

CHAPTER II

LITERATURE REVIEW

2.1 Learning Media

According to (Muhson, 2010) Learning media can be a vehicle for channeling messages and learning information. A well-designed learning media will greatly assist students in digesting and understanding the subject matter. In this era of globalization and information, the development of learning media is also increasingly advanced. The use of Information Technology (IT) as a learning medium is already a requirement. Although the design of IT-based media requires special skills, it does not mean that the media is avoided and abandoned. IT-based learning media can be in the form of internet, intranet, mobile phone, and CD Room / Flash Disk. The main components include Learning Management System (LMS), and Learning Content (LC). Education is one aspect that is used as a forum to shape the character of the nation's children. Therefore, in the educational process, an educator must be able to master various learning media because conditions are always changing. Moreover, at the current time the Covid-19 Pandemic is sweeping the world, various sectors are undergoing changes and are required to adapt to the circumstances. Including educational institutions must also transform learning media during the Covid-19 pandemic. Media is one of the supports in the learning process. The success or failure of the learning process is largely determined by the media used. Media is anything that can be used to transmit messages from sender to recipient so that it can stimulate students' thoughts, feelings, attention and interests in such a way that the learning process occurs. According to Dabbagh and Ritland, online learning is an open and distributed learning system using pedagogical tools (educational aids), which is made possible through the internet and network-based technology to facilitate the formation of learning processes and knowledge through meaningful action and interaction.

2.1.1 Principles of Instructional Media:

- a) According to Wibawanto, W. (2017) In the elements of art, there are lines, features, colors, spaces, textures and dark light. These elements also appear in an interactive

learning media design, so that we can relate the principles of design/fine art to the design of learning media. Some principles that can be applied in the design of instructional media include:

1. Principle of Comparability (Proportion) Comparability (proportion) is a comparison relationship between a part and another part or a part with a whole element. Comparability can be reached by showing the relationship between:

- a) element with other elements, elements with other elements are interconnected.
- b) The plane / space element with the dimensions of the plane or space, the plane / space element relates to the dimensions of the plane or space.
- c) Dimensions of the field/space itself, the balance of the field/spaceit self.

2. The principle of emphasis (Emphasis), the principle of emphasis makes the artwork look fresh and new and not monotonous and boring. In a design/art work there are some materials or ideas that need to be displayed more than others. In design / art creation, all elements should not stand out, in the same sense that they are strong, so that it looks busy and the information or what will be conveyed will be unclear. Emphasis is a communication strategy that aims to direct the view of the reader to a highlight. Emphasis in learning media can be achieved for example changing the size of the text, displaying illustrations with a larger proportion or using different colors for emphasis.

3. The Principle of Balance (Balance) Balance is influenced by various factors, including the factor of the position of an element, the combination of elements, the size of the elements, and the presence of elements in the breadth of the field. Balance will occur when the elements are placed and arranged with a sense of harmony or commensurate. In other words, if the weight of the elements after being arranged gives the impression of being solid and right in place. A simple form of balance is a symmetrical balance that seems formal or formal, while asymmetrical balance seems informal and more dynamic.

4. The Principle of Rhythm (Rhythm) Rhythm occurs because of the repetition of the plane / space which causes us to feel movement, vibration, or movement from one element to another. From the rhythm, you can determine the eye flow (using a good composition by

following the reading flow) or the direction of reading a design. In general, the reading direction of a design is from left to right and from top to bottom.

5. The principle of harmony (Harmony) The condition of harmony or harmony is formed because there is no conflict between one element and another. In design, to form harmony is done by applying the same shape and color to similar elements and displaying elements with the same style.

