

## CHAPTER III

### RESEARCH METHODOLOGY

#### III.1. Research Design

The design of this research was a Comparative Quasi Experimental research with Pre-Test and Post-Test Equivalent Group Design. An Experimental research is the type of research that can test hypotheses to establish cause and effect relationship (Gay and Airasian, 2000:367). Comparative experiment is the research design which compares the effect of two or more treatment and also randomly assigns subject to different treatments. According to Mc. Gowan (2011:1), comparative experiment plays a role in each phase of an educational research program, from studies of initial efficacy to larger trials that confirms or optimize effects of educational interventions. The comparative experiment 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) (2000:368). This research will use type 1 (comparison of two different approaches).

In this research, there were three variables; Collaborative Strategic Reading (X1) and Know- Want to Know – Learnt (KWL) Reading Strategy (X2) were independent variables, while the students' reading comprehension was dependent variable. Gay (2000:364) states that the major difference between experimental research and causal-comparative research is that in experimental research the independent variable the alleged cause, is manipulated, and in causal-comparative

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research it is not, because it has already occurred. In the experimental research the researcher can randomly form groups and manipulate independent variable, while in causal-comparative research, the groups are already formed and already divided on the independent variable. Furthermore, causal-comparative studies identify relationships that may lead to experimental studies, but only relationship is established. Cause-effect relationships established through causal comparative research are at best tenuous and tentative. Only experimental research can truly establish cause-effect relationship. So that to investigate the students' reading comprehension will be provided by post-test. They can be drawn in the following table:

**Table 3.1 Research Design**

Group	Pre-test	Treatment	Post-test
EG 1	O1	X1	O2
EG 2 (C)	O2	X2	O2

Figure Creswell (2009:160)

EG1 : Experimental Group 1

EG2 : Experimental Group 2

C : Control Group

X1 : Independent variable 1 (Collaborative Strategic Reading)

X2 : Independent variable 2 (KWL Reading Strategy)

Y : Dependent variable (Students' Reading Comprehension)

Based on the diagram above, Creswell (2009: 160), states that in this quasi-experiments design, the experimental group A and the experimental group B are selected without random assignment. The independent variable differentiating the groups must be clearly and operationally defined, since each group represents a

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different population. The way in which the groups are defined will affect the generalizability of the results.

In addition, Gay (2000:392) states that this design requires at least two groups, each of which is formed by random assignment. Both groups are administered a pre-test and each group receives a different treatment. Both groups are post-tested at the end of the study. Post – test scores are compared to determine the effectiveness of the treatments. The pre-test-post test control group design may also expand to include any number of treatment groups.

### **III.2 Location and Time of the Research**

This research was conducted at SMP IT Al Bayyinah Jalan Merak Sakti, Panam, Pekanbaru. Because of limited time and budget, the duration of the research was done in 4 meetings in November.

### **III.3 Population and Sample of the Research**

#### **1. Population**

The population of this research was the second year students of SMP IT AL Bayyinah academic year 2016-2017 which consisted of 5 classes which had the same capability, and two classes were chosen by using cluster random sampling. Gay (2000:129) states that cluster sampling randomly selects groups, not individuals. All the members of selected groups had similar characteristics.

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**Table 3.2. Population of the second year students of SMP IT Al Bayyinah Pekanbaru.**

Class	Total of Students
VIII/a	24
VIII/b	24
VIII/c	24
VIII/d	24
VIII/e	24
<b>Total Population</b>	<b>120</b>

