CHAPTER III

RESEARCH METHODOLOGY

This chapter provides the description of the research methodology employed in this study, which is subdivided into a few points. They are the research design, the development model, the development procedure, the design of try out, the subject of the research, the research instrument, as well as the data analysis technique.

A. Research Design

The purpose of this study was to develop an integrated pictorial vocabulary dictionary as a learning media to enhance students' vocabulary. Based on the research objectives, this research employed a Research and Development (R&D) design. When a researcher intends to develop a new product or improve an existing one, they utilize this research design. Sri Gustiani (2019) claimed that R&D method is being employed in educational practice, not only to assess the current book, platform, or media, but also to create a new product relevant to a certain topic. When creating or evaluating a product, the R&D method may be distinguished by its organized system and sequential approach (Tracey, 2009).

The background factor for this R&D were classroom difficulties and target need for educational products. The researcher conducted a need analysis as the first step in constructing an integrated pictorial vocabulary dictionary to acquire accurate information in order to be informed about the problem in the school. Additionally, the researcher used three instruments, observation, a questionnaire and an interview, to gather data from need analysis. The interviews were intended for the teacher to.

discover about the program and materials, while the questionnaires were aimed for the student to reveal the targets' needs.
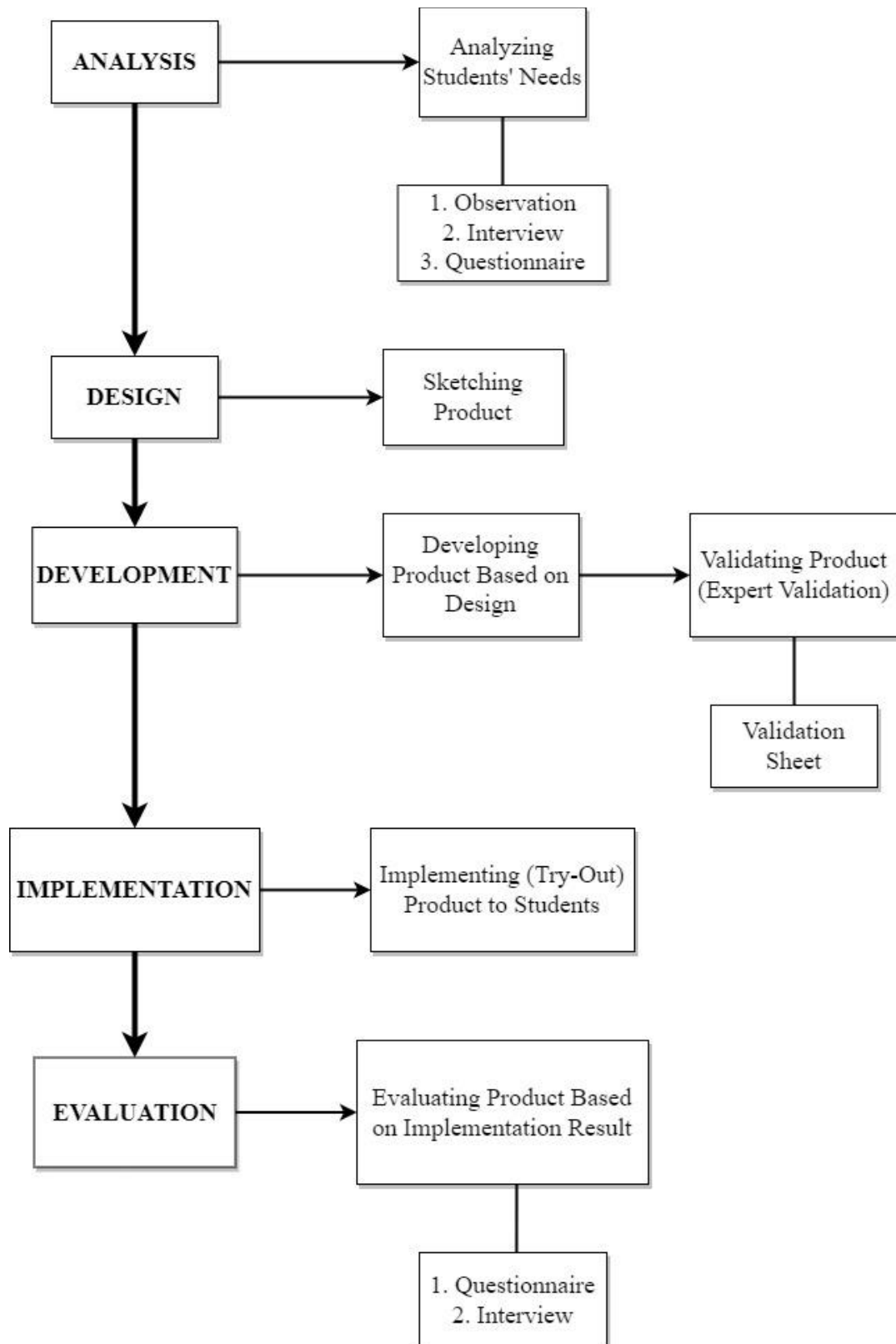
B. Development Model