6. The Principle of Unity In the end the principle of unity is a cohesion, consistency, singleness or wholeness, which is the main content of the composition. This principle will be achieved if the previous principles have been applied. To fulfill the principle of unity, things that can be done include:

- a) Using only two or three type styles (typeface) with a size that has good readability and is relatively the same on all pages of interactive learning media.
 - b) Using a color palette (a set of colors that are arranged and mixed and matched to give an eye catching color combination) that is identical throughout the page.
 - c) Repeating colors, shapes, or textures to form rhythm and eye flow (using good composition by following the flow of reading).
 - d) Using a good proportion of the size of the graphic object and laying it regularly.
 - e) Provide free space to bring harmony.
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- b) Media Functions Media are everything that can be used to channel messages that can stimulate students' thoughts, feelings, attention, and willingness to learn (Miarso in Muhammad Munir, 2013).
 - c) Learning Media Criteria The selection of the media is right on target, it is necessary to pay attention to several factors which are the basis for consideration in the selection of instructional media. According to Arsyad (2014) the criteria for good instructional media that need to be considered in the media selection process include the following:

1. In accordance with the objectives to be achieved. The selected media are based on predetermined instructional objectives which generally refer to one or a combination of two or three cognitive, affective, and psychomotor domains.
2. Appropriate to support the content of lessons that are facts, concepts, principles, or generalizations. Different media, for example a film and/or graphic require different symbols and codes, and therefore require different mental processes and skills in understanding them. In order to be able to assist the learning process effectively, a medium must be in tune with and in accordance with the needs of the learning task and the mental abilities of students.
3. Practical, flexible and enduring. This criterion guides teachers to choose existing media, easy to obtain, or easy to make by the teacher themselves. The selected media should be able to be used anywhere and anytime with the equipment available in the vicinity, and easy to move and carry every Where.
4. Teachers are skilled at using it. This is one of the main criteria. Whatever the media, the teacher must be able to use it in the learning process. The value and benefits of a medium are largely determined by the teacher who uses it in the teaching and learning process.

According to Mayer (2018) , the criteria for good multimedia can be summed up into the following aspects:

1. Content is an aspect of the material that needs to be evaluated by the relevant material expert. The description of the content aspects are:
 - a) The suitability of the material with the learning objectives, the material with the learning objectives must be appropriate.
 - b) The truth of the structure of the material, the structure of the material is correct according to the book.
 - c) The accuracy of t he material content, the content of the material according to each information and can be justified for its correctness.
 - d) Grammatical correctness, grammar must be correct according to the KBBI.
 - e) Correctness of spelling and punctuation, punctuation and spelling must be correct and appropriate.

- f) The correctness of the term, the terms used must be true and appropriate.
- g) The correctness of the suitability of the level of difficulty with the user, the suitability of the writing with the age of the user must be correct.
- h) Dependence of material with culture and ethnicity, material related to culture and ethnicity.

2. Instructional Instructional is evaluated by the material expert (teacher). This aspect relates to learning aids. The description of the instructional aspect:

- a) Accuracy of the theme, the theme raised must be appropriate /appropriate.
- b) The way of presentation, the presentation must be appropriate and appropriate.
- c) Interactivity, the ability of users to communicate directly with computers
- d) Cognitive capacity, capacity in the field of intelligence or intelligence.
- e) Learning strategies, there are strategies in learning.
- f) User control, in the application the user can control the program.
- g) Quality of questions, questions contained in the program have quality. h) Quality of feedback, the feedback in the program.

3. Display Display is an interface component or something that connects the content of the material with the user and is evaluated by a media expert. The description of the display aspects are:

- a) Layout, a consistent layout from the start page to the end page of the application/program.
- b) Use of color, the color used is according to the level of the user.
- c) Text quality, the text used can be read by the user.
- d) Image quality, the image used has good quality so that the image is not broken/blurred.
- e) Animation quality, the animation used is of good quality.

- f) The navigation, navigation or guide buttons function properly.
 - g) Audio / video quality, sound or video is of good quality.
 - h) Consistency of navigation, the navigation contained in the program is consistent from the beginning to the end of the page.
 - i) The contrast of the background with the front object, the color difference between the background and the front object is not too different.
 - j) Spaces, clear and precise spaces in each word
- d) Multimedia learning criteria, programs / applications that are made are included in the multimedia learning criteria. According to Arsyad (2011), there are several criteria for multimedia learning, namely:
1. Clearly focused on the goal, good multimedia is directly focused on the goal, not media that is not directed or even has no purpose.
 2. Interactive continuously, good multimedia has continuous interaction to the user.
 3. Branching to suit the student's ability level, has a level that is adjusted to the user ability.
 4. Relevant to curricular goals and learning objectives, directly related or useful to curricular goals and learning facilities.
 5. The presentation format is motivating, the format contained in the multimedia presentation provides motivation to the user.
 6. Proven effective (by field trials).
 7. Serving appropriate images/graphics, images/graphics displayed in multimedia are in accordance with the material.
 8. The instructions are simple and complete, there are instructions for use that are complete and easy to understand by the user.
 9. Giving positive reinforcement, good multimedia has positive value info cement.

