

## CHAPTER III

### RESEARCH METHODOLOGY

#### A. Research Design

In this research, the writer used an experimental research type, precisely quasi experimental research. Experiment is testing an idea (practice) to determine whether it influences an outcome or dependent variable.<sup>1</sup> The design of this research is a quasi experimental research type Nonequivalent Control Group Design. It is a research which is aimed to search whether there is or no effect of treatment which has been done to the experimental subject without random assignment.<sup>2</sup> Furthermore, Gay and Peter Airasian state that quasi-experimental design is used when the researcher keeps the students in existing classroom intact and the entire classrooms are assigned to treatments.<sup>3</sup>

This research consists two variables, they are: Independent variable (variable X) refers to the effect of using Jots and Doodles Strategy and Dependent variable (variable Y) refers to reading comprehension. In conducting this research, the writer used two classes. The first class was used as an experimental class which was taught by using Jots and Doodles Strategy and the second class was used as a control class which was taught without using Jots and Doodles Strategy. Both experimental and control groups were treated in the same test.

According to Cresswell, the type of this research can be designed as follows:<sup>4</sup>

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<sup>1</sup>John. W. Creswell. *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*. (New Jersey: Pearson Education, 2008). p.299

<sup>2</sup>Sugiyono. *Metode Penelitian Administrasi; dilengkapi dengan Metode R&D*. (Bandung: Alfabeta. 2010). p.89

<sup>3</sup>L. R. Gay and Peter Airasian. *Educational Research Competencies for Analysis and Application. Six Ed.* (New Jersey: Prentice- Hall, 2000). p.394

<sup>4</sup>John.W. Creswell.,Op.Cit.,p.314

**TABLE III.1**  
**Research Design**

Select control group	Pre-test	No treatment	Post-test
Select experimental group	Pre-test	Experimental treatment	Post-test

#### **B. Location and Time of the Research**

The location of this research was the State Senior High School 10 Pekanbaru at Bukit Barisan Street. The research was conducted from August, 19<sup>th</sup> until September, 21<sup>st</sup> 2013.

#### **C. Subject and Object of Research**

The subject of this research was second year students at State Senior High School 10 Pekanbaru and the object was the use of Jots and Doodles Strategy and students' reading comprehension at the second year students of senior high school 10 Pekanbaru.

#### **D. The Population and Sample of the Research**

The population of this research was the second year students at Senior High School Negeri 10 Pekanbaru. There were 9 classes which consisted of 5 classes for science department and 4 classes for social department in second year students. The total number of the second year students at Senior High School 10 Pekanbaru was 324 students. The specification of the population can be seen as follows:

**TABLE III.2**

#### **The Population of the Second Year Students at Senior High School 10 Pekanbaru**

<b>No</b>	<b>Class</b>	<b>Total</b>
1	XI IPA 1	36
2	XI IPA 2	36
3	XI IPA 3	36

4	XI IPA 4	36
5	XI IPA 5	36
6	XI IPS 1	36
7	XI IPS 2	36
8	XI IPS 3	36
9	XI IPS 4	36
<b>Total</b>		<b>324</b>

The population above is large enough to be all taken as sample of the research, and it is impossible to investigate them all. Based on the design of the research, the researcher took only two classes as the sample of this research by using cluster sampling. According to Cohen, by doing cluster sampling, the researcher can select a specific number of schools and test all the students in those selected schools<sup>5</sup>. Moreover, Singh believes that a cluster sampling is to select the intact group as a whole. In cluster sampling the sample units contain groups of elements (clusters) instead of individual members or items in the population. In addition, Gay believes that cluster sample randomly selects group, not individual<sup>6</sup>. The classes were XI IPA 3 and XI IPA 5. Those were as the sample of the research with 72 students; 36 students for experimental class and 36 for control group. The table of total sample is shown as follows:

**TABLE III.3**

**The Sample of the Research**

<b>No</b>	<b>Class</b>	<b>Number of Students</b>	<b>Sample</b>
1	XI IPA 3	36	36

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<sup>5</sup>Louis Cohen, Lawrence Manion, and Keith Morison. *Research Methods in Education Sixth Edition*. (New York: Roulledge, 2007). p. 282

<sup>6</sup>L. R. Gay. *Loc. Cit.* p. 129

2	XI IPA 5	36	36
<b>Total Sample</b>			<b>72</b>

Based on the table above, the researcher used cluster sampling to take the sample, XI IPA 3 as experimental class consisted of 36 students and XI IPA 5 as control class also consisted of 36 students. So, The total number of this sample was 72 students.

### **E. The Technique of Collecting Data**

In this research, the researcher used test to collect the data. The students were tested by reading comprehension test. The test was given before and after the researcher did the treatment. The researcher taught the students by using Jots and Doodles strategy to the experimental class and without using Jots and Doodles strategy to the control class in reading comprehension. It is called pre-test and post-test. Kind of the test in this research was multiple choices. According to Huges, the multiple choices technique is best suited to relatively infrequent testing of large number of candidates<sup>7</sup>. The multiple choices technique can assess the students' reading comprehension. All of the items were tried out to all of the students in order to know the validity and reliability of the test. The advantages of multiple choice were cheating is likely to be more difficult and guessing will (or should) contribute less to test scores. The classifications of the students' score are as follows<sup>8</sup>:

**TABLE III.4**  
**The classification of students' score**

Score	Categories
80-100	Very good
70-79	Good
60-69	Enough

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<sup>7</sup> Arthur Huges. *Testing for Language Teachers Second Edition*. (Cambridge: Cambridge University Press, 2003), P. 78

<sup>8</sup> Anas Sudijono. *Pengantar Statistik Pendidikan*. (Jakarta: PT. Rafindo Persada, 2007), p. 32

50-59	Less
0-49	Fail

**TABLE III.5**  
**Blue Print of Reading Comprehension**

No	Indicators	Number
1	Students are able to identify the topic on narrative text	1, 5, 9, 13, 17
2	Students are able to identify generic structure on narrative text	2, 6, 10, 14, 18
3	Students are able to identify the language feature on narrative text	3, 7, 11, 15, 19
4	Students are able to identify the communicative purpose on narrative text	4, 8, 12, 16, 20

### 1. Validity

The test used for testing students' reading comprehension had to have validity and reliability. Before the tests were given to the sample of the research, both of the tests were tried out to 36 students of second year. The purpose of the try out was to obtain validity and reliability. The test is said to be valid if it measures accurately what it is intended to measure<sup>9</sup>. It was determined by finding the difficulty level of each item. The formula of item difficulty is as follows:

$$P = \frac{B}{JS}$$

Where:

P : index of difficulty

B : the number of correct answer

JS : students taking the test

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<sup>9</sup> Ibid, p. 26

The formula above was used to find out the level of difficulty of each item that researcher gave to respondents. The items that did not reach the standard of difficulty were excluding from the test and they were changed with the new appropriate items. Based on the standard level of difficulty used, the item that is accepted if the level of difficulty is between 0.32-0.76 and it is rejected if the level of difficulty is below 0.32 and over 0.76. then the proportion of correct answer is represented by "p", whereas the proportion of incorrect answer is represented by "q". It can be seen from the following tables:

**TABLE III.6**  
**The Students are Able to find out the Topic**

<b>Variable</b>	<b>Find the Topic</b>					<b>N</b>
<b>Item no</b>	<b>1</b>	<b>5</b>	<b>9</b>	<b>13</b>	<b>17</b>	<b>36</b>
<b>Correct</b>	<b>16</b>	<b>16</b>	<b>17</b>	<b>17</b>	<b>15</b>	
<b>P</b>	<b>0.44</b>	<b>0.44</b>	<b>0.47</b>	<b>0.47</b>	<b>0.41</b>	
<b>Q</b>	<b>0.56</b>	<b>0.56</b>	<b>0.53</b>	<b>0.53</b>	<b>0.59</b>	

