CHAPTER III
RESEARCH METHOD

A. Research Design

The research uses the Research and Development cycle in order to have appropriate design for the students. Research and development is a process used to develop educational products which can enhance teaching and learning processes in student reading descriptive text at SMP Muhammadiyah 2 Pagelaran. The research uses the Research and Development for the educational research in order to have more efficient, practical and applicable educational research. There are ten steps in of research and development proposed by Borg and Gall (1983). Those cycles are research and information collecting, Planning, Develop preliminary form of product, Preliminary field testing, Main product revision, Main field testing, Operational product revision, Operational field testing, Final product revision, Dissemination and implementation. The writer combined those cycles with the ADDIE model. The combination of those research methods is shown in the table bellow :

Borg & Gall (1983)	ADDIE	The Combined Model
Information Collecting	Analyze	Information Collecting: - Literature study - Need analysis

Planning	Design	Planning
		Planning - Selecting topics and materials - Planning kinds of features of the Android application

Develop preliminary form of product	Development	Development - Developing materials - Developing the application - Building and testing the application - Expert Validation
Preliminary field testing		
Main product revision		
Main Field Testing	Implementation	Implementation - Users Validation
Operational Revision	Evaluation	Evaluation

Table 3.1 The Combined Model of R & D Model and ADDIE Model

This research used the combination of R and D model and ADDIE model which consists of five main stages. The first stage was Information collecting. In this step, the writer collected some information that is related to the problems of teaching and learning English, especially speaking. The writer distributed questionnaire and

interviewed both the students and the English teacher. Besides knowing the problem of learning speaking, this activity is also aimed to find information about the teacher and students expectation on how they will learn reading descriptive text After the problem and expectation are identified, the writer conducted a literature study on the teaching syllabus and documents related to the research participants needs.

The second step was planning. In this step, the writer selected some topics and materials from the syllabus and the result of the questionnaires distributed in the need analysis. The writer also used the results of the interview of the teacher and students as the additional information for the development of the product. After selecting the topics and materials, the writer designed the tasks, activities, quizzes and the projects. In this stage, the writer also planned the features of the product.

The third stage was development. In this stage, the writer developed the materials and made the flowchart and storyboard in order to help the writer develop the product. The writer then developed the materials by collecting audios, pictures, exercises, quizzes and activities based on the selected topics. In addition, the storyboard and the flowchart are made to help the writer decide the content of each screen of the product and how each screen is linked to one another. After the writer developed the materials, storyboard and the flowchart, the writer developed the product using App Inventor and uploaded the developed materials. Then, the project was built into apk file in order to test the product in a smart phone. This development process is done simultaneously in order to produce the most appropriate product for the research participants. After the expected product was done, the writer conducted formative evaluation for the improvement of the product by validating the product to

the material and media experts. The product validation was conducted by distributing questionnaires and interviews to the experts. After both experts gave feedbacks, the writer then revised the product by developing some features based on the experts" suggestions. The writer also omitted some features that are not appropriate with the research participants" needs.

The fourth step was implementation. In this step, the writer implemented the product to the research participants. In the implementation process, the writer conducted the summative evaluation. The summative evaluation was conducted by distributing questionnaires and interviews to the students. The results of the summative evaluation were used to do evaluate the product.

The fifth step was evaluation. In this step, the writer evaluated the product based on summative evaluation conducted in the previous step. In this last step of the research, the researcher has done with the final product.

B. Setting of The Researcher

The researcher chooses this setting because the geographical is easy to reach by the researcher. The subject of the research is student at the seven grade of SMP Muhammadiyah 2 Pagelaran in Academic Years 2020/2021, based on the preliminary

research the total numbers are 30 students. It is choose as subject of the research because the students in this class experience some problem in learning English. Based on the observation conducting by the researcher in the interview teacher; the students of class VII are dealing with some issues of learning the Descriptive text. That the students' has poor ability in reading descriptive was the concern of the research.

C. Research Participant

In conducting this research, the researcher involved various participants in order to have a good product. The participants were 30 students seven grade of SMP Muhammadiyah 2 Pagelaran. The researcher also involved an English teacher, and Computer and Network SMK Muhammadiyah Pagelaran who are selected as the experts of material and media to validate the product. The table below shows the description of the experts background.

NO	Name	Participant	Education Background			Teaching Experience		
			S1	S2	S3	1-5	6-10	>10
1.	ElmyYuliantiS.Pd	English Teacher	1	-	-			1
2.	Dwi Herawati S.Kom	Computer and Network Engineering Teacher	1	-	-		1	
3.	Eny Suciati S.pd	English Teacher	1	-	-		1	

Table 3.2 The experts of material and media validation

Both of the material and media experts validated the product by giving feedbacks, opinions and suggestions. The material experts gave feedbacks related to the content of the product including the quizzes and activities while the media experts gave suggestions and opinions related to the design, layout as well as the navigation of the

Android Application.