Research and Development methodology based on the ADDIE model was utilized by the researcher to create an integrated pictorial vocabulary dictionary. ADDIE is an abbreviation of Analysing, Design, Development, Implementation, and Evaluation (Woo, 2018). This model is used because the researcher took certain steps, such analysing the needs of the students, designing the pictorial dictionary, developing and validating the product, and then implementing an evaluating the product by testing it to students.

C. Development Procedure

The ADDIE model, as stated by Dick and Carey (Wibawa, Harimurti, Anistyasari, & Sumbawati, 2017), was applied in this study. Utilizing this model required to do the following five steps namely analysis, design, development, implementation, and evaluation.

Figure 3. 1 Model Development ADDIE

ANALYSIS → Analyzing Students' Needs

1. Observation
2. Interview
3. Questionnaire

DESIGN → Sketching Product

DEVELOPMENT → Developing Product Based on Design → Validating Product (Expert Validation)

Validation Sheet

IMPLEMENTATION → Implementing (Try-Out) Product to Students

EVALUATION → Evaluating Product Based on Implementation Result

1. Questionnaire
2. Interview

1. Analysis

    Conducting analysis was the first step in the development process. It involved gathering data that was important to learning and the demands of the students. The researcher conducted an analysis of the problems in order to determine the necessary product. The need analysis data was gathered through observation, interview, and student questionnaire results. The purpose of the observation was to identify any issues in the classroom. Observation was done before distributing the need analysis questionnaire. The results of the questionnaire responses were used to determine how the product is needed in the field. Meanwhile, interview was conducted to gain some information regarding the students' needs from the English teacher.

    a. Observation

        In this development process, the researcher observed the teaching and learning process in the classroom to collect data. The researcher attempted to gain the opportunity to collect data from actual situations by employing field notes to record its factual procedure in the classroom.

    b. Interview

        The researcher interviewed an English teacher. This phase aimed to determine the perceptions of subject teacher about the teaching process and the usage of dictionary.

    c. Questionnaire

        The students received the questionnaire. In order to learned the details about students' necessity, lacks, and wants, the researcher

used a questionnaire as an instrument. Questionnaires are any written instruments that ask respondents a series of questions or statements and then ask them to respond by either writing out their responses or choosing from a list of pre-prepared answers (Brown, 2001).

This type of instrument assisted the researcher in gathering information about the product that was required in the field, the learning materials that the students required, and their perceptions of the teacher's utilization of those materials.

