CHAPTER III

RESEARCH METHODOLOGY

III.1. The Research Design

This research was Quasi-Experimental design with the Non-Equivalent control group. The writer chose the Quasi-Experimental design based on the consideration that it was possible to randomly assign the students to groups. It would disturb the teaching and learning process at school since the students have been grouped in certain classes from the first semester. Besides, it intended not to disturb teachers' focus of that school. Thus, the only possibility to conduct an experimental research by using Quasi-Experimental design. Gay (2000: 421) states that when it is not possible to randomly assign participants to groups, quasi-experimental designs are available to the researcher.

According to Singh (2006: 136), there were four types of variables in experimental research. The first type wasan experimental variable or independent variable. The second was control variable and the third was criterion variable or dependent variable. In this research, the experimental variable was the use of Pictures through Background Knowledge strategy, the control variable was the teacher's strategy named Rapid writing strategy and the criterion variables were vocabulary mastery and writing ability.

The design of experimental research could be formulated as follows:

Table III.1
The Research Design

Group Assignment	Independent Variable	Dependent Variable
Experimental or Treatment Group	Pictures through Background Knowledge strategy	Vocabulary Mastery and Writing ability
Control or Comparon Group	Rapid Writing strategy	Vocabulary Mastery and Writing ability

(Adopted from Lodico et.al 2010: 229)

In the research, the writer used a parallel or equated group's experimentation by comparing mean scores of the two groups as the basic procedure. Singh (2006: 142) stated that the basic design of parallel group experimentation might be represented as follows:

Experimental group   *Control group*
1. Pre-test   Pre-test
2. Experimental factor   Control factor
3. Final test   Final Test
4. Comparon of gains difference

So , the main steps in the parallel group method are as follows:

1. Securing equivalent groups,

2. Applying the experimental factor,

3. Comparing the results, and

4. Interpreting and reporting the results.

Therefore, at the first, the writer gave the pre - test to both of the groups in order to secure equivalent group. Then, the writer applied the use of pictures through Background Knowledge strategy in the

experimental group and Rapid Writing strategy in the control group. At the end, the writer gavea post - test in order to find the gain difference. In line, Creswell (2011: 302) defined that a group comparison is the process of a researcher obtaining scores for individuals or groups on the dependent variable and comparing the means and variance both within the group and between the groups. In other words, the writer investigated the difference improvement on students' vocabulary mastery and writing ability between experimental group which was treated by using pictures through Background Knowledge strategy and control group which was treated by using Rapid Writing strategy.

III.2. The Location and Time of the Research

The research was conducted on May 2017 at lslamic Junior High School of Technology Boarding School of Riau in Pasir Putih KM.22 Tenayan Raya Pekanbaru.

III.3. Subject and Object of the Research

III.3.1. Subject of the Research

The subject of the research was the seventh grade students at the Islamic Junior High School of Technology Boarding School of Riau Pekanbaru.

III.3.2. The Object of the Research

The object of the research was the use of pictures through Background Knowledge strategy on students' vocabulary mastery and writing ability during the process of teaching and learning in the classroom.

III.4. The Population and Sample of the Research

The population of the research was the seventh grade students at the Islamic Junior High School of Technology Boarding School of Riau Pekanbaru. There were three classes which consist of two classes of male students and one class of female students. The number of the seventh grade students at the Islamic Junior High School of Technology Boarding School of Riau Pekanbaru was 72 students which was described in the following table:

Table III.2
The Population of the Seventh Grade Students

No	Class	Male	Female
1	VII.1	20	-
2	VII.2	19	-
3	VII.3	-	33
	Total	39	33

Based on table III.2, the writer took sample by using cluster sampling. The technique used to get the sample from the three groups of students. Gay (2000: 394) says that cluster sampling randomly selects groups, not individuals.

In addition, the writer has got two classes of the eleventh grade as the sample of the research as in the following table:

Table III.3
The sample of the Research

No	Class	Total
1	VII.1	19
2	VII.2	20
Total		39

Based on table III.3, the writer got two classes as the sample. The first class (class VII.1) was as the experimental group and the second class (class VII.2) as the control group.

III.5. The Technique of Collecting Data

III.5.1. Test

In this research, the writer used multiple choice questions to measure the students' vocabulary mastery. It consisted of twenty questions with four answer choices. Well, in order to measure students' writing ablity, the writer used composition test in which the students' had to describe about family, pet and animals. The tests have been done twice, before doing the treatment that was called as pre-test and after doing the treatment that was called as post-test.