D. DATA GATHERING TECHNIQUE

The Researcher collected the data from observation, questionnaires, and interviews. The questionnaires were distributed by Google foam to get the quantitative data, while the interviews with the teacher were done to get the qualitative data. Both of the data were classified into stages based on the combination of R & D and ADDIE model. The explanation of the stages, instruments, participants, obtained data are presented bellow:

Stages	Instrumen	Participan	Obtained Data	Aim
Collecting Information	Need Analysis (interview, questioner)	Seven grade of student SMP Muhammadiyah 2 Pagelaran	The description of student need	To design the theoretical model of Mobile learning application
Preliminary Field testing (Development)	Questionnaire for Expert Validation	☐ English Teacher of SMP Muhammadiyah 2 Pagelaran ☐ Computer and Network Engineering Teacher of SMK Muhammadiyah Pagelaran	Teacher problem in teaching english in pandemic Covid-19 and suggestion on conducting mobile learning Application.	To revise the initial iconic model
	Interview for Expert Validation	• English Teacher of SMPMuhammadiya 2 Pagelaran	The detailed comments and suggestions on the designed learning model	To revise the initial iconic model

	Questionnaire for Users Validation	The student seven grade of SMP Muhammadiyah 2 Pagelaran	Feedback about the designed learning model	Develop the revised iconic model into the final learning model

Table.3.3 Stages of combination of R & D and ADDIE model.

E. RESEARCH INSTRUMENTS

1. Questionnaires

In this research, the researcher used both structured and unstructured questionnaires in order to get effective data from the research participants. In the structured questionnaire, the research participants were provided with some statements in which each answer was scored using Likert scale. This structured questionnaire provided quantitative data for the writer. Meanwhile, in unstructured questionnaire, the research participants were provided with some open ended questions which let the research participants to answer the questions based on their feelings and opinions. In this kind of questionnaire, the research participants had an opportunity to express their opinions freely. This unstructured questionnaire provided the writer with qualitative data.

Before designing the product, the questionnaires were distributed to the students for the need analysis. The questionnaires were to analyze the students" learning environment in the classroom. In the questionnaires, the writer identified the students" learning style in the classroom, knew how the students learn and their interaction with the teacher and classmates and also knew the number of students who are accustomed to use Android

smartphones. In other words, the need analysis questionnaire provided the writer information about how the students learn speaking and the readiness for having a speaking mobile learning.

To validate the product, the questionnaires were distributed to the experts of material and media. The experts were an English teacher of SMP Muhammadiyah 2 Pagelaran, Computer and Network Engineering Teacher of SMK Muhammadiyah Pagelaran The experts gave feedbacks, opinion and suggestions. The material experts gave feedback related to the contents and activities of the application. While the media experts gave feedback related to the design, navigation and layout of the application. Both of the questionnaires are the combination of structured and unstructured questionnaire and they were written in Indonesian.

After the first revision of the application, the writer implemented it to the research participants. In this step, the user validation questionnaires were distributed to the users to gather the students opinions and suggestions toward the applications. The user validation questionnaire was a combination of structured and unstructured questionnaire.

Based on the discussion above, the researcher distributed three kinds of questionnaires: need analysis questionnaire, expert validation questionnaire, and user validation questionnaire. The need analysis

questionnaire and the expert validation questionnaire were made to obtain the quantitative and qualitative data to answer the first question formulated in the problem formulation. Meanwhile, the user validation questionnaire was made to obtain the quantitative and qualitative data to answer the second question formulated in the problem formulation. All of the quantitative data were collected from the structured questionnaires. Meanwhile, the quantitative data were collected from the unstructured questionnaires.

2. Interview

In order to get reliable data, the researcher also collected the data by conducting interviews. The researcher interviewed both of the teacher and students to analyze the students needs in the reading descriptive text in learning processes and the designed application.

The interviews were also conducted to the both material and media experts. From the interviews, the researcher got more detailed comments and suggestions toward the Android application. Therefore, the data gathered become more specific. The interview was also conducted to the students after the implementation of the Android application. This interview was aimed to know how the Android application help the students learn reading descriptive text.

Based on the discussion above, the researcher conducted three kinds of interviews: need analysis interview, expert validation interview, and user

validation interview. The need analysis interview and the expert validation interview were conducted to obtain the qualitative data to answer the first question formulated in the problem formulation.

F. DATA ANALYSIS TECHNIQUE

There were quantitative and qualitative data in this research. The quantitative data were collected from the structured questionnaire, while the qualitative data were collected from both unstructured questionnaire and interview results. The quantitative data were calculated using percentage, while the qualitative data were presented by describing the respondents opinions, suggestions and recommendations in written forms.

The formula below shows how the data from the closed questions in need analysis were calculated statistically using percentage.

$$\frac{n}{N} \times 100 \, \%$$

Notes:
        n = the total number of students who choose a certain answer
        N = the total number of students

All of the results of the questionnaire were calculated and clearly shown in a table in order to ease the writer identify all of the data. Below is the table of the need analysis results.

However, both material and media evaluation data collected from structured questionnaires were calculated differently. Both questionnaires were designed using Likert scale proposed by Creswell (2012). It is suggested that scoring data means that

the researcher assigns a numeric score or value to each response category for each question on the questionnaires (Creswell , 2012).

