

IMPLEMENTATION OF THE ADDIE MODEL (ANALYSIS, DESIGN, DEVELOPMENT, IMPLEMENTATION, EVALUATION) IN PHP-BASED E-LEARNING IN THE ERA OF PANDEMIC

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ABSTRACT

During the pandemic period at the beginning of 2020, the effects are still felt until now. All schools in Indonesia may even be closed for almost 2 (two) semesters. At times like this, every teacher inevitably is required to use E-learning without face-to-face with students. The use of various media such as Whatsapp, Zoom, Google meet and Clasromm ect is very helpful for teachers and students. In this phenomenon, we conducted research using the ADDIE Model (Analysis, Design, Development, Implementation, Evaluation) on PHP-based e-learning that we designed and created, to support the government movement that still implements distance learning more easily. With the E-Learning Application that has been created, it is very helpful for teachers, students and administrative staff in data management, especially for online learning (on the network) during this pandemic period. This PHP-based E-Learning application can be a choice of E-Learning media for schools that are still unable to do face-to-face learning directly.

Keywords: ADDIE Model, E-Learning, PHP

I. INTRODUCTION

In 2020, the whole world experienced a very shaking phenomenon, namely the existence of a malignant virus that paralyzed all social sectors, that is COVID-19 [1]. There are many deaths caused by the virus. All the activities of life seem to stop. Not only is the economic situation chaotic, the state of the world of education has changed drastically [2] School and college children are laid off for more than 2 (two) semesters, but their right to receive an education cannot be ignored just like that [3]. Finally, technological advances can help the state of the world of education. E-Learning which has been done for a long time has finally been applied completely in the scope of education in Indonesia including in the city of Banjarmasin.

E-learning is a distance learning process that combines principles in a learning process with technological media. Examples of E-Learning media that are often used by teachers are Whatsapp, Media Zoom Meeting, Jitsi, Google Classroom, Classmate and so on. The government even provides Free Quota assistance to the community. In general, there are two basic perceptions of E-Learning [4]: Electronic based learning, which is a learning goal that utilizes technology in the field of information and communication, using electronic/digital as the medium. And the second is Internet-Based, which has the meaning of learning by using internet facilities that are directly online as the main device. This means that e-learning must use the online internet, which is a digital facility connected to the internet network. This means that learning is not limited to space and time.

To support government programs by implementing remote learning programs, we created E-learning using PHP and MySQL as an alternative to using E-learning based web by using the ADDIE Model (Analysis Design Development Implementation Evaluations) to make it easier for teachers, students and principals to implement online learning systems. ADDIE stands for five stages of the development process, that is Analysis (Analysis), Design (Design), Develop (Development), Implement (Implementation), and Evaluate (Evaluation). The ADDIE model relies on each stage performed in a given order, but with a focus on reflection and literacy [5]. This model gives you a focused approach to providing feedback for continuous improvement. From the description on the back page, it can be stated as follows: The World Problem, that is the Covid-19 Virus causes distance learning (Online/in the Network) from teachers for students, then media for E-Learning is needed that is easy to use by all parties [6]. So we made PHP-based E-Learning one of the alternatives that can be used.

Problem Formulation is How the Implementation of the Addie Model (Analysis, Design, Development, Implementation, Evaluation) in Php-Based E-Learning During the Pandemic can facilitate its users, that is Teachers and students. This application is used as one of the efforts to support the government in online-based distance learning. While the purpose of this research is to design and create PHP-based E-Learning Media with the ADDIE Model (Analysis Design Development Implementation Evaluations) from this research, the benefits obtained from the application that has been made are as follows:

1. Manage data quickly and accurately.
2. Students easier to learn and search for materials in schools online using e-learning applications.
3. Teachers easier to assign tasks and check tasks that have been done by their students online using e-learning applications.
4. Principals easier to get existing report reports quickly and effectively through e-learning applications.

II. RESEARCH METHODS

The Research Method used in this study is the Case Method, which is with the current situation where distance learning is held in all schools and lectures due to the pandemic period because of the many cases of COVID 19 in various places almost all over Indonesia. So it is necessary to have distance learning media (E-Learning) to make it easier for teachers and students to still be able to carry out their obligations. We designed and created one of the E-Learnings with PHP-based ADDIE (Analysis Design Development Implementation Evaluations) Model to participate in supporting government movements in Online learning to make it easier.

Analysis of the needs of a system is the activity of planning that contains what processes will be carried out by the system model to be built or developed [7]. This study using 3 (three) system needs, that is: the need for data, user face needs, and functional needs obtained from the results of observations, interviews and literature studies related to the theme of this study. The analysis of system model needs that are expected to exist in this E-Learning Application is:

1. The system must be able to process class learning material data quickly and properly manage student value and attendance data.
2. The system can provide information to the Principal about all existing reports according to needs.
3. Superadmin can access the system in full.