According to Daryanto (2010) in his book reveals good multimedia learning, including:

- 1) Must be easy to use containing simple navigations that make it easy for users.
- 2) It must be interesting in order to stimulate users to be interested in exploring the entire program, so that all learning materials contained in it can be absorbed properly.
- 3) The learning materials contained in it must also be adapted to the needs of users, in accordance with the curriculum, and contain many benefits.
- 4) It should be easy to install on the computer.

e) Characteristics of Interactive Multimedia According to Munir (2012), the characteristics of interactive multimedia in learning are:

1. Having more than one convergent media, for example combining audio and visual elements.
2. It is interactive, has the ability to accommodate user responses.
3. Independent, providing convenience and completeness of content so that users can use it without the guidance of others.
4. Easy to use by users of the media.

f) Good Learning Media According to Ozugol (in H. RayandraAsyar, 2012), several factors that can be used in selecting media include:

- 1) purposes and benefits,
- 2) students,
- 3) learning methods ,and
- 4) available technologic alcapabilities.

According to Asyhar (2012), the criteria for good instructional media that need to be considered in the media selection process are as follows.

- 1) Clear and tidy. Good media must be clear and neat in its presentation.
- 2) Clean and attractive. Clean here means no unnecessary distractions to text, images, sound and videos.
- 3) It fits the target. A medium that is effective for large groups is not necessarily as effective when used in small groups or individuals.
- 4) Relevant to the topic being taught. Media must conform to the characteristics of facts, concepts, principles, procedural or generalizations.
- 5) In accordance with the learning objectives. Good media is media that is in accordance with predetermined instructional objectives which generally refers to one or a combination of two or three cognitive, affective, psychomotor domains.
- 6) Practical, flexible and durable. This criterion guides the teacher/instructor to choose media that is available, easy to obtain, or easy to make by the teacherhimself.
- 7) Good quality. Technical criteria for media must be of goodquality.
- 8) The size is according to the learning environment. Media that is too large is difficult to use in a class that is limited in size and can cause learning activities to be less conducive. Based on the description above, the selection of learning media must be student-oriented. This means that it is necessary to consider what advantages and conveniences will be obtained by students with the selection of these media. The media chosen must be in accordance with the learning objectives, the characteristics of students and the material to be studied, as well as the methods and learning experiences provided to students.

2.2 The concept of learning the Lampung language

According to (Laila et al., 1978) learning the Lampung language and script, the problem is the lack of native speakers and the lack of media for learning the Lampung language and script. Elementary school children aged 7-12 years are at the stage of concrete operational development. At this stage, the child's thinking is holistic and concrete. They have not been able to see a phenomenon discretely and are unable to learn abstract things. Piaget further emphasized that the success of learning in elementary school is determined by two things, the meaningfulness of what is learned, and the digestibility of the subject matter by

students. Piaget formulated this learning concept as Developmentally Appropriate Practices (DAP), namely the design of learning activities that must be adapted to the level of development of the child. the characteristics of elementary school children as above, give us clues

How should local language teachers (Lampung) for primary schools design their learning, especially in the online education era, such as now teachers must be able to design learning that is easy to understand, such as introducing vocabulary that is closest to students or the school environment so that material delivery can be easily conveyed to students , that makes this research carried out at SDN 1 Bangun Rejo in order to help students in online learning, and why learning the Lampung language? because in the times of development like now the regional language, especially the Lampung language, has often been abandoned and prefers to use foreign languages or cultures than the Lampung language which is a language that must be preserved, especially the people of Lampung.

2.3 Lampung language

According to research (Putri, 2018) Lampung language is a regional language and as a mother tongue for people in Lampung Province. Lampung language is divided into 2 namely Pepadun and Saibatin. Lampung language differences in geographical location. Lampung language with the Nyow dialect (Pepadun) is the language used by the people of Lampung in non-coastal areas. The Lampung dialect of Api (Saibatin) is the language used by coastal communities. Thus the Lampung language is the regional language spoken by Ulun Lampung and is also the identity of the Lampung province. However, over time the local language is now abandoned due to the lack of awareness of the community that the importance of preserving customs and culture, especially the people ofLampung.

