concluded that:

1. SMK PGRI 1 Tangerang has implemented E-Learning learning using Moodle media to support the ongoing learning process, so that there is interaction between students and teachers.
2. The implementation of E-Learning at SMK PGRI 1 Tangerang has been effective. That is, both E-Learning and conventional learning models are equally effective.
3. The quality of the system and information on E-Learning at SMK PGRI 1 Tangerang is very good.

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