Then, for composition test, the scores of pre-test and post-test were measured by using writing assessment as the following table:

Table III.4
The Assessment Aspects of Writing Descriptive Text

Aspect	Range	Criteria
Content	30-27	Excellent to Very Good: knowledgeable; substantive; thorough development of thes; relevant to assigned topic.
	26-22	Good to Average: some knowledgeable of subject; adequate range; limited development of thes; mostly relevant to topic; but lacks detail
	21-17	Fair to Poor: Limited knowledge of subject; little substance; inadequate development of topic
	16-13	Very Poor: does not show the knowledge of subject; non-substantive; not pertinent; or not enough to evaluate
Organization -Identification -Description	20-18	Excellent to Very Good: fluent expression; ideas clearly stated/supported; well organized; logical sequencing; cohesive
	17-14	Good to Average: somewhat choppy; loosely organized but main ideas stand out; limited support; logical but incomplete sequencing
	13-10	Fair to Poor: non-fluent; ideas confused or dconnected; lacks logical sequencing and development
	9-7	Very Poor: does not communicate; no organization; or not enough to evaluate
Vocabulary	20-18	Excellent to Very Good: sophticated range; effective word/idiom choice and usage; word form mastery; appropriate regter
	17-14	Good to Average: adequate range; occasional errors of word/idiom form, usage but meaning not obscured
	13-10	Fair to Poor: limited range; frequent errors of word/idiom form, choice, usage; meaning confused or obscured
	9-7	Very Poor: essentially translation; little knowledge of Englh vocabulary, idioms, word form; or not enough to evaluate
Language Use -Simple Present Tense -Adjectives -Attribute has and have -Linking verbs	20-18	Excellent to Very Good: effective complex constructions; few errors of agreement, tense, number, word order/functions, articles, pronouns, prepositions
	17-14	Good to Average: effective but simple constructions; minor problems in complex constructions; several errors of agreement, tense, number, word order/functions, articles, pronouns, prepositions but meaning never obscured
	13-10	Fair to Poor: major problems in simple/complex constructions; frequent errors of negation, agreement, tense, number, word, order/functions, articles, pronouns, prepositions and or fragments, deletions; meaning confused or obscured
	9-7	Very Poor: virtually no mastery of sentence construction rules; dominated by errors; does not communicate; or not enough to evaluate
Mechanics -Spelling -Punctuation	10	Excellent to Very Good: demonstrates mastery of conventions; few errors of spelling, punctuation, capitalization, paragraphing
	7	Good to Average: occasional errors of spelling, punctuation, capitalization, paragraphing, but meaning not obscured
	4	Fair to Poor: frequent errors of spelling, punctuation, capitalization, paragraphing; poor handwriting; meaning confused or obscured
	2	Very Poor: no mastery of conventions; dominated by errors of spelling, punctuation, capitalization, paragraphing; handwriting illegible; or not enough to evaluate

III.5.2. Observation

Observation was used to observe directly teacher and students' activities when using pictures through Background Knowledge strategy in order to improve students' vocabulary mastery and writing ability. The writer used items observerd as follow:

Table III.5
The Observation Items

No	Items Observed	Yes	No
1	The teacher goes around the room asking general questions about the topic.		
2	The teacher asksthe students how they come up with topicand ideas for writing.		
3	The teacher recordsthe students' ideas on an overhead.		
4	The teacher showspicture related to the topic to the whole class.		
5	The teacher writes as much as ideas about the picture by using BackgroundKnowledge strategy.		
6	The teacher writesa paragraph based on the ideas on the circle.		
7	The teacher asks the studentsto draw circles for different topicson big sheetsof paper.		
8	The students may use different colored markers.		
9	The teacher provides pictures to help them think.		
10	The students write idea as much as they know about the topic.		
11	The teacher walks around the room to help with questions and offer positive feedback		
12	The students write a paragraph about each circle they made.		
13	The students can draw a picture or include the photo.		
14	The students present the first draft with their pictures to each other in pairs or small groups.		
15	The students seek suggestions for improving the first drafts.		
16	The students revise the first draft.		
17	The students continue the revision process as need until the final editing.		
18	The students share the composition with others.		
19	The teacher gives the students another topic related to their life.		
20	The students activate Background Knowledge as before.		

III.6. The Technique of Data Analysis

In analyzing the data, the writer used statistical method through SPSS 20 version. The writer used independent sample t-test and paired sample t-test to analyze the data. Independent sample t-test was used to analyze the difference scores between two groups. Gay (2000: 484) states that t-test for independent sample is used to determine whether there is probable a significant difference between the means of two independent samples. Thus, independent sample t-test was used to anlyse the hypothesis 1, 2, 5, and 6 or in the other words it is used to:

1. Investigate the significant difference of pre-test vocabulary mastery between the experimental group and control group.