2.4 Media

According to Bachtiar, W. H. (2012), said that the media is an intermediary to convey information or messages. In language the media comes from the word "medium". Meanwhile, according to the Association of Education and Communication Technology (AECT), media is a form and channel used to convey messages and information. According to Sadiman (2011), media comes from Latin, which is the plural form of the word medium which literally means intermediary or introduction. Media is something that is used to transmit a message from the sender to the recipient and can stimulate students' thoughts, feelings, attention, and interests in such a way that the learning process occurs. Meanwhile, according to Wibawanto, W. (2017) media is a type of component in a student's environment that can stimulate him to learn. The arrangement of learning media and classroom furniture must be made in such a way as to support the teaching-learning atmosphere, it is hoped that children will: a. Discipline and neat, self-control against rules and orderly and clean. b. Instilling good habits, instilling positive values. c. Easy if used by users of the media, it does not confuse users in using the media. d. Easy to use by anyone, anyone who uses this media can use it 10 e. The focus of the child's attention can focus on the program. From some of the expert's opinions above, it can be concluded that the media is a tool, means, intermediary, and liaison to spread, carry or convey a message and ideas to the recipient. While educational media are everything that can be used to channel messages so that they can stimulate students' thoughts, feelings, actions, interests and attention in such a way that the teaching and learning process occurs in students.

2.5 Learning

According to Law no. 20 of 2003 concerning the National Education System Article 1 Paragraph 20, Learning is a process of interaction between students and educators and learning resources in a learning environment. Meanwhile, according to Komalasari and Kokom (2013), learning is a system or learning process for learners that is planned, implemented and evaluated systematically so that learners can achieve learning objectives effectively and efficiently. According to Rusman (2012) learning is a process of creating conducive conditions for teaching and learning communication interactions to occur

between teachers, students, and other learning components to create learning objectives. Meanwhile, according to Ade Sanjaya (2011) learning is a complex system whose success can be seen from two aspects, namely product aspects and process aspects. The success of learning seen from the product side is the success of students regarding the results obtained by ignoring the learning process. According to Anjar, A. (2013) explains that learning is every activity designed by the teacher to help someone learn a new ability or value in a systematic process through the stages of design, implementation, and evaluation in the context of teaching and learning activities. From some of the definitions of learning above, a conclusion can be drawn about the meaning of learning, that learning is a process of interaction between students and educators and learning resources programmed to make students learn actively through a process of teaching activities that have been systematically compiled through the planning stage of implementation. and evaluation in the context of teaching and learning activities in a learning environment.

2.6 Development Tools

2.1.1 Vuforia

Vuforia There are several tools in AR development, one of which is Vuforia. According to Mario Fernando (2013), vuforia is software for Augmented Reality developed by Qualcomm that uses consistent sources of computer vision that focus on image recognition. Vuforia has a lot of features and capabilities that can help developers to realize their thoughts without any technical limits.

According to Ni Komang Oktari (2014) Vuforia can be run for iOS, Android and Unity 3D platforms so that it supports developers to create applications that can be used by almost all types of smartphones and tablets. Developers are given the freedom to design and create applications that have the capabilities, among others, (1) high-level computer vision technology; (2) continuously recognizes multiple images; (3) advanced tracking and detection; (4) flexible image database management solutions.

The working principle of vuforia is to use targets.

According to Mario Fernando (2013) there are several types of targets for vuforia, which are as follows:

- a. Image Target, for example: photos, board games, magazine pages, book covers, product packaging, posters and greeting cards.
- b. Frame Markers, a type of 2D image frame with a special pattern that can be used as a game.
- c. Multi-target, for example product packaging or product in the form of a box or square. This type can display simple Augmented Reality 3D images.
- d. Virtual Button, which can make the button as a box area as the target image.