2. Design

This stage should be precise to present a concise view of the objective. In this phase, the researcher designed the integrated pictorial vocabulary dictionary for tenth-grade students based on the student's need that had been collected through analysis phase, that known from the observation and questionnaire session. After gathering the data for creating the product, the researcher designed the integrated pictorial vocabulary dictionary as follows:

a. Cover

b. Fore word

c. Table of contents

d. User guide

This part provides a guide for the user (students) in using this product.

e. Parts of Dictionary Entry

This section presents the structure of the word entry, including word, part of speech, phonetic symbol, meaning, and definition. This section also presents the types of part of speech.

f. Introduction

In this part, the researcher provided an overview of the content and the purpose of the product.

g. Contents

- Chapter I Office Jobs

- Chapter II Office Activities

- Chapter III Office Equipment

- Additional material, titled "You Need to Know"

Each chapter is attached by the QR code that can be scanned by the dictionary reader. The QR code directly linked to a website which contains the audio pronunciation of each word.

h. References

3. Development

In this study, the questionnaires for experts' judgment given to the expert to determine whether the materials were appropriate for the learners or not. The aim of developing integrated pictorial vocabulary dictionary was to give a supplementary learning media for students in learning vocabulary related to their field especially Office Management and Business Service.

The content assets that were produced during the design phase were created and assembled by the researcher during the development phase.

Focusing on refining the material. The development in this context entailed:

a. Gathering materials

b. Integrating materials

c. Validating, by involving three experts.

4. Implementation

A process for educating the facilitators and the learners is established during the implementation phase. Validated integrated pictorial vocabulary dictionary for the Office Management and Business Service program from experts and students was implemented in class. The implementation was in the X-MPLB 2 class, consisting of 36 students.

5. Evaluation

Evaluation can't take place until all the data has been collected. This stage depended on the results of implementation. There are two basic types of evaluation. This stage aimed to determine the effectiveness as well as the students' opinion and interest of the integrated pictorial vocabulary dictionary for Office Management and Business Service program at SMK Negeri 2 Kediri.

Based on ADDIE model, to produce a good integrated pictorial vocabulary dictionary, the researcher required to analyse the student's need in mastering vocabulary. When designing the integrated pictorial vocabulary dictionary, the researcher was concerned with a variety of issues. They are material, shape, format, content, colour, and picture. This integrated pictorial vocabulary dictionary was created by the researcher using the Canva application. The integrated pictorial

vocabulary dictionary was validated by the experts after the designing process. Those experts were linguistic expert, media expert, and material expert which is the teacher of English subject of Office Management and Business Service program at SMK Negeri 2 Kediri. The integrated pictorial vocabulary dictionary was distributed to tenth grade students of Office Management and Business Service program at SMK Negeri 2 Kediri as the final stage. Only a few students were asked to participate in an interview by the researcher, yet all students were asked to complete a questionnaire.

D. Design of Try Out

Product trials aim to gather data that may be used to evaluate the level of effectiveness, efficiency, and attractiveness of the finished products. The type of data gathered should be related to the planning and subject selection of the trials. According to Nunuk (2009) trials for product development are usually conducted in three stages, namely individual testing, small group testing, and field testing. In this study, the product was validated in order seek to identify and fix errors in the integrated pictorial vocabulary dictionary. The purpose is to validate the product. Experts in the linguistic as linguistic assessor, media expert was utilized as design and layout assessors, and expert in the subject matter or material was used as assessors of the contents.

After conducting the experts' validations, then determined the effectiveness of the usage of integrated pictorial vocabulary dictionary for tenth-grade of Office Management and Business Service program students of SMK Negeri 2 Kediri through field trials. This testing was conducted during the learning process by using the product which is integrated pictorial vocabulary dictionary. 36 students of tenth-

grade of Office Management and Business Service program (X-MPLB 2) students of SMK Negeri 2 Kediri were asked to test the product.

E. **Subject of The Research**

The location of the research is SMK Negeri 2 Kediri. It is located at Jl. Veteran No. 5 Kota Kediri. It chosen because it is one of favourite vocational high schools in Kediri. Moreover, SMK Negeri 2 Kediri is the only state vocational high school which has Office Management and Business Service program. According to the observation conducted by the researcher at the beginning of study, the problem faced by the English teacher and the students leads the researcher to conduct this research in this school. The number of students who involved in this study were 36 of X-MPLB 2. They are the students of tenth grade of Office Management and Business Service program. This class was chosen based on English teacher's consideration.