2. Investigate the significant difference of post-test vocabulary mastery between the experimental group and control group.

3. Investigate the significant difference of pre-test writing ability between the experimental group and control group.

4. Investigate the significant difference of post-test writing ability between the experimental group and control group.

While, paired sample t-test was used to analyse the difference scores in one group. L.R Gay (2008: 488) states that t-test for paired sample is used to compare groups that are formed by some types of matching or to compare a single group's performance on a pre and post-test or on two different treatments. Thus, paired sample t-test was used to anlyse the hypothesis 3, 4, 7, and 8, or in the other words, it is used to:

1. Investigate the significance difference between pre-test and post-test vocabulary mastery in the experimental group.

2. Investigate the significant difference between pre-test and post-test vocabulary mastery in the control group.

3. Investigate the significance difference between pre-test and post-test writing ability in the experimental group.

4. Investigate the significant difference between pre-test and post-test writing ability in the control group.

Then, to find out the effect size the writer used the following formula:

$$\tilde{\eta}^2 = \frac{t^2}{t^2 + n - 1}$$

Where, $\tilde{\eta}$ = The effect size

t = The value of $t_{obtained}$

n = The number of students

Thus, to find out the criteria of the effect size, the writer used the following criteria:

a. An effect size value of 0.2 represents a small statistical difference

b. An effect size value of 0.5 represents a moderate statistical difference

c. An effect size value of 0.8 represents a large statistical difference

III.7. Validity and Reliability of the Test

The quality of the instrument was very crucial. It should be valid and reliable. Thus, the writer used a number of procedures to measure the instrument used. They were:

III.7.1. The Validity of the Test

Hughes (1989: 22) stated that a test is said to be valid if it measures accurately what it is intended to measure. For writing and vocabulary tests, the writer used content validity. Heaton (1988: 159) stated that the validity of a test refers to the appropriateness of a given test or any of its component parts as a measure of what it is purposed to measure. Moreover, for the purpose of measuring achievement, the test must be created based on appropriate material, easy to be comprehended or suitable to the students' level. Therefore, the tests of this research were adapted from the students' materialwhich familiar to the students' daily life.

Then, to determine whether the vocabulary test was valid or not, the value $r_{observed}$ was compared with r_{table}.The number of item was 35.

If the value of $r_{observed} > r_{table}$ = valid

If the value of $r_{observed} < r_{table}$ = invalid

Then the validity of vocabulary instruemt can be seen in the following table:

Table III.6
Item Total Statistic of Vocabulary Mastery

Number of Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation (Validity)	r table df = 16-2	Results
1	19,6000	140,253	,828	0.468	Valid
2	19,6000	140,253	,828	0.468	Valid
3	19,8000	139,853	,827	0.468	Valid
4	19,4000	145,726	,478	0.468	Valid
5	20,0000	144,526	,503	0.468	Valid
6	19,8000	139,853	,827	0.468	Valid
7	19,6500	141,082	,733	0.468	Valid
8	19,8000	139,853	,827	0.468	Valid
9	**19,5500**	**146,787**	**,271**	**0.468**	**Invalid**
10	**19,3000**	**148,011**	**,373**	**0.468**	**Invalid**
11	19,8000	139,853	,827	0.468	Valid
12	**19,4500**	**148,366**	**,156**	**0.468**	**Inalid**
13	**19,9000**	**146,411**	**,291**	**0.468**	**Invalid**
14	**19,4500**	**148,366**	**,156**	**0.468**	**Invalid**
15	19,8000	139,853	,827	0.468	Valid
16	19,8000	139,853	,827	0.468	Valid
17	19,6000	140,253	,828	0.468	Valid
18	19,6000	140,253	,828	0.468	Valid
19	19,6000	140,253	,828	0.468	Valid
20	19,6000	140,253	,828	0.468	Valid
21	19,8000	139,853	,827	0.468	Valid
22	19,8000	139,853	,827	0.468	Valid
23	19,6000	140,253	,828	0.468	Valid
24	19,8000	139,853	,827	0.468	Valid
31	19,6000	140,253	,828	0.468	Valid
32	19,6000	140,253	,828	0.468	Valid
33	19,8000	139,853	,827	0.468	Valid
34	19,4000	145,726	,478	0.468	Valid
35	20,0000	144,526	,503	0.468	Resuls
30	19,6000	140,253	,828	0.468	Valid
26	19,6000	140,253	,828	0.468	Valid
27	19,8000	139,853	,827	0.468	Valid
28	19,6000	140,253	,828	0.468	Valid
29	19,8000	139,853	,827	0.468	Valid
30	19,6000	140,253	,828	0.468	Valid

Based on table III.6, there were 25 items which were valid and 5 items were invalid, the writer used only twenty questions to measure the students' vocabulary mastery.