2.1.2 Unity3D

Unity 3D Besides vuforia, there are also other tools, namely Unity 3D. According to Ni Komang Oktari (2014) Unity 3D is an integrated tool for three-dimensional object forms in video games or for other interactive contexts such as architectural visualization or real-time 3D animation. The 3D merge environment runs on Windows, Mac, Xbox 360, Play station 3, Wii, iPad, iPhone and on Android platforms. Unity 3D can be obtained for free. Unity 3D has a complete framework for the development of various professional technologies. This engine system uses several programming languages, including C#, JavaScript and Boot Script. Unity has a variety of functions and has a variety of features that can be used. The functions and features in Unity include the following.

- a) Scripting The game engine script was written with Mono 2.6, an open source implementation of the .NET Framework. Programmers can use Unity Script, C# or Boot Script. In this research, the development uses C # as the programming language.
- b) Movie Texture Unity supports the video playing feature using the movie texture feature. Movie textures can be used to display slide shows or render a movie in a scene.
- c) The Unity platform supports software development into various platforms / OS. In a project, the developer has the control to make the software onto a mobile device, web browser, desktop, or console. Unity also allows texture compression specifications and resolution settings on each supported platform. In this study, an application was developed on the Android platform.

- d) Asset Store Unity Asset Store is a resource available in Unity editor. The asset store consists of a collection of more than 4,400 asset packages, along with 3D models, textures and materials, sound effects, tutorials and projects, scripting and networking.
- e) Android SDK The Android SDK is an API (Application Programming Interface) tool needed to start developing applications on the Android platform using the Java programming language. Android is a software subset for mobile phones that includes the operating system, middleware and key applications released by Google. Currently, the Android SDK (Software Development Kit) is provided as a tool and an API to start developing applications on the Android platform using a programming language Java(Safaat,N.,2011).

2.7 Multimedia

According to (Septian et al., 2018) Multimedia is the result of a combination or combination of text, images, graphic art, sound, animation and video elements that are manipulated and formed digitally. The look and outcome of a multimedia project should be pleasing, aesthetic, intriguing and engaging. In other words the project must contain visual clarity, using only multimedia elements that support the overall message of the program. The word media comes from Latin and is the plural form of the word medius which means middle, intermediary or introduction. In other words, media is a component of learning resources or physical vehicles that contain instructional material in the student environment that can stimulate students to learn.

2.1.3 Multimedia Elements

Interactive multimedia is a combination of interconnected and digitally manipulated elements that provide control over content and a high level of interaction for individual users and multimedia applications.

These elements include:

a) Text

According to Vaughan (2011), text is the simplest data and requires the least amount of storage space. In fact, the text still provides information that can have a strong meaning.

In general, there are two types of font grouping: serif and sans-serif. The difference between these two groups is that the sub-sections of the serifs have sharper angles than the sub-sections of the sans-serifs. Examples of serif fonts are Times New Roman, Bookman, and Palatino, while sans serif fonts are Helvetica, Verdana, Arial, Optima, and Avant Garde (Vaughan,2011).

2.1.4 Voice

According to Vaughan (2011), the notion of sound is something that vibrates in the air,

creates a pressure wave and the wave reaches the eardrum, we feel a change in pressure or vibration. Sound pressure level is measured in decibels (dB)

2.1.5 Image

Computer-generated images are generally divided into 2, namely:

a) Bitmaps

Bits are the simplest elements in the digital world, electronic objects that can be turned on or off, black or white, or true (1) or false (0). Bitmap is a simple matrix of small dots that make up an image and

displayed on a computer screen (Vaughan, 2011).

b) Vector

Is a type of image that uses the dot unit. Most multimedia learning systems provide a means for drawing vector-shaped objects such as lines, rectangles, ovals, polygons, and complex images made of these objects, and text (Vaughan, 2011).

2.8 Android

According to (Septian et al., 2018), Android is a Linux-based Mobile OS (Operating System) that grows in the midst of other operating systems that are developing today. Other operating systems include Windows Mobile, iOS, Symbian, and many more. However, the current operating system tends to prioritize core applications without seeing the sizable potential of third-party applications. Nazruddin Safaat H (2012:1), Android is an operating system for Linux-based mobile devices that includes an operating system, middleware and applications.

Brucles (2017), Android is an operating system for linux-based mobile devices which includes operating systems, middleware and applications. Android provides an open platform for developers to create their applications. Android is a new generation of mobile platform, a platform that gives developers the ability to develop as they wish.

