

CHAPTER III

RESEARCH METHODOLOGY

3.1 Research methodology design

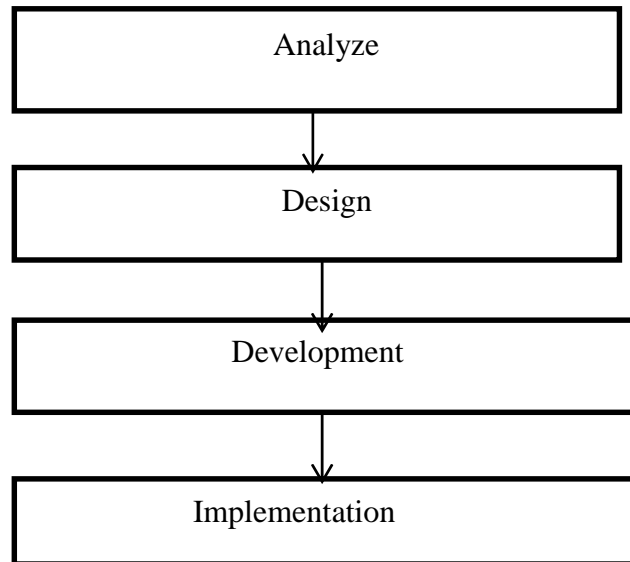


Figure 3.1 Flow Of ADDIE Method

3.1.1 Analysis

Before making the application, first conduct an analysis of the object that will be the target of research, this analysis includes tools and materials as well as the time needed to conduct research so that what is needed is in accordance with what we are going to do and so that it is more scheduled in each process.

3.1.2 Design

After doing the analysis, the next stage is the application menu design, where in this stage an initial description of the design of the application that we will make will be carried out, so that in making the application according to the target we expect.

3.1.3 Development

After the design is done, the next process is development where we give orders or enter them in the menus that we created earlier, so that each menu can be accessed and run according to the commands that have been carried out, and the designs and code that we have created are already in the form of applications that we can use.

3.1.4 Implementation

If the application has been completed and the system can be used, then proceed to the next stage, namely implementation, where this method is carried out to perform functionality testing so as to find out the shortcomings of the application from the user's point of view.

3.1.5 Evaluation

After going through all the stages and being able to function properly, the application carries out a evaluate process where the application if there is damage immediately gets repaired and if there is an addition to the system it can be updated.