A. Usecase Diagram

In the design of the system, in this study we used UML (Unified Modeling Language) which consists of the Usecase diagram as follows:

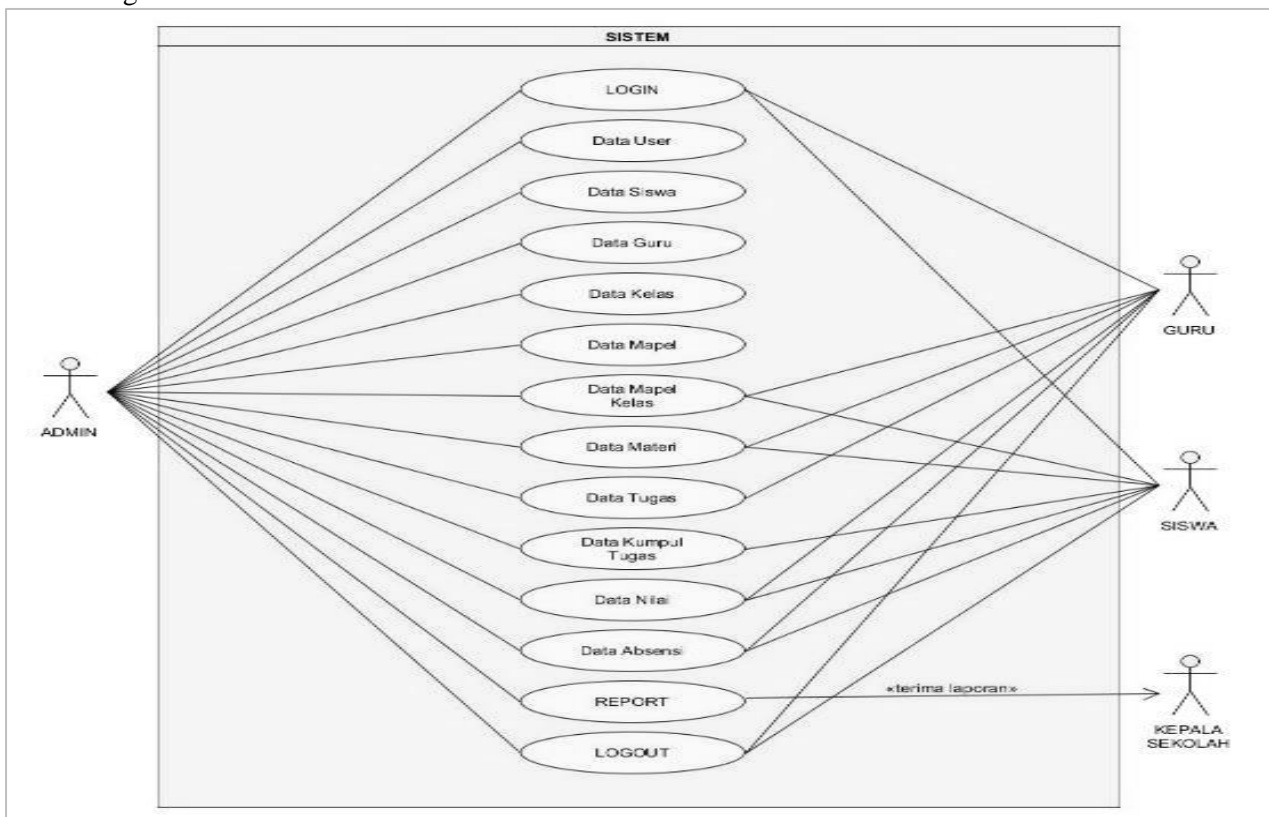


Figure. 1. Usecase Diagram on E-learning System

The Use Case Diagram describes the user flow of the application, that is admins, teachers and students. The user must log in first, if it is successful then the system will direct according to the status of the account, if the admin will go to the admin menu if other users will enter the user menu. The use of this Use Case describes what functions/activities can be used by users [8], for example, user admin. User admins can use all the functions in the application. While other users, that is teachers and limited students, can only use the functions available to teachers and students.

B. ERD (Entity Relationship Diagram)

ERD is a model / Diagram / Table to compile a database to describe the database that has a relationship with the database to be designed [9].