F. **Research Instrument**

1. Need Analysis (Observation, Questionnaire, and Teacher Interview)

First step of analysis is observation. Observation was done in order to gain information about the availability of learning media in the form of a dictionary and whether the English teacher taught English specifically for the program. After observation phase had been done, the questionnaire given to students. The purpose is to collect information about students' necessity, lacks, and wants related to English subject as well as the developed product. The questionnaire contained 15 questions.

In order to gather data regarding the target needs and learning needs, a need analysis questionnaire used. The target needs and learning needs were both gathered using the need analysis questionnaire. The questionnaire was in the

form of multiple choice and check boxes. The students were asked to select one or more of the various options available to them. Students were given the questionnaires to complete individually.

Table 3. 1 The Organization of Need Analysis Questionnaire

Aspects of The Questions	The Purpose of The Questions	Item Number
Respondents' identities	To discover the information about students' identity	
Vocabulary needs	To discover information about students' vocabulary skill and necessity	1-4
Vocabulary learning	To discover information about the activity that students' do and want while learning vocabulary	5, 6
Learning media	To discover information about learning media used by students	7, 8
Dictionary need	To discover information about the dictionary needed by students	9, 10
Pictorial dictionary	To discover information about students' perceptions of pictorial dictionary	11, 12
The importance of learning English	To discover information about students' perceptions of the importance of learning English for their future career	13, 14
Students' participation	To discover information about students' participations while learning English in the classroom	15

The need analysis questionnaire was validated by English teacher. A questionnaire must go through a validation process to ensure that it measures its objectives accurately. Valid questionnaires make it easier to gather more reliable data with high comparability, which increases efficiency and enhances the credibility of the data.

Table 3. 2 The Organization of Need Analysis Validation Questionnaire

Aspects of The Questions	The Purpose of The Questions	Item Number
Validator's identity	To discover the information about validator's identity	
Introduction section	To assess the clarity of provided research objectives and instruction	1-3
Scope of The Content	To assess the items of the questionnaire	4-6
Language used	To assess the correctness of the language used	7-9
Criticism and suggestions	To discover information about validator's criticism and suggestions related to the questionnaire	
Conclusion	To discover information about the eligibility level of the questionnaire	

An English teacher was interviewed as well. In this research, the researcher gave some questions to the teacher. The list of teacher interview questions can be seen below (see table 3.3).

Table 3. 3 The List of Teacher Interview Questions

Questions	Item Number
Are students provided with dictionaries?	1
Does learning English need a dictionary?	2
Is there any specific material for Office Management and Business Service program?	3
Do students need to learn English related to their program?	4
Will the pictorial vocabulary dictionary media be useful?	5

2. Experts Validation

Following completion of the product, the researchers asked an expert in the field. Using a questionnaire, certain experts made assessments of the early product in this step. This instrument also provided suggestions in addition to the questionnaire. The experts ensured that the product was ready to be used. There were three experts, namely linguistic expert, media expert, and material expert. The content of the experts' validations questionnaire is organized as follows:

a. Linguistic Expert Validation

A linguist is a scientist in the field of linguistics, they study a language. Linguist validation is needed to determine the accuracy of the use of language in the product.

Table 3. 4 The Organization of Linguistic Expert Validation Questionnaire

Aspects of The Questions	The Purpose of The Questions	Item Number
Validator's identity	To discover the information about validator's identity	
Suitability of language used	To assess the suitability of the language to students	1
Terms and symbols	To assess the consistency of terms and symbols used	2
Sentence structure	To assess the correctness of sentence structure	3
Ambiguity	To assess the ease of the language used	4

Spelling	To assess the correctness of spelling	5
Language used	To assess the language used with interactive and communicative nature	6, 7
Criticism and suggestions	To discover information about validator's criticism and suggestions related to the product	
Conclusion	To discover information about the eligibility level of the product	

b. Media Expert Validation

Media expert validation is needed to determine the assessment of product design and layout.