3.2 Flowchart system running

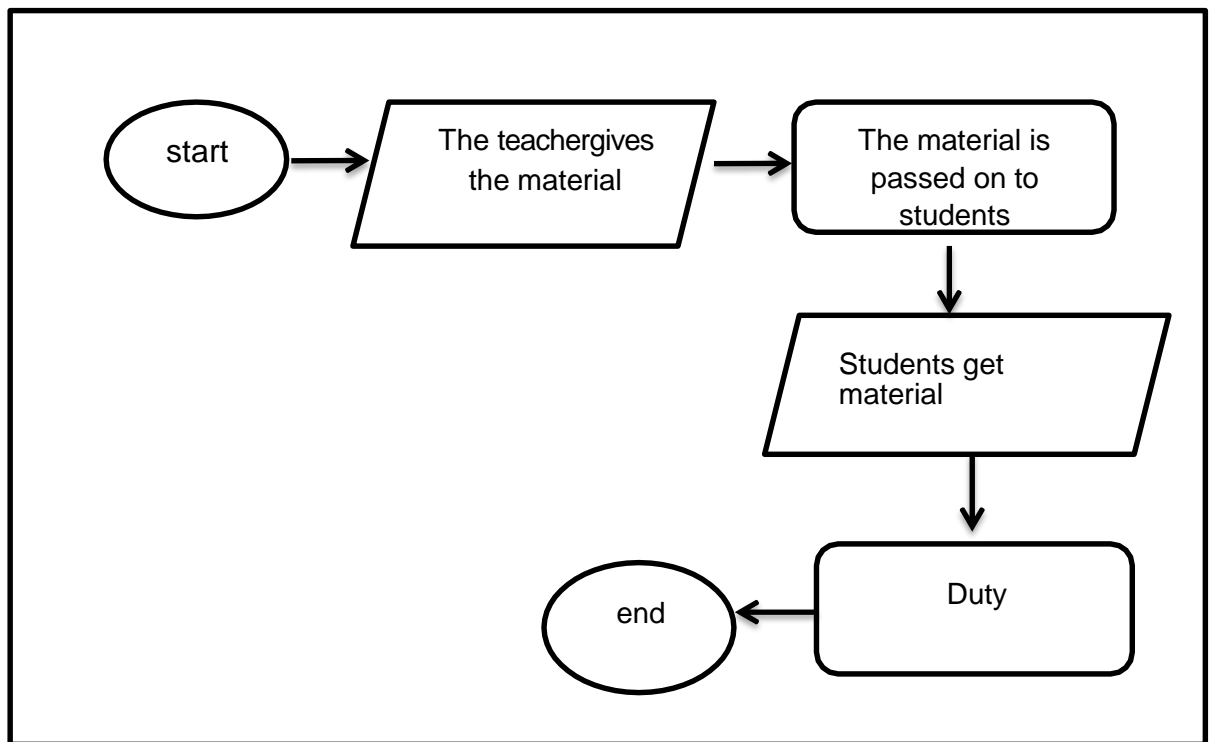


Figure 3.2 Flowchart System Running

The system that is currently running at SDN 1 Bangun Rejo when learning online is, the teacher delivers material only through whatshap media which only contains global material and does not include pictures or any media in the material so that students find it difficult to understand and seem bored to see material that only contains just writing.

3.3 Overall Flowchart

Flowcharts describe the sequence of execution of the program using certain symbols. Program flowcharts are used to describe each step in a computer program logically