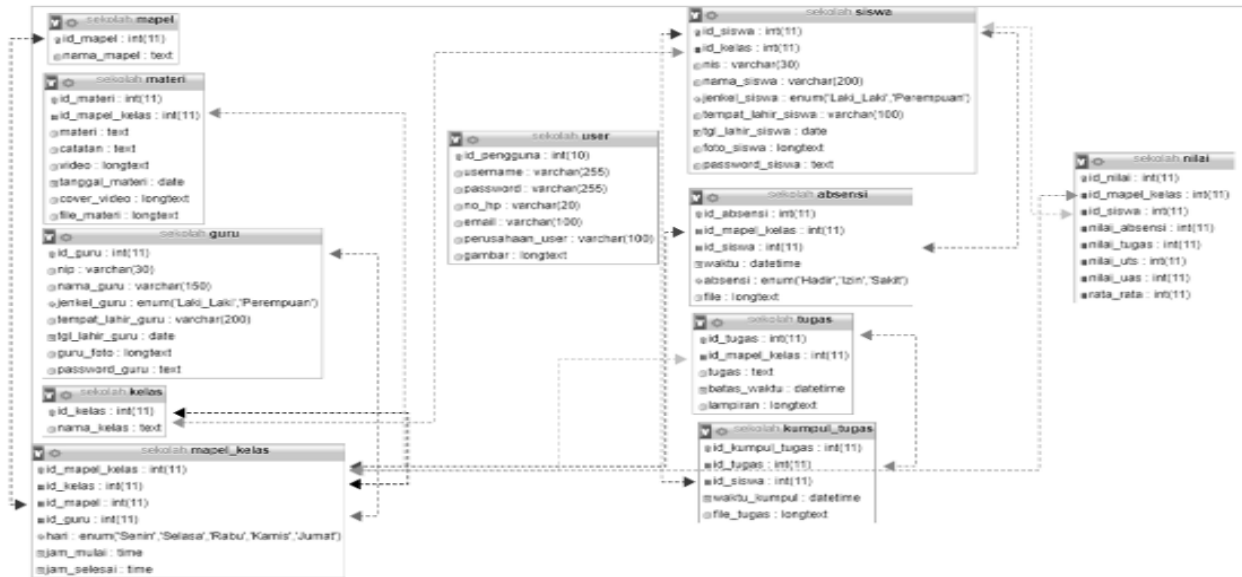


Figure. 2. Entity Relationship Diagram (ERD) E-learning System Created

III. RESULT AND DISCUSSION

From the methods that have been written in Chapter III, we use the ADDIE (Analysis Design Development Implementation Evaluations) Method. Here are the details based on this method:

1. Analysis: for a needs analysis that describes what the problem looks like and planning the right solution. for the world problem, that is, the Covid-19 Virus causes distance learning (Online / in the network) from teachers for students, then media for E-Learning is needed that is easy to use by all parties. So we made PHP-based E-Learning one of the alternatives that can be used.
2. Design: To determine the learning approach, then design a PHP-based E-Learning design according to the needs of the research object
3. Development: Developing designs that have been created such as UML (Unified-Modeling-Language) diagrams, that is Use case Diagrams and Class Diagrams.
4. Implementation: Implementing applications to the research object, that is madrasah Tsanawiyah schools. User Applications consist of Admins, Teachers and Students.
5. Evaluation: The next stage is to conduct system testing, and see errors/errors that may occur during implementation. Equation

Applications that are made based on object needs, that is e-learning that has Users: Admins, Teachers and Students. Here is the System Interface View:

A. Form Login

The appearance of the login form page is a page for users to log in to the application, this form serves to input username data with the admin password, if you have finished filling it out and click the login button, there will be a notification that the user successfully logged in and the page will point to the main page.



Figure. 3. Form Login for Application E-Learning

B. Main Menu Form for User Admin

The admin main menu page view is the admin's home page when accessing the application, consisting of learning material forms, attendance, assignments, settings, students, teachers and report results.

