CHAPTER III

RESEARCH METHOD

In this chapter, the researcher discussed about method of the research, variable of the research, population and sample, validity and reliability test, technique for collecting data, and techniques for analyzing the data.

A. Method of The Study

The researcher will employ an experimental method in this study. According to Creswell (2013) and Fetters et al. (2013), there are three types of designs in experimental approaches: (1) pre-experimental design, (2) true experimental design, and (3) quasi-experimental design. In this research, the researcher has chosen to apply a pre-experimental design. The aim of this approach is to assess and compare students' vocabulary mastery before and after the treatment or intervention. This design is commonly referred to as a **one-group pretest-posttest design**. The scheme for the *one-group pre-test post-test design* is shown as follows:

Table scheme one group pre-test post-test design.

Pre Test	Treatment	Post Test
O_1	X	O_2

Sugiyono (2012).

O_1 = Score *pre-test* (Before given treatment)

X = Treatment given

O_2 = Score *post-test* (After given treatment)

a. Variabel Research

Creswell, (2012). Variables are characteristics or attributes of an individual or an organization that can be measured or observed and that vary among the people or organization being studied. In this research there are two variables:

Independent Variable (X):

Independent variable is an attribute or characteristic that influences or affects an outcome or dependent variable (Creswell & Creswell, 2012:115). The independent variable is teaching English vocabulary mastery for the fifth-grade students' SDN 1 Martapura.

Dependent Variable (Y):

The dependent variable is the outcome that the researcher is trying to explain or predict, which is influenced by the independent variable (Creswell, 2012:115). This dependent variable is the variable that results from the independent variable or the variable that is influenced by the independent variable. The dependent in this research variable as the dependent is canva animation.

a. Population

The population in this research is all fifth-grade students of SDN 1 Martapura in the 2024/2025 academic year. A small population allows for the research to be conducted comprehensively (Arikunto, 2019).

Table 3.1 Population of The Research

No	Class	Number Students'
1	5A	27
2	5B	25
3	5C	28
Total		80

Source: SDN 1 Martapura

b. Sample

According to Creswell, (2012). A sample is a portion of the target population selected for study, with the goal of generalizing the results to the entire population. Sampling is conducted because it is not feasible to study every member of the population. By selecting a sample that reflects the key characteristics of the population, researchers can draw conclusions that are applicable to the broader group. Although sampling techniques may vary, the objective remains the same: to select a smaller group that accurately represents the population in relevant aspects, ensuring that the research findings are valid and generalizable.

The population in this study consisted of 80 students divided into three classes. To determine the sample, the cluster random sampling technique will used, which involves randomly selecting groups as the sample. This technique will chosen because it is more efficient when dealing with a large population that is naturally divided into specific groups, such as classes.

The sampling steps involved randomly selecting one of the three fifth-grade classes at SDN 1 Martapura,According to Kothari (2004) states that simple random " *sampling is a sampling method in which every member of the population has an equal chance of being selected as part of the sample, so that every possible combination of samples has the same probability of occurring"*. The first step taken is that each class is given a name with the initials A, B, and, C the names are written on small pieces of paper, rolled up, and drawn randomly. The selected roll determined which class will used as the sample in this study.

Finally, researchers will take samples for this research of 27 students from fifth-grade.

Table 3.2 Sample of the Research.

No	Class	Number Students'
1	5A	27
Total		27

Source: SDN 1 Martapura

B. Data Collection Techniques

Researchers used tests as instruments to collect data. A test is an instrument or tool used to collect data on the abilities of research subjects through measurement. For example, to assess a subject's mastery of specific material, a written test consisting of questions related to the subject matter is used (Sanjaya, 2015). In this study, the researchers will utilize vocabulary ass~~essments comprising 20 multiple choice questions and 10~~ matching items as tools for data collection. The test content is derived from the lessons taught to

Table 3.3 Specification of Instrument Tes

Aspects assessed	Indicator	Material	Type of Test	Number of item
1. Interpret vocabulary	Students can interpret English vocabulary well.	1.Profession 2. Work place	1.Multiple Choice 2.Matching	11,12,13,14 21,22,23,24, 2526,27,28, 29,30
	Students have not been able to interpret English vocabulary well		1.Multiple Choice	2,4,5,7,8
2. Read vocabulary	Students can read English vocabulary well.			10,11,12, 13
	Students cannot read English vocabulary well yet.		1.Multiple Choice	
	Students can write English			1,2,3,4,5, 6,7,8,9

3. Write vocabulary	vocabulary well and quickly.	5	1.Multiple Choice 2.Matching	21,22,23,24, 2326,27,28, 29,30
	Students are not able to write English vocabulary well and quickly.			
4. Using vocabulary in learning	Students can use English vocabulary in classroom learning.			
	Students have not been able to use English vocabulary in classroom learning.			
Total				30

students and adapted from online platforms, including sources like SCRIBD.