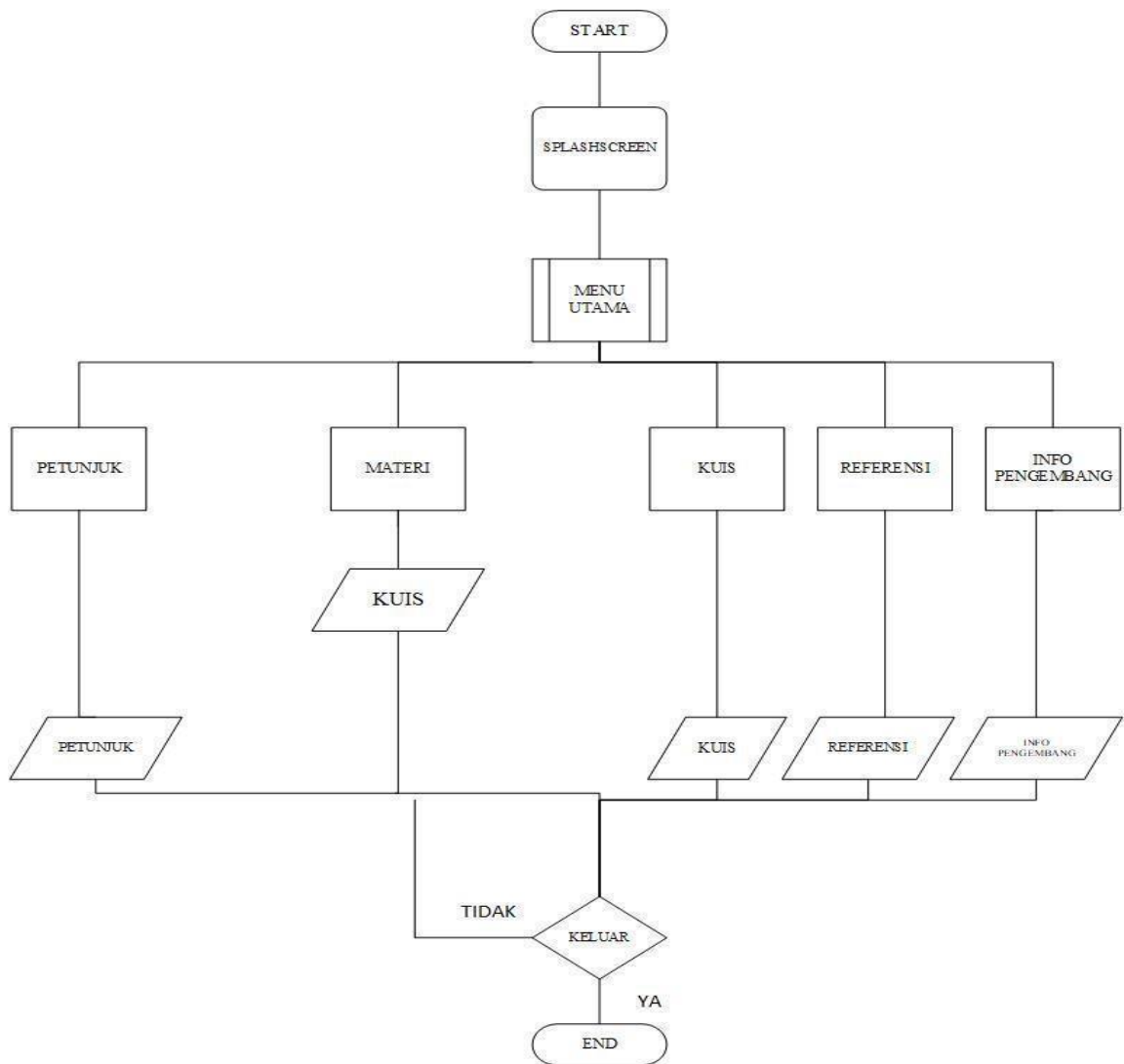


Figure .3.3 Overall Of System Flowchart

3.3.1 Stages of development

The stages of developing interactive learning multimedia for taking moving pictures as a subject were developed using unity software with reference to the ADDIE development model, the following are the stages of the ADDIE model:

1. Stage of Analysis(Analysis)

At the analysis stage there are several important activities, namely:

- a. Observing the learning situation and interviewing teachers and students, then analyzing the grade 2 students of the state elementary school 1 Bangun rejo relating to what must be mastered.
- b. Conduct material analysis in accordance with the competency demands of Lampung language subjects.

2. Stage of Design(Design)

- a. Learning media is designed for third grade students of State Elementary School1 Bangun Rejo
- b. Creating interactive learning multimedia designs in the form of display designs, flowcharts, system requirements.
- c. Arrange material to be included in interactive learning multimedia with the subject and point of view of taking pictures.

3. Development Phase(Development)

Development activities are activities to translate design specifications into physical form, so that these activities produce prototypes of development products. And in the development stage, the creation and merging of content that has been designed at the design stage is carried out. In the storyboard phase, content writing and graphic design required include:

- a. Manufacture of products according to designs that have been made.
- b. Make product validity questionnaires for media experts and material experts, questionnaires for teacher and student responses. The expert product validity

questionnaire consists of aspects of coloring, use of words or language, graphics, and design. The material validity questionnaire consists of aspects of learning, curriculum, content, interaction, feedback, error handling. The teacher's response questionnaire consists of several aspects of assessment which include: aspects of learning, curriculum, content, feedback, error handling. While the student response questionnaire consists of the operation or use of media, reactions to use, and supporting or additional facilities. The questionnaire includes a media expert questionnaire, a material expert questionnaire, and a student questionnaire.

4. Implementation Phase(Implementation)

The implementation stage is the stage where testing is carried out on applications that have been made in development. Application testing is carried out using existing software standards. The implementation phase is carried out by testing the media after the manufacturing process is complete. Testing is done by running learning media and seeing whether there are errors or not.

5. Stage of Evaluation(Evaluation)

The evaluation stage is carried out if there are still revisions or changes from the Lampung language learning media as a source of learning materials for students III SDN 1 Bangun Rejo.



Figure 3.4 flow ADDIE Stage

3.1 Research tools and materials

3.1.1 Software Development

The software used in the development of Augmented Reality learning media for computer network materials is as follows:

- a. Windows 10 Education 64 bit Operating System
- b. Adobe Photoshop CS6
- c. Corel DrawX3

3.1.2 Development Hardware

The hardware used in the development of Augmented Reality learning media for computer network materials are as follows:

- d. Lenovo T420 .Laptop
- e. OS: Windows 10
- f. RAM: 4GB
- g. HDD: 500GB
- h. CPU: Intel Core i3
- i. VGA: NVIDIA GeForce820M

3.1.3 Testing Device

The hardware specifications used in testing Augmented Reality learning media for computer network materials are as follows:

- j. Android OS Jellybeans
- k. RAM 3MB
- l. Memory4GB