Meanwhile, Arru (2018) explains, Android is a software used on mobile devices (running devices) which includes an operating system, middleware and core applications. Android is an operating system for smartphones and tablets. The operating system can be illustrated as a bridge between the device (device) and its use, so that users can interact with their devices and run applications available on the device. This Android operating system is open source so that many programmers have flocked to create applications or modify this system. The programmers have a very big opportunity to be involved in developing Android applications because of the open source reason. Most of the applications in the Play Store are free and some are paid.

2.9 Flowchart

According to Indrajani (2011) Flowchart is a graphic depiction of the steps and sequence of procedures in a program. Usually affects the resolution of problems that in particular need to be studied and evaluated further.

According to Yatini, I. (2010) Flowcharts are charts that have a flow that describes the steps to solving a problem. flowchart is a way of presenting an algorithm. The purpose of making a flowchart is:

- a) Describe a stage of problem solving
- b) Simply put, decomposed, neat and clear
- c) Using standard symbols

In writing flowcharts, there are two models, namely the flowchart system and the flowchart program:

- i) **System Flowchart** That is a chart that shows the sequence of procedures and processes from several files in certain media. Through this flowchart, it can be seen the type of storage media used in data processing. It also describes the files that are used as input and output. Not used to describe a sequence of steps to solve a problem but only to describe the procedures in the system being formed.
- ii) **Program Flowchart** That is a chart that shows the sequence and relationship processes in a program. There are two types of flowchart program drawing methods:
 - 1) Conceptual flowchart, describing the flow of problem solving globally.
 - 2) Detail flowchart, describing the flow of problem solving in detail.

The symbols used in flowcharts are divided into 3 groups:

- a) Flow direction symbols Used to connect symbols with each other is also called connecting line.

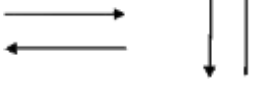

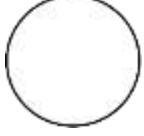

	Symbol flow / flow, which states the flow of a process.
	Communication link symbol, which states the transmission of data from one location to another.
	The connector symbol, serves to indicate the connection from one process to another on the same page.
	The offline connector symbol, represents a connection from one process to another on a different page.

Figure 2.1 Figure Flow Direction Symbols

b) Processing symbols

Indicates the type of processing operation in a process/input/output procedure.



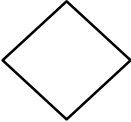



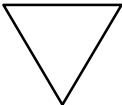

	Process symbol, which states an action (process) performed by computer.
	Manual symbol, which states a actions (processes) that are not performed by the computer.
	Decision symbol, which shows a certain conditions that will result in two possible answers: yes / no.
	Predefined process symbol, which states the provision of a storage area processing to put a starting price.
	Terminal symbol, which represents the start or end of a program.
	Keying operation symbol, states the type of operation that is processed using a machine that has keyboard.
	The offline-storage symbol, indicates that the data in this symbol will be saved to a media certain.
	Manual symbol input, enter data manually manually by using the online keyboard.

Figure 2.2 Image Processing Symbols

c) Symbols

Indicates the type of equipment used as input or output media.

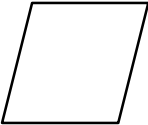

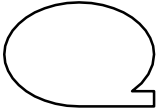


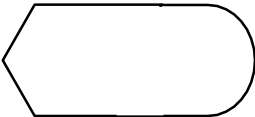
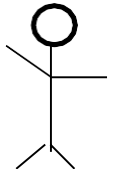

	The input/output symbol indicates the process or output regardless of the type of equipment.
	The punched card symbol indicates that the input comes from the card or the output is written to the card.
	Magnetic tape symbol, indicating the input comes from magnetic tape or the output is stored onto magnetic tape.
	Disk storage symbol, indicating the input comes from disk or the output is saved to disk.
	Document symbol, print output in document form (via printer).
	Symbol display, prints the output in the monitor screen.

Figure 2.3 Image Symbols

2.10 Use Case Diagram

According to (Tahel & Ginting, 2019) in his research Use Case is used to describe the features that will be applied to the system and actor interaction. These features are usually what the system will connect with its users. These objects will be grouped into classes, which will be represented by a class diagram.