Based on the table above, the item number 1, 5, 9, 13, and 17 were to find out the topics from 20 questions. The proportion of correct answer for item number 1 shows the proportion of correct 0.44, item number 5 shows the proportion of correct 0.44, item number 9 shows the proportion of correct 0.47, item number 13 shows the proportion of correct 0.47, item number 17 shows the proportion of correct 0.41. Based on the standard level of difficulty" <0.32 and" >0.76, the items were not too easy and not too difficult, it is pointed that the difficulty in average of each item number for finding out the topic is accepted.

**TABLE III.7**  
**The Students are Able to Find the Generic Structure**

<b>Variable</b>	<b>Find the Generic Structure</b>	<b>N</b>
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<b>Item no</b>	<b>2</b>	<b>6</b>	<b>10</b>	<b>14</b>	<b>18</b>	<b>36</b>
<b>Correct</b>	<b>17</b>	<b>15</b>	<b>18</b>	<b>14</b>	<b>17</b>	
<b>P</b>	<b>0.47</b>	<b>0.41</b>	<b>0.5</b>	<b>0.38</b>	<b>0.47</b>	
<b>Q</b>	<b>0.53</b>	<b>0.59</b>	<b>0.5</b>	<b>0.62</b>	<b>0.53</b>	

Based on the table above, the item number 2, 6, 10, 14, and 18 were to find the generic structure from 20 questions. The proportion of correct answer for item number 2 shows that the proportion of correct 0.47, item number 6 shows that proportion of correct 0.41, item number 10 shows that the proportion of correct 0.5, item number 14 shows that the proportion of correct 0.62, item number 18 shows that the proportion of correct 0.47. Based on the standard level difficulty  $p < 0.32$  and  $q > 0.76$ , the items were not too easy and not too difficult, it is pointed out that the difficulty in average of each item number for finding generic structure is accepted.

**TABLE III.8**  
**The Students are Able to Find the Language Features**

<b>Variable</b>	<b>Find the Language Features</b>					<b>N</b>
<b>Item no</b>	<b>3</b>	<b>7</b>	<b>11</b>	<b>15</b>	<b>19</b>	<b>36</b>
<b>Correct</b>	<b>14</b>	<b>15</b>	<b>14</b>	<b>16</b>	<b>18</b>	
<b>P</b>	<b>0.38</b>	<b>0.41</b>	<b>0.38</b>	<b>0.44</b>	<b>0.5</b>	
<b>Q</b>	<b>0.62</b>	<b>0.59</b>	<b>0.62</b>	<b>0.56</b>	<b>0.5</b>	

Based on the table above, the item number 3, 7, 11, 15, and 19 were to find the language features from 20 questions. The proportion of correct answer for item number 3 shows that the proportion of correct 0.38, item number 7 shows that the proportion of correct 0.41, item number 11 shows that proportion of correct 0.38, item number 15 shows that the proportion of correct 0.44, item number 19 shows that the proportion of correct 0.5. Based on the standard level of

difficulty”<0.32 and”q”>0.76, the items were not too easy and not too difficult, it is pointed out that the difficulty in average of each item number for finding language features is accepted.

**TABLE III.9**  
**The Students are Able to Find the Communicative Purpose**

<b>Variable</b>	<b>Find the Communicative Purpose</b>					<b>N</b>
<b>Item no</b>	<b>4</b>	<b>8</b>	<b>12</b>	<b>16</b>	<b>20</b>	<b>36</b>
<b>Correct</b>	<b>13</b>	<b>16</b>	<b>13</b>	<b>17</b>	<b>17</b>	
<b>P</b>	<b>0.36</b>	<b>0.44</b>	<b>0.36</b>	<b>0.47</b>	<b>0.47</b>	
<b>Q</b>	<b>0.64</b>	<b>0.56</b>	<b>0.67</b>	<b>0.62</b>	<b>0.62</b>	

