

CHAPTER III

RESEARCH METHODOLOGY

III.1 The Research Design

The design of this research was a Comparative Experimental Design that focused on Quantitative research. Two groups served as experimental groups and the other one as a control group. Creswell (2009, p.155) states that when individuals are not randomly assigned, the procedure is called quasi experiment. According to L.R Gay (2000, p.349), the experimental method is a method of research that can truly test hypothesis concerning with cause and effect relationship in the experimental research. Gay said “An experiment typically involves a comparison of two groups (although as you will see later, there may be only one group, or there may be three or more groups).

The experimental comparison is usually one of three types: 1. Comparison of two different approaches (A versus B); 2. Comparison of a new approach and the existing approach (A versus no A); 3. Comparison of different amount of a single approach (A little of A versus a lot of A)” (2000, p.368). Type 1 (comparison of two different approaches) was conducted in this research. There were three variables. In this research; POSSE Strategy (X1) and PLAN Strategy (X2) were independent variables, while the students’ reading comprehension was dependent variable. While the students’ reading comprehension was dependent variable. Therefore the experimental class was provided with pre-test, treatment,

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and post test, meanwhile the control class with pre-test and post-test, without any treatment. The research design could be seen as follows:

Table III.1 Research Design

Group	Pretest	Treatment	Posttest
EG 1	O1	X1	O2
EG 2	O3	X2	O4
C	O5	-	O6

Figure Creswell (2009:160)

EG 1 : Experimental Group 1

EG 2 : Experimental Group 2

X1 : Independent Variable 1 (Predict, Organize, Search, Summarize and Evaluate Strategy)

X2 : Independent Variable 2 (Predict, Locate, Add and Note Strategy)

O1 : Pre-test (Group 1)

O3 : Pre-test (Group 2)

O5 : Pre-test (Control group)

O2 : Post-test (Group 1)

O4 : Post-test (Group 2)

O6 : Post-test (Control group)

III.2 Location and Time of the Research

This research was conducted at SMA Smart Indonesia. It is located on Jl. Sembilang, Rumbai, Pekanbaru. The duration of the research was from February up to March 2017.

III.3 Population and Sample of the Research

III.3.1 Population

The population of this research was the first year students of SMA Smart Indonesia academic year 2016-2017 which consisted of 4 classes which had the same capability, and three classes were chosen by using cluster sampling.

Table III.2. Population of the first year students of SMA Smart Indonesia

Class	Total of Students
X.1	22
X.2	22
X.3	21
X.4	22
Total Population	87

III.3.2 Sample

According to Gay (2000), sampling is the process of selecting a number of individuals or a study in such a way that they represented the larger group from which are selected. The total number of the population of the first year students of SMA Smart Indonesia Pekanbaru in academic 2016-2017 was 87 students. But in this research, the samples taken were 65 students which were X.1 as the experimental class I, X.2 as the experimental class II, and X.3 as the control class. The sample was taken by *cluster sampling*. According to Gay (2000: 129), he states that *cluster sampling* randomly selects groups, not individuals. All the members of selected group have similar characteristics.

