



CHAPTER III

RESEARCH METHODOLOGY

3.1 Research Design

The design of the research is Comparative Experiment that focuses on quantitative research. According to L.R Gay (2000:364), the comparative experiment design involves selecting two groups differing on some independent variables and comparing them on some dependent variables. The groups may differ in a number of ways. One group may possess a characteristic that the other does not, one group may possess more of a characteristic than the other, or two groups may have different kinds of experiences. In this research, there are three variables; Picture Books strategy reading and DRA strategy are independent variables, while the students' reading comprehension is the dependent variable. Therefore, the experimental class is provided with pre-test, the treatment, and post-test. It can be drawn in the following table:

Table 3.1 Research Design

EG1	O1	X1	Y	O2
EG2	O1	X2	Y	O2

Figure (Gay, 2000: 353)

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- E : Experimental Group
- X1 : Independent variable 1 (Picture Books)
- X2 : Independent variable 2 (DRA)
- Y : dependent variable(Students' reading comprehension)
- O1 : Ore-test
- O2 : Post-test

Based on the diagram above, the research design is comparison between the effect of using two strategies with pretest and posttest equivalent group design. The independent variable differentiating the groups must be clearly and operationally defined, since each group represents a different population. The way in which the groups are defined would affect the generalized ability of the results.

3.2 The Location and the Time of the Research

This research was conducted at SMP Islam Plus YLPI. The duration of time to conduct of this research was within two months starting August and September 2016.

3.3 The Population and Sample of the Research

3.3.1 Population

The population of this research was thesecond year students of Islamic Senior High School 2015-2016 academic year. The total number of the students was56 students. They consisted of 4 classes. Two classes were chosen by using random cluster sample technique.

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Table 3.2**Population of the First year students at SMP Islam Plus YLPI**

Class	Total of Students
VIII 1	18
VIII 2	18
VIII 3	20
Total Population	56

3.3.2 Sample

The kind of sample of this research was Cluster Sampling which means that two classes were appointed to be the sample randomly to be the participants of this research. The total number of the population of the second year students at SMP Islam Plus YLPI in the academic 2015 – 2016 was 56 students. In this research, the samples were 36 students from VIII 1 and VIII 2 as experimental classes.