To obtain the data, both a pre-test and a post-test will be administered.

a. Validity Test

The validity test aims to measure the extent to which the test used truly measures the intended vocabulary mastery. This research uses a matching pictures to learned vocabulary questions, which were reviewed by experts, namely an English teacher and a language education lecturer. The review was conducted to ensure that each test item reflects the vocabulary learning indicators, namely word meaning, pronunciation, and its use in sentences.

According to Yuliana and Fitriani (2021), content validity is an important component in a test instrument to ensure that the material aligns with basic competencies and learning objectives. By involving experts in the validation of the questions, the accuracy of the content and the representation of the material are more guaranteed.

Table 3.4 Validity of instrument multiple choice.

NO	Question Item	Robtained	Rtable	Conclusion
1	Item 1	0.720	0.413	Valid
2	Item 2	0.695	0.413	Valid
3	Item 3	0.790	0.413	Valid
4	Item 4	0.624	0.413	Valid
5	Item 5	0.722	0.413	Valid
6	Item 6	0.308	0.413	Invalid
7	Item 7	0.184	0.413	**Invalid**
8	Item 8	-0.041	0.413	**Invalid**
9	Item 9	-0.122	0.413	**Invalid**
10	Item 10	-0.091	0.413	**Invalid**
11	Item 11	0.624	0.413	Valid
12	Item 12	0.262	0.413	**Invalid**
13	Item 13	0.695	0.413	Valid
14	Item 14	0.766	0.413	Valid
15	Item 15	0.743	0.413	Valid
16	Item 16	0.811	0.413	Valid
17	Item 17	0.722	0.413	Valid
18	Item 18	0.345	0.413	**Invalid**
19	Item 19	0.790	0.413	Valid
20	Item 20	0.740	0.413	Valid

Based on the table above, 14 items were found to be valid, namely items number 1, 2, 3, 4, 5, 11, 13, 14, 15, 16, 17, 19, and 20. The remaining 6 items were categorized as invalid and were excluded from the final instrument. Therefore, the instrument for vocabulary testing used in this research consists of 14 valid multiple-choice questions.

Table 3.5 Validity of the Instrument Matching

No	Question Item	Robtained	Rtable	Conclusion
1	Item 21	0.620	0.413	Valid
2	Item 22	0.701	0.413	Valid
3	Item 23	0.577	0.413	Valid
4	Item 24	0.495	0.413	Valid
5	Item 25	0.360	0.413	**Invalid**
6	Item 26	0.252	0.413	**Invalid**
7	Item 27	0.433	0.413	Valid
8	Item 28	0.518	0.413	Valid
9	Item 29	0.608	0.413	Valid
10	Item 30	0.468	0.413	Valid

Based on the analysis, 8 out of 10 items were categorized as **valid** (Item 21–24, 27–30), and 2 items were **invalid** (Item 25 and 26). Therefore, these valid items were used as part of the final instrument to assess students' vocabulary mastery through matching tests.

b. Reliability Test

Reliability indicates the level of consistency of a measuring instrument. In this research, reliability was measured using the Kuder Richardson 20 (KR-20) formula because the questions are in the form of multiple choice with two possible answers (correct and incorrect). KR-20 is considered appropriate for testing the reliability of objective tests in vocabulary mastery.

Based on the guidelines by Arikunto (2019) and reinforced by Rahmawati & Lestari (2022), a reliability value is considered high if the result is ≥ 0.70. Good reliability ensures that the instrument can be used consistently in measuring students' abilities. This is very important in one-shot design research because data is collected only once, so the instrument

must be very accurate and stable.The result of try out on 12 June, 2025 was presented on

the table below:

Table 3.6 Result of Tryout

No	Student's Code	Items	Correct	Incorrect	Score (%)
1	ANA	30	23	7	76.67
2	AL	30	19	11	63.33
3	BK	30	24	6	80.00
4	BS	30	19	11	63.33
5	CP	30	17	13	56.67
6	CD	30	27	3	90.00
7	DM	30	25	5	83.33
8	DR	30	24	6	80.00
9	ES	30	21	9	70.00
10	EW	30	21	9	70.00
11	FM	30	19	11	63.33
12	FA	30	14	16	46.67
13	GP	30	25	5	83.33
14	GS	30	21	9	70.00
15	HN	30	18	12	60.00
16	HW	30	15	15	50.00
17	IPS	30	23	7	76.67
18	IM	30	21	9	70.00
19	JP	30	28	2	93.33
20	JR	30	26	4	86.67
21	KA	30	25	5	83.33
22	K	30	26	4	86.67
23	LM	30	19	11	63.33
24	LH	30	16	14	53.33
25	MP	30	17	13	56.67
26	AS	30	25	5	83.33
27	AM	30	21	9	70.00
28	BS2	30	23	7	76.67
29	CP2	30	23	7	76.67
30	DAAB	30	14	16	46.67
31	EK	30	28	2	93.33
32	FR	30	27	3	90.00
33	GH	30	10	20	33.33
34	NR	30	24	6	80.00
35	OS	30	28	2	93.33
36	PA	30	21	9	70.00
37	QR	30	14	16	46.67
38	RP	30	11	19	36.67