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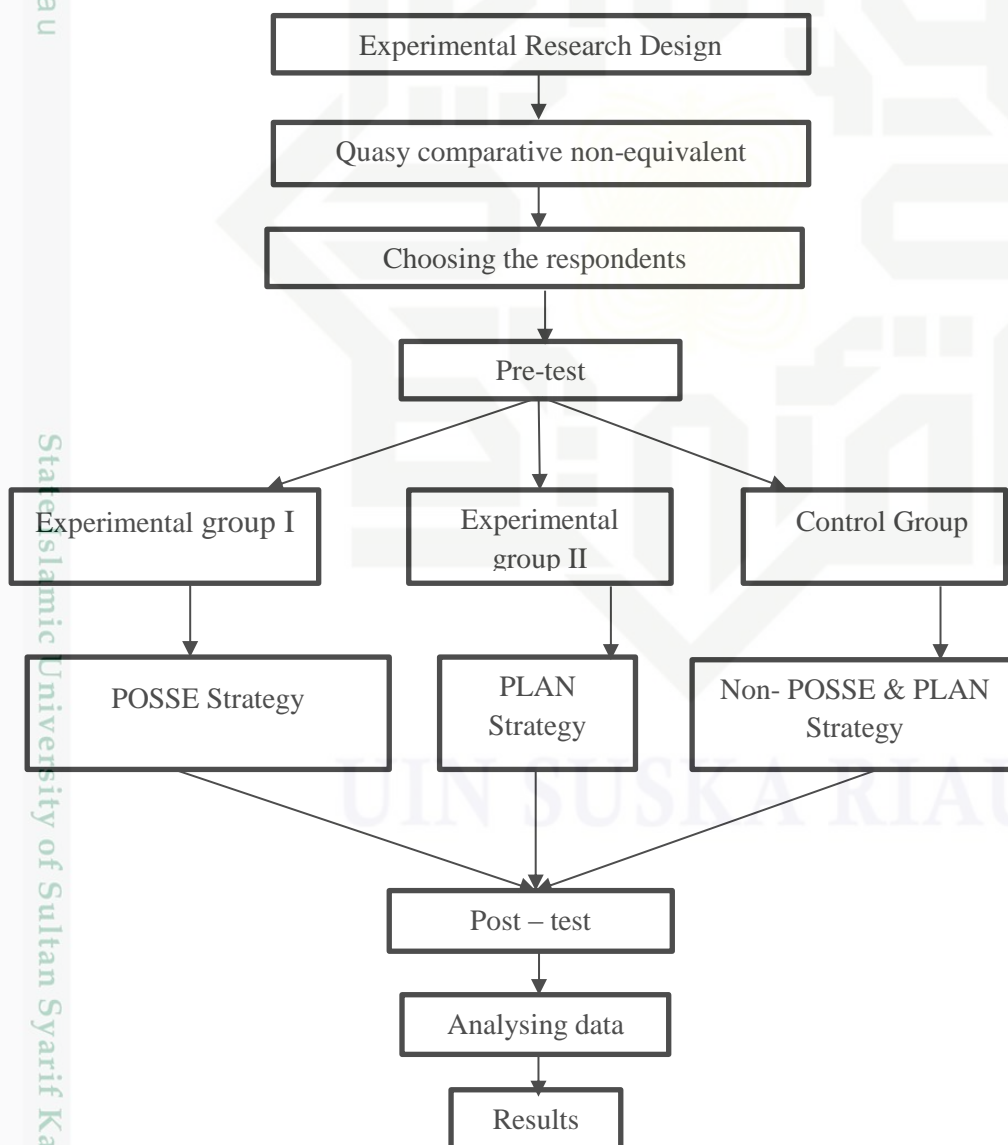
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Table III.3 The Total Sample of the Research

Sample	Male	Female	Total
X.1	8	14	22
X.2	7	15	22
X.3	7	14	21
Total	22	43	65

III.4. Research Procedure



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1. Procedures of collecting data for experimental 1 and experimental 2 groups

The following procedure were used to collect the data:

- a. The first procedure was giving a pretest. The pre-test was given to the students before conducting of the teaching and learning process using POSSE & PLAN strategy. It was used to measure the student's reading comprehension by using written test.
- b. The second procedure was giving treatment. The students were taught by using POSSE in the experimental class 1 and PLAN in experimental class 2. The teacher taught and explained the descriptive text by using the procedure of POSSE & PLAN strategy with the procedure: pre activities, whilst activities and post activities as they were stated at Chapter II.
- c. The third procedure was a post-test. It was conducted to the students of the experimental 1 and experimental 2 after applying the treatment by using POSSE & PLAN strategy. The result of the post-test was compared with the pre-test result in order to determine the comparison of the POSSE & PLAN strategies on the students' reading comprehension after conducting 4 meetings of the POSSE in the experimental group 1 and PLAN in the experimental group 2.

2. Procedures of collecting data for the control group

- a. The first procedure was pretest. Pre-test was administered to the students of the control group before they were taught by using conventional strategy or non-POSSE and non-PLAN. The pre-test given to the students

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of the control group was similar to those of the experimental group 1 and the experimental group 2.

- b. The second procedure was teaching reading by using non-POSSE and non-PLAN. The students were taught about reading comprehension by using conventional strategies with the same topics and materials given to the experimental group 1 and experimental group 2.
- c. The third procedure was giving a post-test. The post-test was administered to the students of the control group after being taught for four meetings by using conventional strategy. The result of the post-test was compared with the pre-test result in order to compare their reading comprehension.

III.5. Research Instruments

To collect the data, two reading tests were administered as the instruments of this study. The pre-test and post- test were administered to three classes which consisted of X.1, X.2 and X.3. The pre-test was administered before the treatment and the post-test aimed at finding out the students' reading comprehension after treatment. During the treatments, POSSE and PLAN Strategy were given to the students.

III.6. Data Collection Technique

In order to gather the data, the following techniques were used:

III.6.1 Observation

Observation was used to observe directly the students which use POSSE and PLAN Strategy to improve students' reading comprehension. In observation technique, it was needed to make a list of observational items to be observed in

the class during teaching and learning process by using POSSE and PLAN Strategy.

