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 Research

The researcher employed experimental approaches in this study. There are three types of designs inexperimental methods, according to (Creswell, 2013; Fetters et al., 2013). (1) Pre-experiment (2) True Experimental, (3) Quasi Experimental. Therefore, in this study, the researcher was applied a pre-experimental design. Finding and comparing students' vocabulary growth abilities before and after treatment is the goal of the pre-experimental research approach. This is frequently referred to as a one-group pretest-posttest design. According to Sugiyono (2012: 108), the formula of this research was as follows:

$$O_1 \quad X \ O_2$$

Where:

O_1 : The pre-test

X : The treatment

O_2 : The post-test

B. Variable of the Research

Creswell (2012) emphasizes that variables are personal characteristics or qualities that researchers examine in their research. This study consists of two research variables.

1. Independent variables are variables that influence experimental research that is independent of all other influences (Creswell & Creswell, 2018, p. 93). The first variable is teaching vocabulary to the fourth graders of SDN 04 OKU as the dependent variable.

2. The dependent variable is a variable that depends on the independent variable, which is the result of the independent variable (Creswell & Creswell, 2018, p. 93). This dependent variable is the variable that results from the independent variable or the variable that is influenced by the independent variable. The second variable as the dependent variable is animation video as an independent variable.

C. Population and Sample

1. Population

The concept of population in research refers to the entire set of individuals, organisms, or entities that share a particular characteristic, trait, or condition that is relevant to a study. According to Creswell (2012), population represents the complete group from which researchers may draw conclusions, make generalizations, or select a sample for a study. It encompasses every individual or element within a defined group, such as a population of students, teachers, patients, or other relevant entities, within a particular timeframe or geographic

location. In research, understanding the population is critical because it sets the foundation for sampling, as researchers typically select a subset of this population to represent the broader group.

Table 3.1 The Population of the Research.

No.	Class	Number of Students
1	4A	23
2	4B	21
3	4C	23
4	4D	20
Total		87

Source: SD N 04 OKU

2. Sample

According to Creswell (2012, p. 142), a sample refers to a subset of the target population that the researcher selects to study in order to make inferences or generalizations about the broader population. The sample is typically chosen because it is impractical or impossible to study every member of the entire population. By carefully selecting a sample that accurately represented the population's key characteristics, researchers could draw conclusions that were applicable to the larger group. Sampling techniques varied, but the goal remained the same: to select a smaller group that mirrored the population in relevant ways, ensuring that the findings of the study were valid and generalizable.

The population of 87 students was divided into 4 classes and randomized using cluster random sampling. The reason for using the cluster random sampling technique was that the researcher worked with a large population. The steps taken in cluster random sampling to determine the sample, namely selecting from the

four fourth-grade classes at SDN 04 OKU, followed random selection according to Fraenkel et al. (2012, p. 267), which states that "... every member of the population has an equal chance of being selected to be a member of the sample." The first step was to assign each class a name with the initials A to D. The drawing was done by random selection. The draw was made by randomly selecting from the four class names that had been written on pieces of paper and rolled up, and then the result was used to select one class to be sampled. Finally, the researcher took a sample of 20 students from the fourth grade for this research.

Table 3.2 The Sample of the Research

No	Class	Number of Students
1.	4D	20
Total		**20**

Source: SDN 04 OKU

D. Technique for Collecting the Data

Researchers used tests as instruments to collect data. A test is a series of questions, tasks, and additional resources used to measure the aptitude, knowledge, or skills of a person or group (Astuti & Kristin, 2017). Simply put, tests evaluate performance on specific topics, knowledge, or skills (Puspita, A.T 2024). In this study, the researchers employed a vocabulary test consisting of 20 multiple-choice questions and 10 matching questions as an instrument for data collection. The test materials had been adapted from the theme book previously used in teaching the students. The researchers administered both pre-tests and post-tests to gather the data. The test was designed to assess the students' vocabulary comprehension.

This test was conducted twice: a pre-test and a post-test. Before using animation video to teach vocabulary, an initial test is conducted. Baseline pre-test assesses students' vocabulary acquisition skills before the treatment is given. The purpose of the follow-up test is to determine whether students' vocabulary knowledge has improved significantly after the treatment. The follow-up test was conducted after the animation vocabulary learning activity. The post-test is used to assess students' vocabulary acquisition after the end of the lesson with the help of animation video. Compare the post-test results with the pre-test results. An instrument must meet certain criteria in order to be considered good. A great instrument must be reliable and effective. The instruments used in this study satisfy crucial criteria including validity and reliability.