Table 3.2**Sample of the Second Year Students at SMP Plus YLPI Pekanbaru**

Class	Total of Students
VIII 1	18
VIII 2	18
Total Sample	36

3.4 Research Procedure

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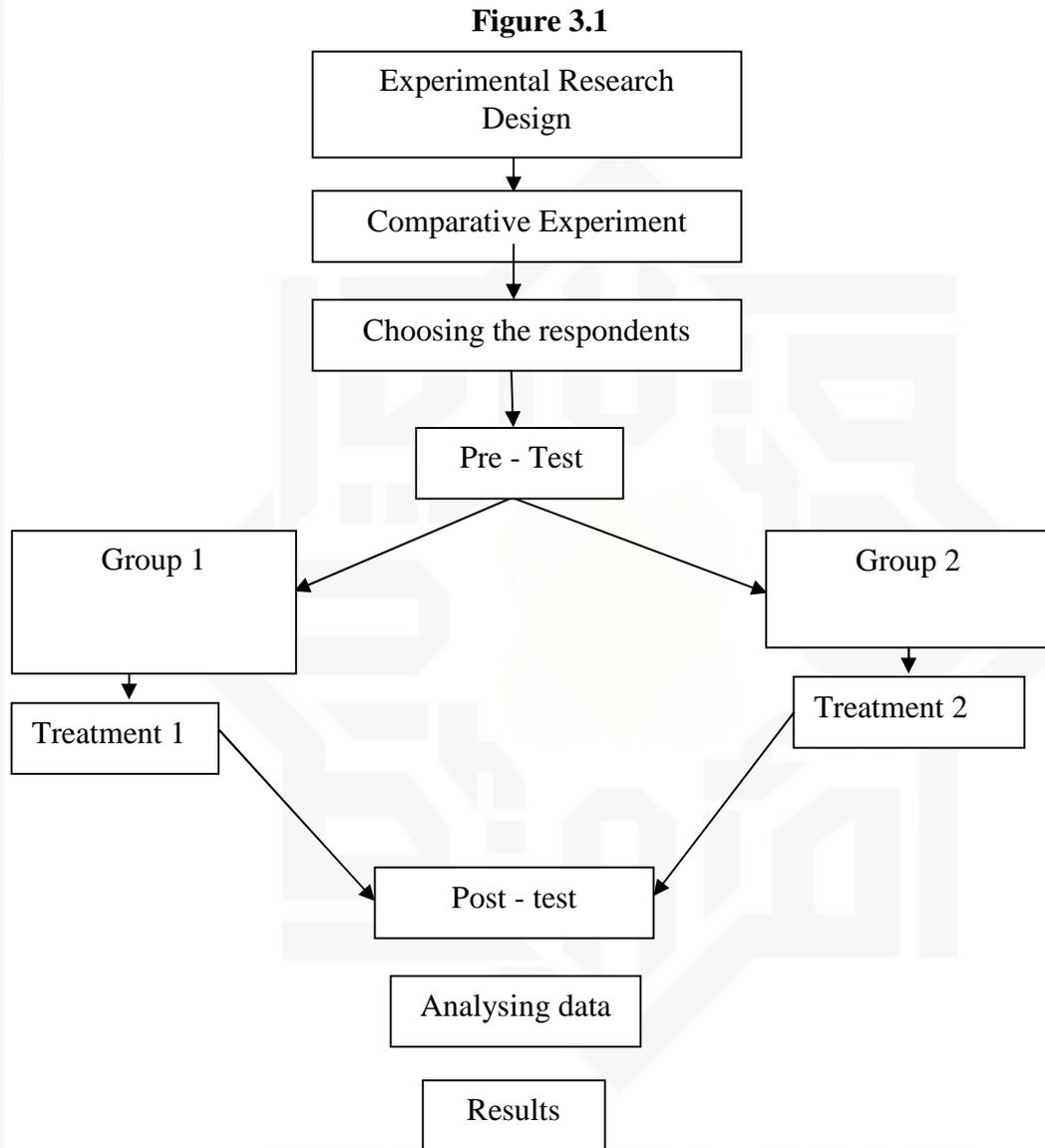
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3.5 Research Instruments

The data have been collected by using:

a. Observation

The observation was used to gather the relevant data concerning with the contribution of learning English by using Picture Books strategy and DRA strategy in classroom activities. The observation was carried out for eight meetings to observe if the thirteenth characteristics of implementing English by using Picture Books strategy and ninth characteristics of implementing english by using DRA strategy. The English teacher of SMP Islam Plus YLPI taught for eight meetings. When the English teacher teach the students in front of classroom, the researcher observe the teacher in the classroom.

b. Test

To collect the data, reading test had been administered as the instrument of this study. The test administered to two classes which consist of VIII 1 and VIII 2. The test aims to find out the students' reading comprehension after being treatment. In the treatments, both classes have been given by teaching with Picture Books Strategy and DRA Strategy. This activity also intends to find out whether the students' skill keeps holding of the material after doing the treatment.

3.6 Data Collection Technique

In this research, the data were collected by distributing test to the students. The test consisted of six passages where each of the passage consisted of five questions related to

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the passages of reading comprehension test. Each reading text had been considered the time and the procedures of Picture Books and DRA and conventional reading text, The duration of time was 90 minutes. The tests were taken from the students' textbook and internet materials.

3.7 Validity and Reliability Test

3.7.1 Test Validity

Before collecting the data, each item of question was tested in order to be ideally to try out. The purpose of the try out is to find out the quality of the test items. Brown (2000;22) states that a test is method of a measuring a person's ability, knowledge, or performance in a given domain. Validity is the extent to which inferences made from assessment results which are appropriate, meaningful, and useful in terms of the purpose of the assessment.

To find out the validity of the items of test, it was used Split-Half formula by using SPSS 20 version by looking at the corrected item - total correlation (correlation between score item and score total item = r_{counted}) in table Item-Total Statistics.