Table III.4 Teacher's Observation Sheet in POSSE Reading Strategy

No	Indicators	Yes	No
1	The teacher distributes the POSSE sheet strategy to the students and explains about the text and the POSSE strategy in general.		
2	The teacher asks students to do vocabulary exercises related to the text.		
3	The teacher gives a description of the topic, and gives eliciting questions to help students predict the text.		
4	The teacher asks the students to predict the text.		
5	The teacher asks the students to organize their ideas into The POSSE strategy sheets/ graphic organizer.		
6	The teacher asks students search for the main idea of the text.		
7	The teacher tells the students to read the text carefully to confirm their predictions about the ideas in the text		
8	The teacher asks students to summarize the text by identifying the key idea of the text.		
9	The teacher also encourages the students to make use of heading, subheading, and the main idea of each paragraph to summarize the texts they read.		
10	The teacher asks the students to write the new words and their meanings.		
11	The teacher lets the students evaluate their understanding by doing the comparing and clarifying.		
12	The teacher asks students to present their posse sheet strategy.		

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Table III.5 Teacher's Observation Sheet in PLAN

No	Indicators	Yes	No
1.	The teacher introduces about the Predict, Locate, Add, and Note (PLAN) Strategy and explains it to the students.		
2.	The teacher gives one example to the students in using, Predict, Locate, Add, Note (PLAN) Strategy in reading comprehension.		
3.	The teacher gives explanation to the students about, Predict, Locate, Add, and Note (PLAN) Strategy briefly.		
4.	The teacher asks the students to apply that strategy in reading comprehension.		
5.	The teacher gives chance to the students to make questions about; Locate, Add, Note (PLAN) Strategy and they discuss it.		
6.	The teacher gives chance to the students to make questions about; Locate, Add, Note (PLAN) Strategy and they discuss it.		
7.	The teacher asks the students to do a task related to the text given.		
8.	The teacher monitors the students and gives them assistance.		
9.	Finally, the teacher guides the students to take a conclusion of the lessons that they have learned.		

III.6.2. Test

To find out the effect of using POSSE and PLAN Reading Strategy, two reading comprehension tests were administered at the first year students of SMA Smart Indonesia Pekanbaru. The tests were administered to assess students' reading ability, especially in reading descriptive text. The tests were done in two stages. The first was a pre-test which consisted of 25 questions and it was administrated before conducting treatment. The second was post-test which consisted of 25 questions and it was administrated after conducting treatment.

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The tests were measured by the total score from the result of the students' reading comprehension. The classification of the students' score is shown below. If the students are able to achieve the goal, it means that assessment of students' reading comprehension needs to be correlated with purposes of achieving.

Table III.6
The Classification of Students' Score

No	Test Score	Classification
1	80-100	Good to Excellent
2	60-79	Average to Good
3	50-59	Poor to Average
4	0-49	Poor

Adapted from Harris (1974)

III.7 Validity and Reliability Test

III.7.1 The validity of instrument

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

The points of difficulty level and discrimination index will be analyzed by using SPSS application.

The result as below:

Table III.7 Instrument Validity Before Try Out

	Corrected Item-Total Correlation	R Table $\alpha = 0,05 ; n = 30$	Categories
ITEM1	,839	> 0,361	Valid
ITEM2	,429	> 0,361	Valid
ITEM3	,473	> 0,361	Valid
ITEM4	,147	< 0,361	Invalid
ITEM5	,447	> 0,361	Valid
ITEM6	,541	> 0,361	Valid
ITEM7	,436	> 0,361	Valid
ITEM8	,482	> 0,361	Valid
ITEM9	,093	< 0,361	Invalid
ITEM10	,515	> 0,361	Valid
ITEM11	,610	> 0,361	Valid
ITEM12	,657	> 0,361	Valid
ITEM13	,462	> 0,361	Valid
ITEM14	-,091	< 0,361	Invalid
ITEM15	,490	> 0,361	Valid
ITEM16	,502	> 0,361	Valid
ITEM17	,732	> 0,361	Valid
ITEM18	,670	> 0,361	Valid
ITEM19	,457	> 0,361	Valid
ITEM20	,502	> 0,361	Valid
ITEM21	,478	> 0,361	Valid
ITEM22	,209	< 0,361	Invalid
ITEM23	,473	> 0,361	Valid
ITEM24	,462	> 0,361	Valid
ITEM25	,445	> 0,361	Valid
ITEM26	,473	> 0,361	Valid
ITEM27	,470	> 0,361	Valid
ITEM28	,037	< 0,361	Invalid
ITEM29	,529	> 0,361	Valid
ITEM30	,566	> 0,361	Valid

From the result of calculation by using SPSS, it was clear and concluded that 25 items were valid; item 1, item 2, item 3, item 5, item 6, item 7, item 8,