## 2. Sample

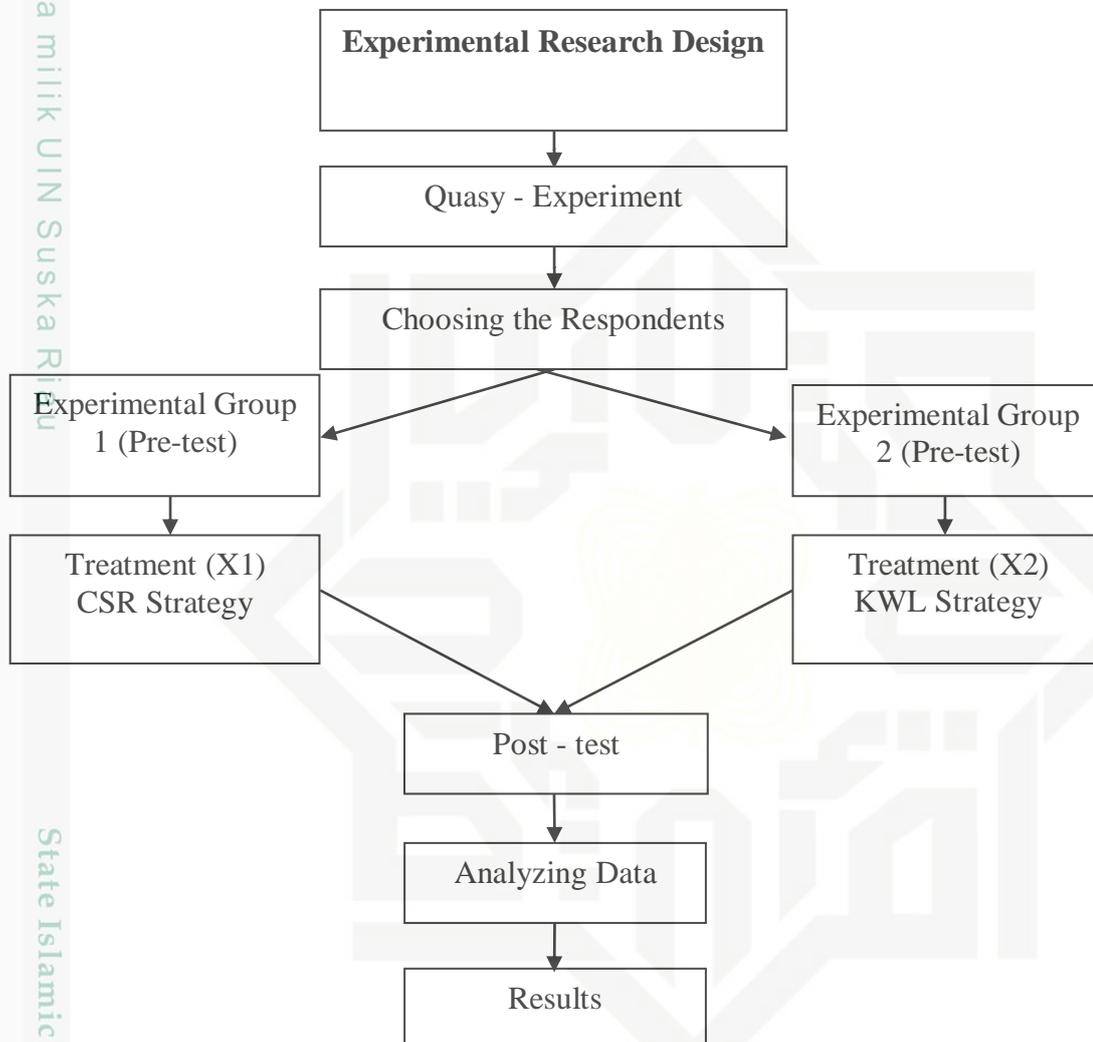
The sample of this study used cluster sampling. Gay (2000:12) states cluster sampling randomly selects groups, not individual. All the members of selected groups have similar characteristics. Among the 5 classes of the eighth grade, two classes were taken as the sample of this research as follows:

**Table 3.3. Sample of the research**

No	Sample	Female	Total
1	VIII/a	24	24
2	VIII/b	24	24
	<b>Total</b>	<b>48</b>	<b>48</b>

### III.4. Research Procedure

Figure 4. Research Design



### III.5. Research Instruments

To collect the data, reading test was administered as the instrument of this study. The pre-test and post- test were administered to two classes which consisted of VIII/a and VIII/b. 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, Collaborative Strategic Reading and Know – Want to

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Know - Learnt Strategy was applied. These activities also intended to find out whether the students' skill keeps holding of the material after doing the treatment.

**III.6. Data Collection Technique**

In order to get the data to support this study, the technique used to be as follows:

**1. Observation**

Observation was used to observe directly the students which use Collaborative Strategic Reading (CSR) and Know – Want to Know – Learnt (KWL) Reading 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 Collaborative Strategic Reading (CSR) and Know – Want to Know – Learnt (KWL) Reading Strategy.

**Table 3.4 Teacher's Observation Sheet in CSR**

NO	Indicators	Yes	No
1	The teacher provides a narrative text and read the title.		
2	The teacher asks the students to see if there are any pictures, diagrams, figures or tables.		
3	The teacher asks the students to skim the text for keywords.		

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NO	Indicators	Yes	No
4	The teacher asks the students to read every two paragraphs and then stop. Find something “Click” and “Clunk”.		
5	The teacher asks the students to reread the sentence with the clunk and the sentences before or after the clunk, looking for clues.		
6	The teacher asks the students to decide who/what the paragraph is mostly about the topic.		
7	The teacher asks the students to name the most important idea about the topic.		
8	The teacher asks the students to ask (teacher-like) questions about the passage.		
9	The teacher asks the students to review by thinking about what was important that they learned.		
10	The teacher asks the students to make groups of 4 and give the same text for each member.		
11	The teacher asks the students to read the text and stop after every two paragraphs to Click and Clunk and to Get the Gist.		
12	The teacher asks the students to record their learning in CSR learning log.		