To know whether the test valid or not, the value of r_{counted} must be compared with r_{table} . The number of students was 20. The degree of freedom is $24-2=22$, r_{table} on $df = 23$ are 0,40 (5%).

If the value of $r_{\text{counted}} > r_{\text{table}}$ = valid,

If the value of $r_{\text{counted}} < r_{\text{table}}$ = invalid.

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The result as below:

Table 3.4 Instrument Validity Before Try Out

	Corrected Item-Total Correlation	R Table $\alpha = 0,05 ; n = 25$	Categories
ITEM1	-,285	< 0,40	Invalid
ITEM2	,040	< 0,40.	Invalid
ITEM3	,508	> 0,40.	Valid
ITEM4	,454	> 0,40.	Valid
ITEM5	,182	< 0,40.	Invalid
ITEM6	,705	> 0,40.	Valid
ITEM7	,779	> 0,40.	Valid
ITEM8	,425	> 0,40.	Valid
ITEM9	,251	< 0,40.	Invalid
ITEM10	,334	< 0,40.	Invalid
ITEM11	,651	> 0,40.	Valid
ITEM12	,237	< 0,40.	Invalid
ITEM13	,524	> 0,40.	Valid
ITEM14	,338	< 0,40.	Invalid
ITEM15	,425	> 0,40.	Valid
ITEM16	,256	< 0,40.	Invalid
ITEM17	,514	> 0,40.	Valid
ITEM18	,364	< 0,40	Invalid
ITEM19	,352	< 0,40.	Invalid
ITEM20	,555	> 0,40.	Valid
ITEM21	,651	> 0,40.	Valid
ITEM22	,265	< 0,40.	Invalid
ITEM23	,722	> 0,40.	Valid
ITEM24	,573	> 0,40.	Valid

From the result of calculation by using SPSS, it can be seen and concluded that 13 items were valid; item 3, item 4, item 6, item 7, item 8, item 11, item 13, item 15, item 17,

item 20, item 21, item 23, and item 24. So, four items were removed by the writer, and the result of validity after the invalid items were changed which can be shown below:

Table 3.5 Instrument Validity after Try Out

	Corrected Item-Total Correlation	R Table $\alpha = 0,05 ; n= 25$	Categories
ITEM1	,604	> 0,40	Valid
ITEM2	,445	> 0,40.	Valid
ITEM3	,706	> 0,40.	Valid
ITEM4	,912	> 0,40.	Valid
ITEM5	,912	> 0,40.	Valid
ITEM6	,912	> 0,40.	Valid
ITEM7	,912	> 0,40.	Valid
ITEM8	,607	> 0,40.	Valid
ITEM9	,562	> 0,40.	Valid
ITEM10	,445	> 0,40.	Valid
ITEM11	,519	> 0,40.	Valid
ITEM12	,558	> 0,40.	Valid
ITEM13	,454	> 0,40.	Valid
ITEM14	,471	> 0,40.	Valid
ITEM15	,430	> 0,40.	Valid
ITEM16	,592	> 0,40.	Valid
ITEM17	,645	> 0,40.	Valid
ITEM18	,552	> 0,40	Valid
ITEM19	,694	> 0,40.	Valid
ITEM20	,572	> 0,40.	Valid

It can be seen and concluded after being removed the invalid items, the result of all items' calculation were valid. So, in this research, the number of items for the test was 20 questions.

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3.7.2 The reliability of Instrument

A reliability is an important characteristic of a good test. In order to calculate the reliability of the test, the mean of the students' scores and the standard deviation were sought. In finding reliability of instruments, there are several formulas that can be used such as Split-Half formula, Spearman-Brown formula, Flanagan formula, Rulon formula, Hoyt formula, Alpha formula, Kuder-Richardson 20 (K-R 20) formula and Kuder-Richardson 21 (K-R 21) formula (Arikunto, 2006: 223). From these formulas, Split-Half formula was used by using SPSS and the result of reliability can be seen through Guttman Split-Half Coefficient in reliability statistics on the output of SPSS.