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- | | Corrected Item-
Total Correlation | R Table
$\alpha = 0,05 ; n = 25$ | Categories |
|--------|--------------------------------------|-------------------------------------|------------|
| ITEM1 | ,862 | > 0,361 | Valid |
| ITEM2 | ,430 | > 0,361 | Valid |
| ITEM3 | ,403 | > 0,361 | Valid |
| ITEM4 | ,506 | > 0,361 | Valid |
| ITEM5 | ,593 | > 0,361 | Valid |
| ITEM6 | ,505 | > 0,361 | Valid |
| ITEM7 | ,462 | > 0,361 | Valid |
| ITEM8 | ,480 | > 0,361 | Valid |
| ITEM9 | ,658 | > 0,361 | Valid |
| ITEM10 | ,684 | > 0,361 | Valid |
| ITEM11 | ,442 | > 0,361 | Valid |
| ITEM12 | ,413 | > 0,361 | Valid |
| ITEM13 | ,573 | > 0,361 | Valid |
| ITEM14 | ,772 | > 0,361 | Valid |
| ITEM15 | ,618 | > 0,361 | Valid |
| ITEM16 | ,440 | > 0,361 | Valid |
| ITEM17 | ,573 | > 0,361 | Valid |
| ITEM18 | ,497 | > 0,361 | Valid |
| ITEM19 | ,445 | > 0,361 | Valid |
| ITEM20 | ,463 | > 0,361 | Valid |
| ITEM21 | ,486 | > 0,361 | Valid |
| ITEM22 | ,507 | > 0,361 | Valid |
| ITEM23 | ,479 | > 0,361 | Valid |
| ITEM24 | ,503 | > 0,361 | Valid |
| ITEM25 | ,565 | > 0,361 | Valid |

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It is apparent and concluded after removed the invalid items, the result of all items' calculation were valid. So, in this research, the item for the test was 25 questions

III.7.2 The reliability of Instrument

Reliability is an important characteristic of a good test. In order to calculate the reliability of the test, the mean of the students' scores the standard deviation was sought. In finding reliability of instruments, there are several formulas were 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, p.223). From these formulas, the writer used Split-Half formula by using SPSS and result of reliability can be seen through Guttman Split-Half Coefficient in reliability statistics on the output of SPSS.

Table III.9 Criteria Coefficient of Reliability

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

(Adapted from Arikunto, 2006)

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The result of test reliability can be shown as follows:

Table III.10 Reliability Statistics

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,918	,918	25

From the results of calculation by using SPSS, it is obvious that the value of Cronbach's Alpha Based on Standardized Items (r_{11}) for test is 0,918. So, $0,80 \leq 0,918 \leq 1,00$. It means that the instrument is highest reliability.

III.8 Data Analysis Technique

The scoring guide is chosen as the criteria of scoring representing the basic aspects of reading. The reading results were evaluated by considering five aspects and each aspect has a score or a level. The specifications of the aspects were; main idea, detailed information, synonym/antonym, textual reference, and inference.

In analyzing the data, the researcher used scores of pre-test and post-test of experimental and control groups. This score was analyzed statistically for both descriptive and inferential statistic. In this research, the researcher used these following formulas:

III.8.1. Independent sample t-test

To find out whether there is a significant difference or there is no significant difference between two or more variables can be analyzed by using an

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Independent Sample T test. Gay adds that the t-test for independent sample is used 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 seventh hypotheses. They are as follows:

- a. To find out whether there is any significant difference on students reading comprehension before giving the treatment by using POSSE Strategy and PLAN Strategy for the experimental class and non treatment for the control class.
- b. To find out whether there is any significant difference on students' reading comprehension after giving the treatment by using POSSE Strategy and PLAN Strategy for the experimental class and non treatment for the control class.

SPSS 20 was used to analyze the final-test scores of the experimental group and the control group.

III.8.2. Dependent Sample t-test

Dependent sample t-test is known also as Paired-Sample t-test. This formula is used to obtain the result of the third hypotheses that was to find out whether there is a significant effect of using POSSE and PLAN Reading Strategy on students' reading comprehension at SMA Smart Indonesia Pekanbaru. Gay (2000:488) states that t-test for non-independent samples is used to compare groups that are formed by some types of matching or to

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compare a single group's performance on a pre- and post-test or on two different treatments.

At this time, the research used a pre-test and post-test scores of the experimental class in order to find the significant effect of using POSSE and PLAN Strategy on students' reading comprehension at SMA Smart Indonesia Pekanbaru. To obtain the data, the researcher used SPSS 20.

The last, to find out the percentage of significant effect between pre-test and post-test of experimental class by looking for the effect size or eta-squared as follows:

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

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

Where;

$\tilde{\eta}^2$ = eta squared

t^2 = *t-test result*

n = *students number*

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