Table 3. 5 The Organization of Media Expert Validation Questionnaire

Aspects of The Questions	The Purpose of The Questions	Item Number
Validator's identity	To discover the information about validator's identity	
Cover of the product	To assess the content and layout of the cover	1-4
Content	To assess the arrangement of words, suitability of pictures, completeness of content, and design of content	5-12
Dictionary anatomy	To assess the page layout, font selection, and the ease of reading	13-16
Criticism and suggestions	To discover information about validator's criticism and suggestions related to the product	
Conclusion	To discover information about the eligibility level of the product	

c. Material Expert Validation

Material expert is subject teacher. Material expert validation is important to assess content and determine product suitability for students.

Table 3. 6 The Organization of Material Expert Validation Questionnaire

Aspects of The Questions	The Purpose of The Questions	Item Number
Validator's identity	To discover the information about validator's identity	
Content	To assess the scope of content, the adequacy of materials, and newest issue	1-4
Language used	To assess the suitability and presentment of language used	5-8
Design and layout	To assess appearance of the product	9-11
Criticism and suggestions	To discover information about validator's criticism and suggestions related to the product	
Conclusion	To discover information about the eligibility level of the product	

3. Questionnaire for User Judgement (Students)

Questionnaires for students were distributed after the implementation process. This instrument is intended to determine students' perceptions regarding the product.

Table 3. 7 The Organization of User Judgement Questionnaire

Aspects of The Questions	The Purpose of The Questions	Item Number
Respondents' identities	To discover the information about students' identities	
Design and layout	To assess the appearance of the product	1
Convenience	To assess convenience of product	2, 3
Benefit	To assess the advantages of using the product	4-11
Criticism and suggestions	To discover information about students' criticism and suggestions related to the product	

4. Interview for User (Students)

10 students were interviewed by the researcher. The purpose of this interview is to determine how students described the product quality and gathering their perceptions. The question for students' interview was "Is this product suitable for your needs?". They were asked to answer "Yes or No" and stated the reason. The result of students' interview presented descriptively.

G. Data Analysis Technique

In this study, both quantitative and qualitative data were used. Qualitative data was used to analyse the results of observations, expert and user judgement comments, and interview, both teacher and students' interview. Through questionnaires, the quantitative data was collected.

1. Need Analysis Questionnaire

The data which had been gathered from need analysis questionnaire was analysed by using frequencies and percentages. Then, the highest percentages of

the answer of each question considered as students' choice. The result of the questionnaire was calculated by using the following formula:

$$P = \frac{\sum x}{\sum x1} \times 100$$

Explanation:

P = Percentage

$\sum x$ = The number of all respondents' answer

$\sum x1$ = The number of all respondents

The analysis result is shown as the following table:

Table 3. 8 Need Analysis Questionnaire Analysis Result

Item Number	Question	Respond	Frequency (N)	Percentage (%)

2. Expert Validation and User Judgement Questionnaire

The result of the expert validation of the product analysed by using central tendency. It can be calculated by using the formula as follows:

$$M = \frac{\sum fx}{N}$$

Explanation:

M = Mean

$\sum fx$ = Total score

N = Total item

After that, insert the mean value in the category which used to categorize the mean values. The following formula was used to calculate the interval class:

$$Interval = \frac{H - L}{N \ category} = \frac{5 - 1}{5} = 0.8$$

Explanation:

H = The highest score

L = The lowest score

N category = Total category

Based on the interval distance above, the mean score is presented as follow:

Table 3. 9 Conversion of Mean

Scales	Interval Mean	Category
5	4,20-5,00	Strongly Agree (Excellent)
4	3,40-4,19	Agree (Good)
3	2,60-3,39	Neither Agree or Disagree (Fair)
2	1,80-2,59	Disagree (Poor)
1	1,00-1,79	Strongly Disagree (Very Poor)

The following table shows the data from analysing the validation and judgement of the product:

Table 3. 10 Qualification of Product Evaluation

Item Number	Indicator	Score	Category
	Mean Score		