The symbols in the use case diagram can be seen in figure 2.4 below:

Symbols	Description
<i>Use Case</i> Namause case	Functionality provided by the system as units that exchange messages between units or actors, usually expressed by using verb at the beginning of the phrase name use case.
<i>Aktor/actor</i>  nama aktor	Other people, processes or systems that interact with the information system that will be created outside the system that will be created itself, so even though the symbol of the actor is a picture of a person, the actor does not necessarily use the person; usually expressed using words bemda at the beginning of the actor's name phrase.
<i>Asosiasi/association</i> 	Communication between actors and use cases participating in the use case or use case have interactions with actors.




<p>Ektensi/<i>extend</i></p> <p><<extend>></p> 	<p>Additional use case relation to a use case where the added use case can stand alone even without the additional use case; similar to the principle of inheritance in object-oriented programming; usually usecase additionally have the same first name</p>
	<p>with the added use case, for example, the direction of the arrow leads to the added use case.</p>
<p>Generalisasi/generalization</p> 	<p>Generalization and specialization relationship between two use cases where one function is more general than other functions.</p>
<p>Menggunakan include</p> <p><<include>></p> 	<p>The use case relation adds to a use case where the use case is added requires this use case to run its function or condition in run this use case.</p>

Table 2.4 Symbols use case diagram

2.11 Activity Diagrams

According to Rosa (2018), the activity diagram describes a workflow or activity from a system or business process that exists in the software. It is important to note here that activity diagrams depict system activities, not activities performed by actors.

The symbols in the activity diagram can be seen in Figure 2.5 below:


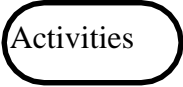



Symbols	descriptions
Initial status 	System activity start state, an activity diagram selects an initial state.
	Activities that are carried out by the activity system are usually preceded by a verb
branching/ decision 	A branching association where there is a choice of activities over
merger/join 	A merging association where more than one activity is combined into one
final status 	The final state that is carried out by a system the activity diagram has an end state

Figure 2.5. Activity Diagram symbols

2.12 Software Development Methods

2.12.1 ADDIE method

According to (Tegeh et al., 2015) The development model used in this development is the ADDIE Model which is one of the systematic learning design models. Romiszowski (1996) argues that at the level of learning material design and development, systematic as a procedural aspect of the systems approach has been adopted.

manifest in many methodological practices for the design and development of text, audiovisual materials, and computer-based learning materials. The choice of this model is based on the consideration that this model is developed systematically and is based on the theoretical foundation of learning design. This model is arranged programmatically with a systematic sequence of activities in an effort to solve learning problems related to learning resources that suit the needs and characteristics of learners. This model consists of five steps, namely: (1) analyze, (2) design, (3) development, (4) implementation, and (5) evaluation.). This method is suitable for the development of online learning media as is currently being done.