Table 3.6 Criteria Coefficient of Reliability

Coefisien Reliability	Criteria
0,80 r_{11} 1,00	Highest reliability
0,60 r_{11} 0,79	High reliability
0,40 r_{11} 0,59	Middle reliability
0,20 r_{11} 0,39	Low reliability
0,00 r_{11} 0,19	Lowest reliability

The result of test reliability can be seen as follow:

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,948	,948	20

From the results of calculation by using SPSS, it can be seen that the value of Cronbach's Alpha Based on Standardized Items (r_{11}) for test is 0,948. So, 0,80 0,948 1,00. It means that the instrument is highest reliability.

3.8 Data Analysis Technique

The scoring guide is chosen as the criteria of scoring representing the basic aspects of reading. The reading results are evaluate by considering five aspects and each aspect has a score or a level. The specification of the aspects is topic, main idea, specific idea, textual reference, and word meaning.

In analysing the data, the scored wereusedfor pre-test and post-test of the experimental group 1 and experimental group2. The scores wereanalysed statistically for both descriptive and inferential statistics. In this research, these following formulas were used:

1. Independent sample t-test

To find out whether there is significant difference or there is no significant difference between two or more variables can be analyse by using Independent Sample t_{tes} .



Gay added that the t-test for independent sample is use to determine whether there is probably a significant difference between the means of two independent samples.

Independent sample t-test is used to find out the results of the first and second hypotheses.

They are as follow:

- a. To know whether there is significant difference of students' reading comprehension between before being taught by using picture book strategy and before being taught by using direct reading activity strategy at the second year students of SMP Plus Islam YLPI
 - b. To know whether there is significant difference of students' reading comprehension after being given the treatment between the students who are taught by using picture book strategy and those who are taught by using Direct Reading Activity strategy
2. The researcher also used Paired Sample t-Test. According to (Gay, 2000: 488) that t-test for non independent samples 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. At this time, the researcher used to find out whether there was a significant effect before and after using Picture Book strategyanDRA strategy on students' reading comprehension by using the pre-test and post-test score of the experimental group1 and the experimental group2. The formula of paired-sample t-test is as follows:

3.

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$$t = \frac{\bar{D}}{\frac{\sum D^2 - \frac{(\sum D)^2}{N}}{N(N-1)}}$$

4.

D : Gain Score ($D=X_2-X_1$)

The t-table has the function to see if there is a significant difference among the mean of the score of both pretest and posttest. The t-obtained value is consulted with the value of the t - table at the degree of freedom (df) N-1 which is statistically hypotheses:

H_0 : $t_o < t$ -table

H_a : $t_o > t$ -table

H_0 is accepted if $t_o < t$ -table or there is no significant effect after using Picture Book strategy and DRA Strategy on students' reading comprehension.

To analyze the final-test scores of the groups, the following formula is used:

$$t = \frac{M_X - M_Y}{\sqrt{\frac{SD_X^2}{N_1-1} + \frac{SD_Y^2}{N_2-1}}}$$

Where:

t_1 = The value of comparing two means

M_X = Mean of the score in pre-test

M_Y = Mean of the score in post-test

SD_X = Standard deviation of experimental group

SD_Y = Standard deviation of control group

N_1 = Number of the sample in pre-test



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N_2 = Number of the sample in post-test

1 = the constant number

The t-table has the function to see if there is a significant difference among the mean of the score of both experimental and control group. The t-obtained value is consult with the value of t-table at the degree of freedom (df) = (N1+N2)-2 which is hypothesized

Ha: $t_o > t\text{-table}$

Ho: $t_o < t\text{-table}$

Ha is accepted if $t_o > t\text{-table}$ or there is effect after giving the treatment Picture Books and DRAon students' reading comprehension.

Ho is accepted if $t_o < t\text{-table}$ or there is no effect after giving the treatment Picture Books and DRAon reading comprehension.

Afterward, it is better to find the coefficient effect of T-test by following formula¹:

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

$$kp = r^2 \times 100\%$$

Where:

Kp : Coefficient effect

r^2 : Coefficient

Afterward, it is better to find the effect size of T-test by following formula²:

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

$$\eta^2 \text{ squared} = \tilde{\eta}^2 \times 100\%$$

Where:

$\eta^2 \text{ squared}$: Coefficient effect

$\tilde{\eta}^2$: Coefficient

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