

# An Analysis The Implementation of Distance Learning System to Support The Teaching Process At SMA/SMK Level in the Region of North Maluku

Effendi M<sup>1</sup>, Zainuddin<sup>2</sup> and MS Ahmad<sup>3\*</sup>

<sup>1</sup> Indonesian Open University, Ternate, Indonesia

<sup>2,3</sup> Informatics Engineering, Faculty of Engineering, Universitas Khairun, Ternate, Indonesia

**Abstract.** Today learning in schools is starting to be adapted to the development of information technology, resulting in changes and shifts in the educational paradigm [1] This needs to be done so that the learning process does not seem less interesting, monotonous and boring so that it will hinder the transfer of knowledge [2]. At the beginning of 2020, the spread and transmission of the Corona Virus was increasingly spreading throughout the world. Rapid and massive transmission resulted in system changes in all aspects, both from social, economic, and educational aspects. Indonesia is no exception. To avoid the spread of this pandemic, various efforts have been made by the government to minimize the acceleration of the movement of the corona virus. Since the pandemic, the learning system in the world of education has undergone very significant changes. The government has explicitly issued a decision to implement distance learning by simultaneously utilizing technology so that the teaching and learning process continues. The big obstacle faced by most schools in North Maluku is that online learning support facilities are not yet ready. So that the majority of schools use teleconference applications as a medium to support distance learning. This research is intended to design an application that supports blended learning model learning. Blended learning is a learning method that combines two or more methods and approaches in learning to achieve process goals.

**Keywords:** Blended learning, Educations, e-Leaning

## 1 Introduction

Blended learning is a learning method that combines two or more methods and approaches in learning to achieve the objectives of the process learning. [3] states that blended learning is a conventional classroom where teachers and students meet face-to-face, with online learning that can be accessed anytime and anywhere. Another form of blended learning is virtual meetings between teachers and students. Activities or learning that allow them to be in different worlds, but can give each other feedback, ask questions, answer, and interact between students and teachers or between students and students. While the learning needs of the 21st century allow learning to be carried out using distance methods using ICT (Information Communication Technology), this learning trend is called distance learning (e-Learning) or blended learning using the web.

It is undeniable that in recent years technology-based learning (e-learning) has begun to receive special attention from various educational institutions and education actors in Indonesia [4]. In line with what [5] stated that e-learning is a teaching and learning method

using a system as a teaching and learning media that is connected by a network. [6] emphasize that to encourage online-based learning, teaching staff and students must take advantage of a learning platform that suits the needs and conditions of the user. [7] and [8] agree that technology-based learning brings many benefits and is following the current era, namely the era of technology 4.0.

Based on the results of research on the use of learning applications in middle and high schools that took a case study in North Maluku conducted by [9],[10], the utilization rate of distance learning was quite low, for more details, it can be seen in the following table.

**Table 1** Distance Learning User Data

No	Data	Percent
1	Mixed Plaform	41,3%
2	Facebook masseger	17,4%
3	Whatsapp	13%
4	e-Learning	12%
5	Google classrom dan line	5,5%

\* Corresponding author: msabri@unkhair.ac.id

6	Moodle	1,1%
7	Not interested	7,6%

This is due to the lack of facilities as well as socialization and training related to blended learning carried out in the province of North Maluku, departing from this problem we conducted this research with the aim of improving the quality of distance learning based on blended learning in the province of North Maluku.

## 2 Research Methods

This study uses a qualitative method. Data collection analysis. Data collection was carried out by utilizing survey data, and in-depth interviews with triangulation analysis through FGDs which were built based on the results of a comparative analysis of all districts/cities in North Maluku province. This research was conducted within 1 to 2 years where, the population in this study were all senior high schools in North Maluku Province. The sample used is a sample selected by purposive sampling technique, with the following criteria:

- The area has internet network access 3g/4g
- Senior High Schools that do not yet have learning support applications such as Web E-learning
- High school with complete facilities (Computer/laptop, internet access)
- Willing to provide school information and data to support the system
- Have IT staff who are ready to manage the system
- Stages of this research

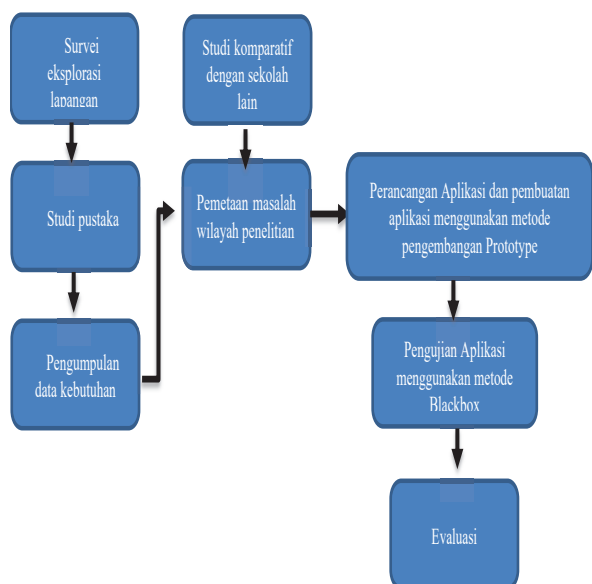


Fig. 1 Stages of Research Method

The stages of the research are described as follows:

- Field survey/exploration in the research study area (Ternate City, North Halmahera Regency, Central Halmahera Regency, West Halmahera Regency, East Halmahera Regency, South Halmahera Regency, Sula Islands Regency, and Morotai Island Regency)

- Literature study and research supporting documents
- Collecting field data (external data), in the form of data and documents about schools.
- Mapping of research area problems.

Conducted a comparative study on schools that have used blended learning support applications at the Merdeka Pupils School, Surabaya, which is the first school to implement a blended learning system. Section Design and manufacture of E-learning applications

- Design of application program designs according to data needs
- Application development using the Prototype model
- Application development using the Blackbox method
- application program evaluation

## 3 Result and Discussion

The design of the application here is how the process of describing a distance learning system software (E-Learning). At the design stage, we modelled the system using the Unified Modelling Language (UML). Use case diagram of E-Learning design can be seen in the Figure below.

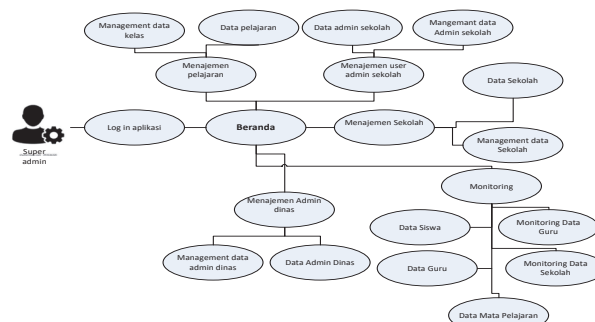


Fig 2 Admin Diagram Design

### 3.1 Coding Stage (Coding)

Coding is the translation of design in a language that can be recognized by the computer.

### 3.2 Testing

This stage can be said to be final in making a system. After analysing, designing, and coding, the finished system will be used by the user.

### 3.3 Maintenance Stage

Includes adjustments or changes that develop along with the adaptation of software to actual conditions or situations after being delivered to consumers or customers

The e-learning web application is specifically designed for a shared application use model by using one super admin in the management process of all

schools in North Maluku province, by monitoring application usage, school data management to other important features, besides that each school will be given 1 website with an admin who serves to manage or manage data as well as the use of applications in each school, as for school data that is planned to be given access to the use of E-learning applications for SMA/SMK North Maluku. Some of its features can be seen in the Figures below

### 3.4 Login Page

The following is a screenshot of the login page interface. Before entering the main page or dashboard, the user first enters a valid username and password and has the appropriate access rights / user level, in this e-learning application there are 5 user levels, from Super admin, education office admin, School Admin, Teachers and Students.



Fig 3 Login Page

### 3.5 Super Admin Page

The following is the dashboard page, this page contains all the data input processes for each school (data management) E-learning website in all SMA/SMK North Maluku Province.

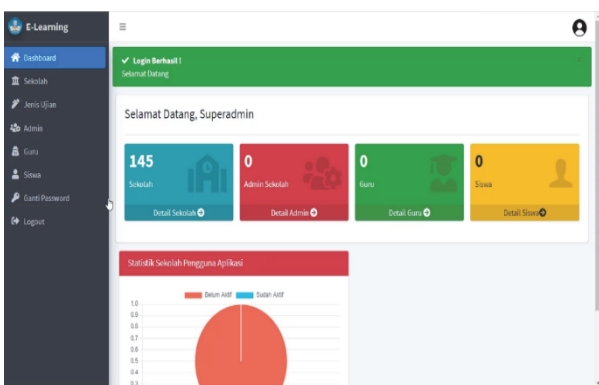


Fig 4 Menu Display Management Data Input Website E-Learning SMA/SMK

### 3.6 Super Admin Dinas Page

The following is a dashboard page, which is intended for officials or heads of the Education and Culture Office,

this page is used to monitor data and activities of all schools that are members of the E-Learning Website in all SMA/SMK North Maluku Province.