**Table 3.5 Teacher's Observation Sheet in KWL Reading**

		Strategy		
No	Indicators	Yes	No	
1	The teacher creates a KWL chart to guide the students			
2	The teacher introduces the topic of narrative text and asks students to list what they already know about it.			
3	After the teacher gives the material and introduces the topic, the students begin by brainstorming everything they Know about the topic.			
4	The teacher asks the students to record relevant information about the topic that they know in the K column of the KWL chart.			
5	The teacher invites students to list what else they would like to learn. The students then generate a list of questions about what they want to know about the topic. Then these questions are listed in the W column.			
6	The teacher guides the students to share and discuss their ideas.			
7	The teacher asks the students read the material looking for answers to their questions about what they want to learn and record new knowledge they have learnt in L column.			
8	The teacher and students, after reading, discuss which of their questions they were able to answer and make a chart that shows their answers.			
9	The teacher guides the students to identify where to go to find the answers for the questions they were not able to answer.			

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No	Indicators	Yes	No
10	The teacher encourages the students to help one another to summarize the text.		

## 2. Test

To find out the effect of using CSR and KWL Reading Strategy to improve students' reading comprehension of the second year students of SMP IT Al Bayyinah Pekanbaru, the test was administered to assess students' reading ability, especially in reading narrative text. The test had been done in two stages. The first was pre-test, it was done before conducting treatment. The second was post test, it was done after conducting treatment.

In this research, the data were collected by distributing pre-test and post-test to the students. The test consisted of five passages where each of the passage consisted of five questions related to the passages of reading comprehension test. Each reading text had been considered the time and the procedures of Collaborative Strategic Reading (CSR) and Know – Want to Know – Learnt Reading Strategy. The duration of time was 90 minutes. The tests were taken from the students' textbook and internet materials.

The test was measured by the total score from the result of the students' reading comprehension. The classification of the students' score was shown below. If the students were able to achieve the goal, it meant that

assessment of students' reading comprehension needed to be correlated with purposes of achievement.

**Table 3.6**  
**The Classification of Students' Score**

Score Range	Categories
80 – 100	Very Good
66 – 79	Good
56 – 65	Fairly Good
40 – 55	Poor
30 – 39	Very Poor

### III.7. Reliability and Validity of the Test

#### 1. The reliability of Instrument test

To obtain the data from the respondents, it was needed to conduct try out to determine the validity and reliability of the instruments then, analyzing the reliability and validity used SPSS 20.

##### a. Reliability

Brown, (2003) says that the reliability has to do with accuracy of measurement. This kind of accuracy was reflected in obtaining similar results when the measurement was repeated on different occasion or with different instruments or by different persons. Brown stated that the

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characteristic of reliability was sometimes termed consistency. The following table is the level of internal consistency of Cronbach Alpha.

Table 3.7

**A commonly accepted rule of thumb for describing internal consistency by using cronbach alpha**

Cronbach Alpha	Internal Consistency
$\alpha \geq .9$	Excellent
$.9 > \alpha \geq .8$	Good
$.8 > \alpha \geq .7$	Acceptable
$.7 > \alpha \geq .6$	Questionable
$.6 > \alpha \geq .5$	Poor
$.5 > \alpha$	Unacceptable

To obtain the reliability of the test given, the writer used SPSS 20 program to find out whether or not the test is reliable:

Table 3. 8

## Cronbach Alpha Table

## Reliability Statistics

Cronbach's Alpha	N of Items
.798	30

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From the table above, it can be seen that the value of cronbach's alpha is that 0.798. It means that the items are reliable, in which the value of internal consistency is  $.8 > .798 \geq .7$ , so the reliability of test is **Acceptable**.

## 2. Validity

Creswell stated that validity is the individual's scores from an instrument make sense, meaningful, enables you, as the researcher, to draw good conclusions from the sample you are studying to the population (Creswell 2008:169). It means that validity is the extent to which inferences made from assessment results are appropriate, meaningful, and useful in terms of the purpose of the assessment.

To analyze the validity of data, the researcher analyzed by inter item validity used SPSS 20 program. The following table is the criteria of items validity.