39	RA	30	19	11	63.33
40	SL	30	15	15	50.00
41	TP	30	25	5	83.33
42	TAP	30	23	7	76.67
43	UA	30	15	15	50.00
44	U	30	25	5	83.33
45	VP	30	24	6	80.00
46	VS	30	21	9	70.00
47	WF	30	23	7	76.67
48	WS	30	21	9	70.00
49	XF	30	19	11	63.33
50	YA	30	17	13	56.67
51	YP	30	15	15	50.00
52	ZDH	30	19	11	63.33
53	ZK	30	21	9	70.00
TOTAL			**1,198**	**392**	**3,660.01**
MEAN		30	**22.6**	**7.4**	**69.06**

Table 3.7 Reliability Statistics Multiple Choice

Reliability Statistics

Cronbach's Alpha	N of Items
0.778	20

Table 3.8 Reliability Statistics Matching

Reliability Statistics

Cronbach's Alpha	N of Items
0.803	10

The Cronbach's Alpha values for both sections exceed the minimum acceptable threshold of 0.7, indicating that the instruments used in this research are reliable for evaluating students' vocabulary mastery.

C. Index Difficultie

A good question is one that is neither too easy nor too difficult. If a question is too easy, students tend not to be motivated to put in more effort to answer it. On the other hand, if a question is too difficult, it may cause students to feel frustrated and lose the motivation to try again.

According to Arikunto (2018), the difficulty level of a question can be calculated using the following formula:

P= B / Js

Where:

P= Question difficulty index

B= The number of students who answered the question correctly

Js= Total number of test participant

The criteria of index difficulty as follows:

Table 3.9 Index Difficulty of Questions

Index of Difficulty	Interpretations
0,00 – 0,30	Difficult
0,31 – 0,70	Middle
0,71 – 1,00	Easy

Arikunto (2018)

Table 3.10 Difficulty Index of Tryout

Items	Number of Students	Correct Answer	Difficulty Index	Criteria
1	53	53	1.00	Easy
2	53	53	1.00	Easy
3	53	53	1.00	Easy

4	53	53	1.00	Easy	
5	53	53	1.00	Easy	*Table*
6	53	53	1.00	Easy	*3.11*
7	53	33	0.61	Middle	*The*
8	53	39	0.74	Middle	*Result*
9	53	39	0.74	Middle	
10	53	40	0.75	Middle	*Index*
11	53	32	0.60	Middle	
12	53	51	0.96	Easy	
13	53	32	0.60	Middle	
14	53	32	0.60	Middle	
15	53	32	0.60	Middle	
16	53	33	0.61	Middle	
17	53	40	0.75	Middle	
18	53	40	0.75	Middle	
19	53	39	0.74	Middle	
20	53	32	0.60	Middle	
21	53	32	0.60	Middle	
22	53	23	0.43	Middle	
23	53	23	0.43	Middle	
24	53	17	0.32	Middle	
25	53	23	0.43	Middle	
26	53	23	0.43	Middle	
27	53	23	0.43	Middle	
28	53	43	0.81	Easy	
29	53	53	1.00	Easy	
30	53	53	1.00	Easy	

Difficulty of Questions

Percentage	Level of Difficulties	Number of Questions	Total number of Questions
0,00 – 0,30	Difficult		0
0,31 – 0,70	Middle	7,8,9,10,11,13,14,15,16,1 ,18,19,20,21,22,23,24,25, 26,27	20
0,71 – 1,00	Easy	1,2,3,4,5,6,12,28,29,30	15
Total			**30**

Referring to the table above, it can be observed that the test instrument contained questions with varying levels of difficulty, consisting of 0 difficult questions, 20 moderate questions, and 10 easy questions. Therefore, the researcher selected 20 questions that were deemed valid to be used as the research instrument. This indicates that the selected questions had an appropriate level of difficulty—not too easy nor too difficult.

D. Data Analysis Technique

a. Scoring the Students Answer

According to Afni et al., (2023) the researcher used this formula:

$S = R / N \times 100$

Where:

S = Score of the test

R = The number of correct answer

N = The number of the question.

Table 4. Score Classification

Category	Score
Very good	80-100
Good	70-79
Enough	60-69
Less	50-59

Fail	<49

(Arikunto 2019)

b. Sample Paired T-Test

The researcher conducted data analysis after obtaining the pre-test and post-test scores from the experimental group. To assess the extent of the treatment's impact, SPSS version 25 was used with the paired sample t-test analysis. This statistical method is used to compare the mean values of two related variables within the same group (Palimbong et al., 2022). In this study, the paired samples refer to the same individuals who were assessed before and after the treatment was administered.

This study uses the t-test on SPPS 25. The criteria for taking the hypothesis of the t-test :

a. If sig > 0,05 then Ho is accepted and Ha is rejected.

b. If sig < 0,05 then Ho is rejected and Ha is accepted.