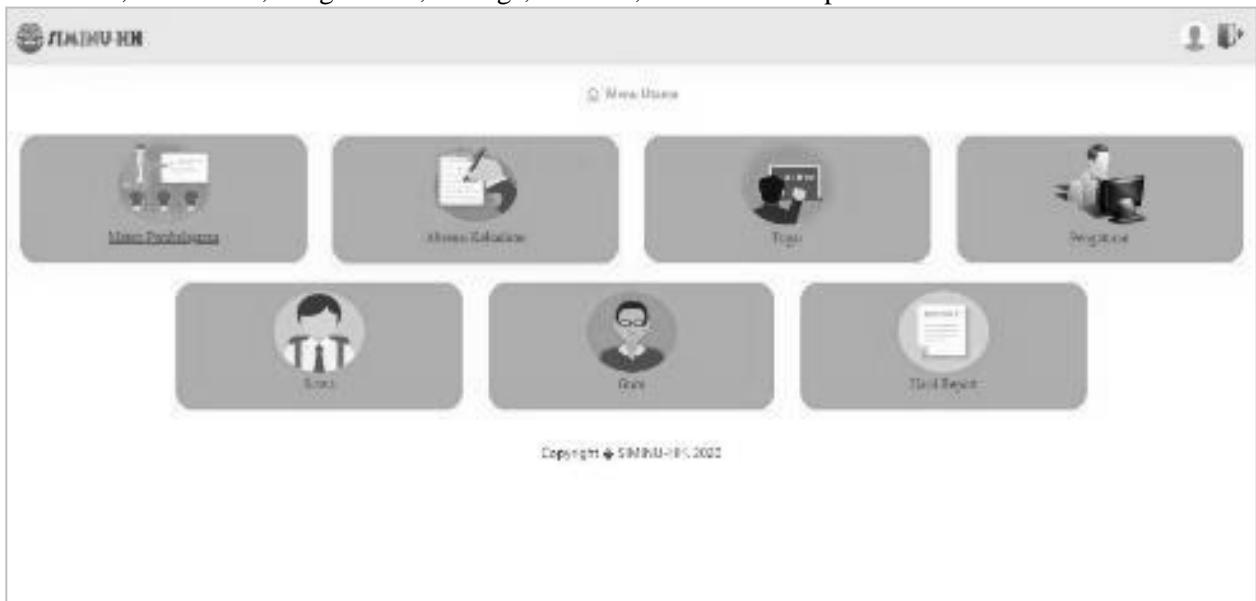


Figure. 4. Admin Main Menu

C. Student Data Form

The student data form page view is the page for student data input. Input class name, student name input, student place of birth input, upload student photo, input student, date of birth input, student password input and click save to save to database, close to return student data Teacher Data Form

Figure. 5. Student Data Form

D. Form Data Teacher

The teacher data form page view is the page for teacher data input. Teacher nip input, teacher gender input, teacher date of birth input, teacher name input, teacher birthplace input, teacher's place of birth input, teacher password input, click save to save the database and click close to Close form data.

Figure. 6. Teacher Data Add Form

D. Output laporan yang dihasilkan

Here is the output that is the result of E-Learning created:

1. Report for Student Data,
2. Report for Teacher Data,
3. Report for Mapel Data,
4. Reports for Class Mapel Data
5. Reports for Student Schedule Data
6. Reports for Teacher Schedule Data
7. Student Attendance Data Report
8. Value Data Report

No	Nip	Nama Guru	Jabat Guru	Tempat Lahir Guru	Tgl Lahir Guru	Guru Foto
1	1960060219551001	Abd. MAUL, S.Pd.I	Laki_Laki	Banjarmasin	1970-07-05	
2	19600201979081000	Fitriah, S.Pd.I	Laki_Laki	Kemarak	1979-04-12	
3	19600201975053000	Annurrah, S.Pd.I	Laki_Laki	Martapura	1975-12-20	
4	1960020196008000	Mahfud, S.Pd.I	Laki_Laki	Bandar	1960-07-26	
5	19600201960057000	Ismi Hasanah, S.Pd.I	Perempuan	Pekalongan	1960-07-15	

Banjarmasin, 16-Sep-2020

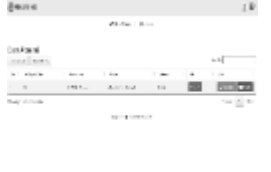
Figure. 7. Example Output Teacher data report

E. system Testing

The test method performed after the System is evaluated is *BlackBox* testing using the *Equivalence Partitioning* (EP) method. This testing activity is carried out by dividing the input domain of the program/application into classes so that the test case can be obtained. EP applies based on the premise of input and output of a component to be partitioned/divided into classes, according to the specifications of that component, which will be treated equally (equivalent) by that component [10]. In this test, you must be able to be sure that the same input /input will produce the same response/ output. The reason for using the EP method in testing this application is because this method can be used to find errors/errors in functions that have been created, besides that it can find out errors in *the interface* and errors in the data structure to reduce problems with input values [11].

Here is one of the results of the test listed in the table

Table. 1. Student Attendance Data Testing

No.	Tested functions	How to Test	Expected results	Test Results
1.	Save	Input class mapel id Input student name Time input, etc	Inputted data is successfully stored in the database	 Appropriate

IV. CONCLUSION AND SUGGESTION

After going through several stages, that is, following the methods used in this study, that is ADDIE (*Analysis, Design, Development, Implementation and Evaluations*) it was concluded that *web-based E-Learning* Applications using PHP and MySQL programming languages created can help and facilitate teachers to manage material delivery data and student management and student assessment, It also makes it easier for teachers to assign tasks and check assignments online. This application also helps the administrative staff in data search and wants to see the results of data reports that have been stored in the database. In addition, of course, it is very helpful for Online Learning between Teachers and Students because each User can access this Web-Based Application. For Evaluation, after testing using BlackBox Testing, the system on each Form and Database, all actions work according to program needs, especially button buttons for user purposes such as input, print, download and save.

As for Suggestions for Research in the future, in addition to being web-based, this application can be developed to be based on android / mobile so that E-learning activities are easier and easier to use online learning activities.

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