**Table 3. 9**

**The criteria of items validity**

<b>R</b>	<b>Interpretation</b>
$0,80 < r \leq 1,00$	Very High
$0,60 < r \leq 0,79$	High
$0,40 < r \leq 0,59$	Average
$0,20 < r \leq 0,39$	Low
$0,00 < r \leq 0,19$	Very Low

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**Table 3. 10**  
**The analysis of try out reading comprehension validity**

Item	R	Interpretation of Validity	Status
1	0.70	High	Valid
2	0.80	Very high	Valid
3	0.95	Very high	Valid
4	0.70	High	Valid
5	1.00	Very high	Valid
6	0.75	High	Valid
7	0.95	Very high	Valid
8	0.30	Low	Invalid
9	0.80	Very high	Valid
10	0.85	Very high	Valid
11	1.00	Very high	Valid
12	1.00	Very high	Valid
13	0.90	Very high	Valid
14	0.65	High	Invalid
15	1.00	Very high	Valid
16	0.75	High	Valid
17	0.30	Low	Invalid
18	0.70	High	Valid

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19	0.85	Very high	Valid
20	0.75	High	Valid
21	0.90	Very high	Valid
22	0.80	Very high	Valid
23	0.25	Low	Invalid
24	1.00	Very high	Valid
25	0.90	Very high	Valid
26	0.90	Very high	Valid
27	0.80	Very high	Valid
28	0.05	Very low	Invalid
29	0.75	High	Valid
30	0.80	Very high	Valid

Based on the try out result of the test instrument validity to the 30 items, it shows that 25 of the items were valid. It meant that the instrument could be used in this research.

### 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 had a score or a level. The specifications of the aspects were; topic, main idea, specific idea, textual reference, and word meaning.

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

### 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 Independent Sample t test. Gay adds that the t-test for independent sample is used to determine whether there is probable a significant difference between the means of two independent samples. Independent sample t-test was used to find out the results of the first and seventh hypotheses. They were as follows:

- a. To find out whether there was a significant difference of students' reading comprehension before giving the treatment by using Collaborative Reading Strategic (CSR) for experimental class 1 and KWL Reading Strategy for the experimental class 2.
- b. To find out whether there was a significant difference of the students' reading comprehension after giving the treatment by using Collaborative Reading Strategic (CSR) for experimental class 1 and KWL Reading Strategy for experimental class 2.

To analyze the final-test scores of the experimental group and the control group, the following formula was used:

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

Where;

t	=	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
$N_2$	=	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 between the mean of the score of both experimental and control groups. The t-obtained value is consult with the value of t-table at the degree of freedom (df) =  $(N_1+N_2)-2$  which is hypothesized

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

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

$H_a$  is accept if  $t_o > t\text{-table}$  or there was effect after giving the treatment Collaborative Reading Strategic (CSR) and KWL Reading Strategyon students' reading comprehension.

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$H_0$  is accept if  $t_0 < t$ -table or there was no effect after giving the treatment Collaborative Reading Strategic (CSR) and KWL Reading Strategy on students' reading comprehension.

Afterward, it was better to find the effect size of T-test by following formula<sup>1</sup>:

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

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

Where;

*eta squared* :Coefficient effect

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

## 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 was a significant effect of using Collaborative Reading Strategic (CSR) and KWL Reading Strategy on students' reading comprehension at SMP IT Al Bayyinah 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 compare a single group's performance on a pre- and post-test or on two different treatments.

In this time, the research used pre-test and post-test scores of the experimental class in order to find the significant effect of using

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Collaborative Reading Strategic (CSR) and KWL Reading Strategy on students' reading comprehension at SMP IT Al Bayyinah Pekanbaru. To obtain the data, the writer used SPSS 20.

The formula of paired sample t-test:

$$t = \frac{D}{\sqrt{\frac{\sum D^2}{N_1 - 1} - \frac{(\sum D)^2}{N_2 - 1}}}$$

D = Gain Score (D=X<sub>2</sub>-X<sub>1</sub>)

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

H<sub>a</sub>: t<sub>o</sub> > t-table

H<sub>o</sub>: t<sub>o</sub> < t-table

H<sub>a</sub> is accepted if t<sub>o</sub> > t-table or there was a significant effect after giving the treatments (CSR and KWL Strategy) on students' reading comprehension at SMP IT Al Bayyinah Pekanbaru.

H<sub>o</sub> is accepted if t<sub>o</sub> < t-table or there was a significant effect after giving the treatments (CSR and KWL Strategy) on students' reading comprehension at SMP IT Al Bayyinah Pekanbaru.

Afterward, it was better to find the coefficient effect of t-test by following a formula:

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1. Diarangi mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:
  - a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
  - b. Pengutipan tidak merugikan kepentingan yang wajar UIN Suska Riau.
2. Diarangi mengumumkan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin UIN Suska Riau.

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

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

Where:

Kp = Coefficient effect

r<sup>2</sup> = Coefficient

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*