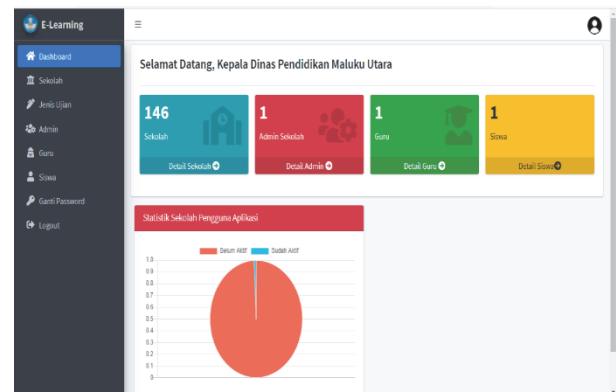


Fig 5 Menu Service admin display for monitoring data and information on SMA/SMK E-learning Websites

### 3.7 School Admin Page

The following is the dashboard page, this dashboard is owned by 1 of each school admins, and this page is the entire process of entering school data (management of specific school data) on the E-Learning Website at each school.

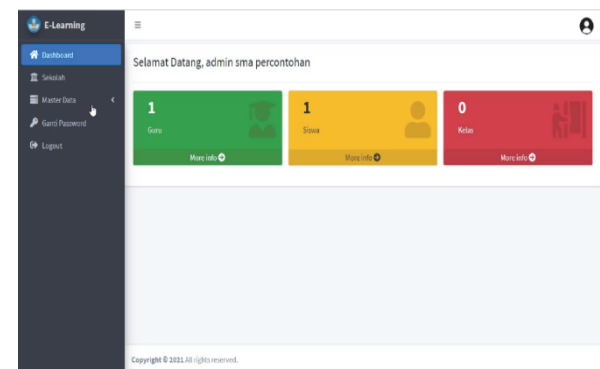


Fig. 6 Display Menu Data Input Management for High School/Vocational High School E Learning Websites

### 3.8 System Testing

System testing will be carried out to ensure the software can run according to specific standards. System testing is the most important thing that aims to find errors or deficiencies in the software being tested. The testing technique carried out is Black Box. Testing focuses on the functional requirements of the software. The following tests are carried out to check briefly to check the level of accuracy of the system. The test plan can be seen in the table 2 below.

**Table 2** System Testing

NO	Item	Actor	Status
1	Log in	Administrator, Student, Teacher, Head department	Proses success
2	Input data user Input Teacher data Input Student data Input head department data Input Administrator data Input class enter task data enter subject data	Administrator	Proses success
3	enter task data enter subject data enter value access input course material	Teacher	Proses success
4	Access Task data Access Subject data Access value access	Student	Proses success
5	monitoring task data monitoring subject data monitoring value access monitoring course material	Head Department	Proses success

## 4 Conclusion

Based on the data on the use of the platform in conducting distance learning above, it can be concluded that the lack of use of this application is due to the lack of facilities and socialization of the use of the application resulting in the low use of blended learning in North Maluku.

After the application was implemented, several schools, and many schools felt helped and understood more about the importance of using technology in the teaching and learning process in the province of North Maluku.

## References

- [1] M. and balqis Basri, *Pembelajaran E-Learning Di Masa Pandemi*. (2021).
- [2] A. Mukhadis, "Indonesian Human Resources of Excellence and Divine Character," *Pendidik. Karakter*, vol. **III**, pp. 115–136, (2013).
- [3] A. B. L. Mailangkay, I. Perbanas, and I. E-mail, "Penerapan E-Learning Sebagai Alat Bantu Mengajar Dalam Dunia Pendidikan," vol. **3**, pp. 17–21, (2016).
- [4] Y. Supriani, "Menumbuhkan Kemandirian Belajar Matematika Siswa Berbantuan Quipper School," *JIPMat*, vol. **1**, no. 2, (2017).
- [5] S. W. Dwi Lestari, Akhmad Arif Musadad, "Jurnal CANDI," *Pengguna. Comput. Based Test Sebagai Sarana Eval. Dan Pengaruhnya Terhadap Ef. Penilai. Pada Mata Pelajaran Sej. Di Sma Negeri 1 Boyolali Tahun Ajaran 2015/2016*, vol. **19**, no. 1, pp. 125–137, (2019).
- [6] I. Darmajaya, "System E-Learning Dengan Pendekatan Evaluasi Pembelajaran," no. November, (2015).
- [7] S. Jamal, A. Kesiapan, P. E. Saat, S. Jamal, and S. M. K. N. Tambelangan, "Pandemi Covid-19 Di Smk Negeri 1 Tambelangan Analysis Of E-Learning Readiness During The Covid-19 Pandemic At Smk Negeri 1 Tambelang," vol. **8**, pp. 16–22, (2020).
- [8] J. Kurikulum, D. A. N. Teknologi, F. I. Pendidikan, and U. N. Semarang, "Pelaksanaan Evaluasi Pembelajaran Melalui E-Learning Di Sekolah Indonesia Kota Kinabalu ( Sikk ) Malaysia," (2018).
- [9] Supriani, Yani. 2017. "Menumbuhkan Kemandirian Belajar Matematika Siswa Berbantuan Quipper School." *JIPMat* 1(2).
- [10] Utama, Metra Cahya, Asfira Sagitri, and Dian Tresna N. (2020). "Tujuan." *PTJJ* volume 1.2.