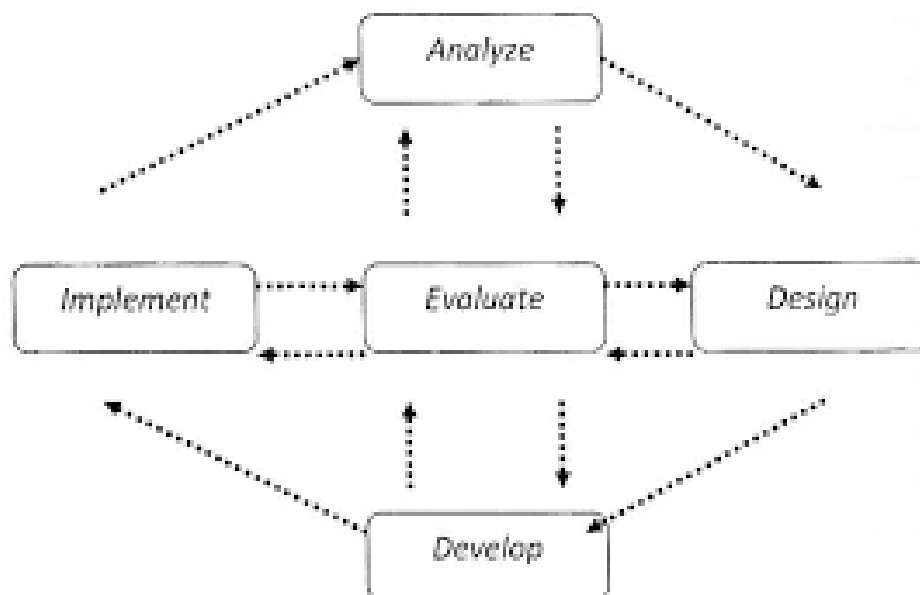


Figure 2.6 ADDIE method

2.13 Black Box Testing

According to (Cholifah et al., 2018) in his research Software testing in terms of functional specifications without testing the design and program code to find out whether the functions, inputs and outputs of the software comply with the required specifications. The Black box Testing method is wrong. a method that is easy to use because it only requires a lower and upper limit of the expected data, the estimated number of test data can be calculated through the number of data entry fields to be tested, the entry rules that must be fulfilled and the upper and lower bound cases that meet . And with this method it can be seen if the functionality can still accept unexpected data input, it causes the stored data to be less valid.

2.16 Review of Studies

2.16.1. Related research

The preparation of this final project is inspired and takes references from several previous studies. The list of these studies is attached in the following table.

Table 2.3. Related Research Table

No	title	Method	Description
1	Design of Android-Based English Learning Applications	UML The design method of this system uses UML (Unified Modeling Language)	facilitate users in the process of learning and practicing English because this application is cost-effective and quite easy to use
2	Designing Learning Media Applications for Introduction to National Heroes to Increase Nationalist Sense Based on Android	Studiliteratur	improve memory and sense of nationalism because so far teachers still have difficulty repeating back to the question about the National Hero that was taught before
3	Development of Android- based Mathematics Learning Media for SD/MI Students	(research and development)	learning really helps students who are in the concrete operational phase in understanding material that is abstract or lacking able to be explained in verbal language.
4	Development of Desktop-Based Interactive Learning Media for Moving Image Subjects for Class Xii Vocational High School Multimedia Department (Case Study of Ma'arif 1 Yogyakarta High School)	ADDIE development research method	interactive learning media for desktop-based moving picture subjects is very suitable to be used to support student teaching and learning activities

5	Development of Interactive Learning Multimedia in the Subject of XII Class Moving Image Capture Techniques for the Multimedia Department at SMK N 1 Wonosari	Data collection methods are interviews, observations, questionnaires, using the ADDIE development	4D development model, reliability testing using Alpha Cronback, for the Department of Light Vehicle Engineering
6	Development of Interactive Learning Media "Computer Hardware" Using Adobe Flash CS6 in Computer Assembly Subjects at SMK N 3 Yogyakarta	<ul style="list-style-type: none"> - ADDIE development model. - Methods of collecting data are interviews, observations, questionnaires. - Using the Research and Development (R&D) method 	For TKJ class X SMK majors
7	Development of Android-Based Learning Media on Competence Explaining the Installation of Programmable Logic Controller (Plc) Components and Circuits for Vocational High Schools	research and development. The development model used is ADDIE	The results of the feasibility study by the material expert received very feasible criteria, the media expert's feasibility assessment received very proper criteria, and the student response assessment was feasible.
8	Learning Media With Android-Based Applications To Improve Student Learning Outcomes In Biology Subjects In Class Xi SMA Muhammadiyah 1 Karanganyar	The research method used is Research and Development with the ADDIE development model (Analysis, Design, Development, Implementation and Evaluation).	This android application-based learning media can improve student learning outcomes and android application-based learning media is feasible for students to use in learning.
9	Development of Learning Media Based on Android on the Basics of Algorithms and Programming for Class X National High School Students	ADDIE development model	The results of the feasibility study by the material expert received very feasible criteria, the media expert's feasibility assessment received very proper criteria, and the student response assessment was very feasible.

10	The Use of Android-Based Learning Media for Fiqh Class VII Subjects at Mts N 1 South Lampung	Research and development methods or Research and Development (R&D). Research procedures use the Borg and Gall model.	Android-based learning media developed are very practical when used in the learning process.
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2.17 Conclusion

The Lampung language learning application made by this author has several similarities with previous research such as the similarity of the method used but in this study the author created a learning application that was appointed by the author, namely in the features used by researchers wanting to develop media Lampung language learning equipped with certain features, including the availability of audio/voice, quiz/practice questions, information about the Lampung language material.