Based on the table above, the item number 4, 8, 12, 16, and 20 were to find the communicative purpose from 20 questions. The proportion of correct answer for item number 4 shows the proportion of correct 0.36, item number 8 shows the proportion of correct 0.44, item number 12 shows the proportion of correct 0.36, item number 16 shows that the proportion of correct 0.47, item number 20 shows that the proportion of correct 0.47. based on the standard level of difficulty ”p”<0.32 and”>0.76, the items were not too easy and not too difficult, it is pointed out that the difficulty in average of each item number for finding communicative purpose in descriptive text is accepted.

## **2. Reliability**

According to Douglas Brown, a reliable test is consistent and dependable<sup>10</sup>. Also has accuracy of measurement, it means that obtaining similar result when measurement was on different occasions or with different person or by different instruments. The characteristic of reliability was sometimes termed consistency. It means that the test was reliable when examiners results were consistent on repeated measurement.

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<sup>10</sup> H. Douglas Brown. *Language Assessment: Principles and Classroom Practices*. (San Francisco: Pearson Longman, 2003), p. 20



To obtain the reliability of the test given, the researcher used Kuder-Richardson (K.R 20) formula as follows<sup>11</sup>:

$$\text{KR 20: } r_i = \frac{k}{(k-1)} \frac{s_t^2 - \sum p_i q_i}{s_t^2}$$

Where:

K : number of items in the instrument

P<sub>i</sub> : proportion of subject who answered the item correctly

Q<sub>i</sub> : proportion of subject who answered the item wrong (1-p<sub>i</sub>)

p<sub>i</sub>q<sub>i</sub> : the multiplication result between p and q

S<sub>t</sub><sup>2</sup> : total variance

Firstly, the reseracher calculated the total variance:

Where :

**TABLE III.10**

	N	Minimum	Maximum	Mean	Std. Deviation
try out	36	30	65	45.56	8.087
valid N (listwise)					

$$r_i = \frac{k}{(k-1)} \frac{s_t^2 - \sum p_i q_i}{s_t^2}$$

$$r_i = \frac{20}{(20-1)} \frac{8.087^2 - 4.76}{8.087^2}$$

$$r_i = \frac{20}{19} \frac{65.39 - 4.76}{65.39}$$

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<sup>11</sup> Sugiyono. *Statistika Untuk Penelitian*. (Bandung: Alfabeta, 2011), p.359

$$r_i = 1.05 \times \frac{60.63}{65.39}$$

$$r_i = 1.05 \times 0.92$$

$$r_i = 0.96$$

Based on the result above, it can be stated that the reliability was high.

## **F. The Technique of Data Analysis**

In analyzing the data of this research, the researcher used t-test formula. According to Hartono, t-test is one of the statistic test that is used to know whether any or not there is a significant effect of two samples of mean in two variables<sup>12</sup>. T-test was used in order to find out whether there is a significant effect on students' reading comprehension taught by using jots and doodles and students reading comprehension taught without using jots and doodles strategy. The data were statistically analyzed by using SPSS 16.0 version.

The t-table was employed to see whether or not there was a significant effect of gain score both experimental and control class.

Statistically hypothesis:

Ho : variance population identic

Ha : variance population not identic

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

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

Ha is accepted if  $t_o > t\text{-table}$  or there is a significant effect of using jots and doodles strategy toward students' reading comprehension of the second year students at senior high school 10 Pekanbaru.

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<sup>12</sup> Hartono. *Statistik Untuk Penelitian*. (Jogjakarta: Pustaka Pelajar, 2008). p. 171

$H_0$  is accepted if  $t_o < t\text{-table}$  or there is no significant effect of using jots and doodles strategy toward students' reading comprehension of the second year students at senior high school 10 Pekanbaru.