Table 3.3 Specification of Instrument Test

Aspects assessed	Indicator	Material	Type of Test	Number of item
1. Interpret vocabulary	Students can interpret English vocabulary well.	1. Daily activities	1.Multiple Choice	16,17,18,19,20
	Students have not been able to interpret English vocabulary well.	2. Means of transportation	2. Matching	21,22,23,24,25 26,27,28,29,30
2. Read vocabulary	Students can read English vocabulary well.		1.Multiple Choice	4,5,6,8,10,11,1 2,13,15
	Students cannot read English vocabulary well yet.			
3. Write vocabulary	Students can write English vocabulary well and quickly.		1.Multiple Choice	16,17,18,19,20
	Students are not able to write English vocabulary well and quickly.			
4. Using vocabulary in learning	Students can use English vocabulary in classroom learning.		1. Multiple Choice	1,2,3,7,9,14
	Students have not been able to use English vocabulary in classroom learning.		2. Matching	21,22,23,24,23 26,27,28,29,30
Total				30

E. Validity and Reliability of the Test

1. Validity Test

According to Sugiyono (2019:176) explains that validity is an instrument that can be used to measure the relationship between data that occurs on an object and data that can be collected by researchers.Validity in research indicates how

well the measuring tool matches the real measurement. Assessing the test instrument's validity is necessary to ascertain its validity. If the test's results meet the requirements, it might be considered valid. A criterion is compared to the test's measurement findings to ascertain its validity. The validity coefficient, another name for the comparison outcome, can be computed using specific statistical methods.

Content validity is the sort of validity that was applied in this study. The degree to which a test assesses a person's mastery of content, specifically the material that should be studied for educational purposes, is known as content validity. Stated differently, an exam that accurately assesses knowledge of the subject matter that should be studied in keeping with the teaching content specified in the Teaching Program Outlines is said to have strong content validity. Good questions have a proportionately high level of difficulty.

To ascertain whether the instruments had good validity, the researcher examined their difficulty index. The researcher was applied SPSS 25. The researcher was trying out a non-sample of 23 students from class 4A to test the validity of the device. The researcher conclude that the test significant level was 0,05, or 5%, and that its value table was 0,422 in order to examine the validity of the instruments using SPSS. Which the researcher came to two conclusions about: First, the item was valid if the $r_{obtained}$ was positive and greater than r_{table}. Second, the item was considered invalid if the $r_{obtained}$ was negative and less than the r_{table}. The result of validity in the test for try out was:

Table 3.4 Validity of the Instrument Multiple Choice

No.	Questions item	Robtained	Rtable	Conclusion
1.	Item 1	-0,122	0,422	Invalid
2.	Item 2	0,740	0,422	Valid
3.	Item 3	-0,111	0,422	Invalid
4.	Item 4	0,790	0,422	Valid
5.	Item 5	0,722	0,422	Valid
6.	Item 6	0,308	0,422	Invalid
7.	Item 7	0,184	0,422	Invalid
8.	Item 8	-0,041	0,422	Invalid
9.	Item 9	-0,122	0,422	Invalid
10.	Item 10	-0,091	0,422	Invalid
11.	Item 11	0,624	0,422	Valid
12.	Item 12	0,262	0,422	Invalid
13.	Item 13	0,695	0,422	Valid
14.	Item 14	0,766	0,422	Valid
15.	Item 15	0,743	0,422	Valid
16.	Item 16	0,811	0,422	Valid
17.	Item 17	0,722	0,422	Valid
18.	Item 18	0,345	0,422	Invalid
19.	Item 19	0,790	0,422	Valid
20.	Item 20	0,740	0,422	Valid

Based on the distribution table above, the researcher found that there were 11 valid items, numbers 2, 4, 5, 11, 13, 14, 15, 16, 17, 19, and 20, and 9 invalid items, numbers 1, 3, 6, 7, 8, 9, 10, 12, and 18. So, the researcher used 9 items for instrument numbers 2, 4, 5, 11, 13, 14, 15, 16, 17, 19, and 20.

Table 3.5 Validity of the Instrument Matching

No.	Questions item	Robtained	Rtable	Conclusion
1.	Item 21	0,634	0,422	Valid
2.	Item 22	0,494	0,422	Valid
3.	Item 23	0,702	0,422	Valid
4.	Item 24	0,459	0,422	Valid
5.	Item 25	0,566	0,422	Valid
6.	Item 26	**0,269**	**0,422**	**Invalid**
7.	Item 27	0,702	0,422	Valid
8.	Item 28	0,607	0,422	Valid
9.	Item 29	0,702	0,422	Valid
10.	Item 30	0,739	0,422	Valid

Based on the distribution table above, the researcher found that there were 9 valid items, numbers 21, 22, 23, 24, 25, 27, 28, 29, and 30, and 1 invalid item, number 26. So, the researcher used 9 items for instrument numbers 21, 22, 23, 24, 25, 27, 28, 29, and 30.

2. Reliability Test

A reliable instrument was an instrument that could be used many times when measuring the same object and produced the same data (Sugiyono, 2019). A variable could be said to be reliable or could be responded to if someone responded to the statement that it was consistent or stable over time. To determine whether the test used was reliable, the researcher used the Cronbach Alpha Test with the help of the SPSS program.