1. **Likert Scale**

No	Interval	Category	Description
1	1.0<sv<1.5	Very Poor	Not yet usable, requires consultation
2	1.6 <sv< 2.5	Fair	Can be used with many revision
3	2.6<sv<3.5	Good	Can be used with, a slight revision
4	3.6<sv<4.0	Very Good	Can be used, without revision

Table 3. 4. The Conversion Table of The Raw Scores into Converted Score

3.6<sv<4.0   = 4 = Very Good
2.6<sv<3.5   = 3 = Good
1.6 <sv< 2.5   = 2 = Fair
1.0<sv<1.5   = 1 = Very Poor

2. **Media Expert**

No	Aspek Penilaian	Indikator	No Butir	JmlhSoal
		Background	1	
		Komposisi warna	2	
		Font	3	**8**
1	Tampilanawal	Bahasa	4	
		Pengoperasian	5	
		Ketepatan pemilihan Gambar	6	
		Warna	7	

		Pemilihan gambar	8	
2	Materi	Sound effect	9	
		Warna	10	
		Bahasa	11	
		Desain tampilan	12	8
		Pengoperasian	13	
		Warna	14	
		Sound effect	15	
		Font	16	
4	Quiz	Bahasa	17	
		Desan tampilan	18	
		Pengoperasian aplikasi	19	4
		Warna	20	
6	Keseluruhan		21,22	**2**
Aplikasi E-Learning Total				**25**

Table 3. 5. The blue print of Media Expert

3. Expert Validation

No.	Aspek Materi	Indikator	No. Butir	JmlSoal
1.	Kesesuaian Materi	Kesesuaian materi dengan KD	1,2	8
		Penyajian Materi sudah baik	3	
		Kesesuaian materi dengan KI	4	
		Kesesuaian materi dengan Sylabus	5	
		Isi materi mudah di pahami	6	
		Font	7	
2.	Isi Materi	Materi	8	3
		Mudah di pahami	9	
		Tombol menu	10	
Total				10

Table 3. 6. The blue print of Expert Validation

4. Student Response

No	Aspek Penilaian	Indikator	No Butir	JmlSoal
		Ketepatan tampilan menu/fitur	1	

1	Tampilan Awal	Pemilihan *background*	2	3
		Ketepatan pemilihan warna dan *font* (tulisan)	3	
2	Materi Pembelajaran	Bahasa yang digunakan	4	5
		Pemilihan materi	5,6	
		Ketepatan gambar	7	
		Kemudahan pemindahan Slide	8	
3	Quiz	Pemilihan soal	9,10	3
		Ketepatan font(tulisan), background dan gaya Bahasa	11	
4	Game menyenangkan	Ketepatan serta kemudahan game	12	3
		Tampilan dan *font* (penulisan)	13	
		Bahasa dan petunjuk	14	
5	Secara Keseluruhan	Tujuan dan petunjuk Aplikasi	15	6
		Meningkatkan semangat Belajar	16	
		Kesesuaian aplikasi pada zaman sekarang	17	
		font(tulisan), sound effect, warna/background	18	

		Kegunaan aplikasi untuk berikutnya dan merekomendasikan kepada teman-teman	19,20	
		Total		20

Table 3. 7. The blue print of Student Response

After converting the raw scores, the results then were analyzed using Criterion Reference Evaluation proposed by Sukardjo (2006). The table below is the explanation of the range of scores.

No	Interval	Category	Description
1	1.0<sv<1.5	Very Poor	Not yet usable, requires consultation
2	1.6 <sv< 2.5	Fair	Can be used with many revision
3	2.6<sv<3.5	Good	Can be used with, a slight revision
4	3.6<sv<4.0	Very Good	Can be used, without revision

Table 3. 8 The CRE Scales

Notes:

X = Actual Score

SD (Standard Deviation) $= \frac{1}{6}$ (maximum score – minimum score)

Xi (Ideal Score Average) $= \frac{1}{6}$ (maximum score + minimum score)

The maximum score refers to the highest converted score (2), while the minimum score refers to the lowest converted score (-2). The quality of the product was described using final Mean which was calculated with the formula as follows:

$$Xi \frac{sx}{N}$$

Note :

Xi   = Average Score

$\sum$x   = Total Score

N   = Number of participant

There were five categories of results based on table above. First, if the score was considered very good, it means that it does not need any revision. Second, if the score was considered as good, it means that the revision is optional.

Third, if the score was classified as fair, it means that conducting more exploration on the design is necessary. Fourth, if the score was considered as poor, the revisions and improvements of the product are recommended. Finally, if the score was considered as very poor it means that the revisions of the product are highly required. After both material and media validation questionnaire results were gathered, validated and categorized, the writer presented the data.

the quantitative data of the questionnaires. It can be seen that in the table that each statement had its category based on the mean. It can also be seen clearly that the final mean described the quality of the product. Meanwhile, the data from the open ended questions were selected and categorized into some aspects to support the quantitative data. The data were also used as the main suggestions for the writer to revise the product if needed.

In addition, the interview results were selected accordingly and interpreted in written form. The data was used to support the quantitative data collected from thequestionnaires.