III.7.2. Reliability of the Test

Brown (2000: 20) defined that a test can be reliable if you give the same test to the same student or matched students on two different occasions, the test should yield similar results. According to Brown, reliability has four types, they are student-related reliability, rater reliability, test administration reliability and test reliability. For writing test, the writer used rater reliability with the kind of inter-rater reliability inwhich the scores were evaluated by two raters. Then the writer used Pearson Product Moment formula by using SPSS 20 version to obtain the correlation between scores that were given by rater 1 and rater 2.

The writer used the categories of reliability that could be seen from the following table:

Table III. 7
The Categories of Reliability

No	Reliability	Level of Reliability
1	0.0 – 0.20	Low
2	0.21 – 0.40	Sufficient
3	0.41 – 0.70	High
4	0.71 – 1.0	Very high

Then, the correlation between scores that were given by rater 1 and rater 2 could be seen in the following table:

Table III. 8
The Pearson Correlation

		Rater1	Rater2
Rater1	Pearson Correlation	1	.669**
	Sig. (2-tailed)		.000
	N	16	16
Rater2	Pearson Correlation	.669**	1
	Sig. (2-tailed)	.000	
	N	16	16

**. Correlation is significant at the 0.01 level (2-tailed).

From table III.6, it can be seen that the coefficient of correlation product moment $r_{obtained}$ (r_o) between scores given by rater 1 and rater 2 was 0.669 and the sig.(2-tailed) was 0.00 which was higher than 0.05. It meant that there was a significant correlation between scores that were given by rater 1 and rater 2. In other words, the writing test was reliable. Then, $r_{obtained}$ was adjusted by the *Spearman-Brown Prophecy Formula* to determine the level of reliability as below:

$$r_{tt} = \frac{n r_{A,B}}{1+(n-1)r_{A,B}}$$
$$r_{tt} = \frac{(2)(0.66)}{1+(2-1)(0.66)}$$
$$= \frac{1.33}{1+0.66}$$
$$= \frac{1.33}{1.66}$$
$$= 0.80$$

Based on the calculation above, the writer obtained inter-rater reliability was 0.80. Therefore, it can be concluded that the reliability of writing test was included in very high level.

Then, the reliability for vocabulary test could be seen from the level of internal consistency of Cronbach Alpha in the following table:

Table III.9
The Internal Consistency of Cronbach Alpha

Cronbach Alpha	Internal Consistency
0.9	Excellent
0.9 > 0.8	Good
0.8 > 0.7	Acceptable
0.7 > 0.6	Questionable
0.6 > 0.5	Poor
0.5 >	Unacceptable

To obtain the reliability of the vocabulary test, the writer used SPSS 20 program to find out whether the test was reliable or not.

Table III.10
The Cronbach Alpha of Vocabulary Test

Cronbach's Alpha	N of Items
0.84	30

From the table above, it could be seen that the value of Cronbach's alpha was 0.841. It means that the items were reliable, in which the value of internal consistency is 0.9>0.84 0.8, so the reliability of the vocabulary test was **Good**.

III.8. The Research Procedure

1. Procedures of collecting data for experimental group

There were three procedures were administered to collect the data.

a. Pre-test

The pre-test was given to the students before conducting of the teaching and learning process by using pictures through Background Knowledge strategy. It was multiple choice questions to measure the students' vocabulary mastery and composition test to measure the students' writing ability.

b. The treatment by using pictures through Background Knowledge strategy

In the treatment, the students were taught by using pictures through Background Knowledge strategy. The teacher applied all steps for the six meetings.

c. Post-test

The post-test was given to the students after conducting the teaching and learning process by using pictures through background Knowledge strategy for six meetings. It was also multiple choice questions to measure the students' vocabulary mastery and composition test to measure the students' writing ability.

2. Procedures of collecting data for control group

There were three procedures were administered to collect the data.

a. The Pre-test

The pre-test was given to the students before conducting of the teaching and learning process by using teacher's strategy named Rapid Writing strategy. It was multiple choice questions to measure the students' vocabulary mastery and composition test to measure the students' writing ability.

b. The treatment by using the teacher's strategy

In the treatment, the students were taught by using the teacher's strategy named rapid Writing strategy. The teacher applied all steps for the six meetings.

c. Post-test

The post-test was given to the students after conducting the teaching and learning process by using Rapid Writing strategy for six meetings. It was also multiple choice questions to measure the students' vocabulary mastery and composition test to measure the students' writing ability.