If alpha was more than 0.9, it showed perfect reliability. If it was between 0.7 and 0.9, it showed high reliability. If it was between 0.5 and 0.7, it showed moderate

reliability, and if it was less than 0.5, it showed low reliability. If alpha was less than 0.5, it indicated that the item might not be reliable.

The result of the tryout on May 14, 2025, was presented in the table below:

Table 3.6 Result of Tryout

Student's Code Name	Number of Item	Total Answer		Score
		TRUE	FALSE	
AA	30	12	18	40,00
AS	30	24	6	80,00
AFA	30	26	4	86,66
AAR	30	23	7	76,66
AHS	30	24	6	80,00
ASK	30	16	14	53,33
ADI	30	20	10	66,66
ADT	30	23	7	76,66
AFM	30	24	6	80,00
BKZ	30	24	6	80,00
ECTA	30	15	15	50,00
HAW	30	30	0	100
ILZ	30	29	1	96,66
JDS	30	11	19	36,66
KS	30	25	5	83,33
NT	30	30	0	100
NA	30	23	7	76,66
QAZ	30	15	15	50,00
SFA	30	20	10	66,66
SKA	30	16	14	53,33
ZLS	30	27	3	90,00

ZF	30	16	14	53,33
TOTAL	660	473	187	1.576,6
MEAN	30	21,5	8,5	71,66

Based on the table above, it was found that the students mean score was 71,66 and the result of reliability of tryout was:

Table 3.7 Reliability Statistics Multiple Choice

Reliability Statistics

Cronbach's Alpha	N of Items
.835	20

Table 3.8 Reliability Statistic Matching

Reliability Statistics

Cronbach's Alpha	N of Items
.796	10

The table above showed that the Cronbach's Alpha was 0,835 and 0,796, it was more than 0,70. So, it meant that the items of the instruments were reliable and could be used as the instrument of the research.

F. Index Difficulties

A good question is neither too easy nor too difficult. When questions are too easy, students won't be inspired to put in more effort to answer them. Students who find questions too difficult, however, will grow discouraged and lose interest in attempting again.

Arikunto (2018) explains that the formula for determining the index difficulty is as follows:

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	22	20	0,90	Easy
2	22	14	0,63	**Middle**
3	22	21	0,95	Easy
4	22	15	0,68	**Middle**
5	22	13	0,59	**Middle**
6	22	16	0,72	Easy
7	22	19	0,86	Easy
8	22	19	0,86	Easy
9	22	20	0,90	Easy
10	22	17	0,77	Easy

11	22	15	0,68	**Middle**
12	22	20	0,90	Easy
13	22	15	0,68	**Middle**
14	22	15	0,68	**Middle**
15	22	15	0,68	**Middle**
16	22	13	0,59	**Middle**
17	22	13	0,59	**Middle**
18	22	19	0,86	Easy
19	22	15	0,68	**Middle**
20	22	14	0,63	**Middle**
21	22	15	0,68	**Middle**
22	22	15	0,68	**Middle**
23	22	14	0,63	**Middle**
24	22	15	0,68	**Middle**
25	22	14	0,63	**Middle**
26	22	18	0,81	Easy
27	22	14	0,63	**Middle**
28	22	13	0,59	**Middle**
29	22	14	0,63	**Middle**
30	22	13	0,59	**Middle**

Table 3.11 The Result Index Difficulty of Questions

Percentage	Level of Difficulties	Number of Questions	Total number of Questions
0,00 – 0,30	Difficult	0	0
0,31 – 0,70	Middle	2,4,5,11,13,14,15,16,17, 19,20,21,22,23,24,25,2 7,28,29,30	20
0,71 – 1,00	Easy	1,3,6,7,8,9,10,12,18,26	10
Total			**30**

Based on the table above, it could be seen for the instrument of test, the researcher found some questions in some level of difficulties, which there was 0 difficult questions, 20 middle questions, and 10 easy questions. So, the researcher used 20 questions which was valid as the research instrument. It means that the question were not too easy and too difficult.

H. Technique for Analyzing the Data

1. Scoring the Students Answer

According to Erianti, E. (2022), the researcher used this formula:

S = R / N x 100

Where:

S = Score of the test

R = The number of correct answer

N = The number of the question.

Table 3.12 Score Classification

Category	Score
Very good	80-100
Good	70-79
Enough	60-69
Less	50-59
Fail	<49

(Arikunto 2019)

2. Sample Paired T-Test

The researcher examined the data subsequent to obtaining the scores of the pre-test and post-test in the experimental group.The researcher employed SPSS version 25 (Paired Sample t-test) to assess the significance of the treatment test. The paired sample t-test is a method employed to compare the means of two variables within a single group (Palimbong, et al., 2022). Furthermore, two related samples also known as paired samples are examined in this study. These samples were given the same participants but two distinct measurements, specifically before and after treatment.

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.