

CHAPTER III

METHOD OF THE RESEARCH

3.1 Research Design

This research was an experimental research. According Gay et.al., (2012), experimental research is the only type of the research that can test hypotheses to establish cause-effect relationship. In this research, the writer proposed to test whether there was an effect of using multimedia reading materials on students' reading comprehension of narrative texts. The writer used quasi experimental design, the design of pre-test and post-test which used two groups as sample.

As an experimental research, this study involved two classes as the sample, namely: experimental class and control class. These classes were chosen randomly. For experimental class, the students were treated with Multimedia Reading Materials which was made by using Macromedia Flash. Meanwhile, control class was given a pre-test and post-test without particular treatment as given to the experimental class. Both experimental and control class was given the same test.

3.2 Time and Location of the Research

This research was conducted at State Senior High School 10 Pekanbaru. It is located on Bukit Barisan Street. It was conducted in March 2017

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3.3 Subject and Object of the Research

The subject of this research was the tenth-grade students at State Senior High School 10 Pekanbaru, while the object of the research was the effect of using Multimedia Reading Materials which was created by using Macromedia Flash on students' reading comprehension.

3.4 The Population and Sample of the Research

3.4.1 The Population of the Research

The population of this research was all students of the eleventh grade at State Senior High School 10 Pekanbaru in 2016/2017 academic year. It consisted of 9 classes; they were X.1, X.2, X.3, X.4, X.5, X.6, X.7, X.8, and X.9 class. The total population of this research was 426 students. The specification of population can be seen on the table III.1 below:

Table III.1
The Population of the Tenth-Grade Students of State Senior High School 10 Pekanbaru

No	Class	Number of students
1	X.1	47
2	X.2	46
3	X.3	48
4	X.4	48
5	X.5	48
6	X.6	46
7	X.7	48
8	X.8	48
9	X.9	47
Total		426

3.4.2 The Sample of the Research

Based on the total population above, the writer took sample by using cluster sampling. According to Gay et al., (2012) cluster sampling randomly selects groups, not individuals. Therefore, the writer selected two groups of students as sample in this research. In selecting the sample, the writer made roll of papers consist of class X.1 until X.9. Then, the writer took 2 roll of papers and the selected papers were X.7 as experimental class and X.9 as control class.

3.5 The Techniques of Collecting the Data

Collecting the data is one of the most important parts in a research. In this research, the writer used observation and test to collect the data.

3.5.1 Observation

According to Burton & Bartlett (2005) observation is activity of collecting data on what is happening in classroom. Observation was done to collect the data about teaching process done by using multimedia reading materials. To make the data clearer, the observational list can be seen in the table below:

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Table III.2
The Observational Checklist of Using Multimedia Reading Materials

No.	Procedures of Using Multimedia Reading Materials	Alternative Answers	
		Yes	No
1.	The teacher prepares the material for students in Macromedia Flash applications.		
2.	The teacher provides students the materials in printed form.		
3.	The teacher explains the materials in multimedia form.		
4.	The teacher and students discuss some difficult words found in the text together. Students guess the meaning of those difficult words.		
5.	After reading, students work together to comprehend the text in getting the detail information related to the text they read.		
6.	At the end of the materials, the teacher provides some questions in multimedia form. Then the students answer the question together.		
Total			
Percentage			

3.5.2 Test

Test was used to find out the students' reading comprehension. According to Brown (2004) test is a method to measure a person' ability, knowledge, or performance to perform the language. The type of the test used is multiple choices and short-answer questions. The writer gave 20 multiple choices and 5 short answer questions intended to obtain students' reading comprehension of narrative text at the tenth-grade students of State Senior High School 10 Pekanbaru.

3.5.2.1 Pre-test

Pre test was given before treatment. According to Creswell, (2012) pre test provides a measure on some attribute or characteristic that you assess for participant in an experiment before they receive the treatment. Pre-test was used to collect the data about students' reading comprehension of narrative text before giving treatment to the experimental class and also to the control class. Test contained some topics of narrative text such as The Fortune Teller, Three Foolish Sons, The Legend of Beowulf, Kyai Jegod and The Wolf and the Dog. It was given to class X.7. as the experimental class and class X.9 as control class.

3.5.2.2 Post-test

Post- test was given after teaching several times, it was given to both of the classes. Post-test was used to collect the data about the students' reading comprehension of narrative text after giving treatment to the experimental class and after giving no treatment to the control class. Test contained some topics of narrative text such as Little Red Riding Hood, Danau Toba, Telaga Warna, Jack and the Beanstalk and Malin Kundang. According to Gay et al., (2012) post-test score is compared to determine the effectiveness of the treatment. So, that the score of post-test was compared to know the effect of the treatment. The test was given to class X.7 as experimental class and class X.9 as the control class.

For further information about the instruction of texts, the writer showed the blueprint of both tests as follows:

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Table III. 3
The Blueprint of the Test

No	Indicators	Number of items		Total
		Multiple choice	Short-answer	
1	Identifying topic of texts	1, 6, 11, 16	1	5
2	Identifying specific information of texts	2, 7, 12, 17	2	5
3	Identifying generic structures of texts	3, 8, 13, 18	3	5
4	Identifying meaning of words in texts	4, 9, 14, 19	4	5
5	Identifying communicative purpose of texts	5, 10, 15, 20	5	5
Total				25 Items

3.6 The Validity and the Reliability of the Instrument

3.6.1 Validity of the Instrument

Before carrying out a test, it is necessary to know the validity of instruments.

According to Hughes (2003) a test is said to be valid if it measures accurately what it is intended to measure. It means that a test is valid if it really measures what we actually want to be measured.

In this study, the writer wants to measure the students' reading comprehension. Therefore, to measure the validity of test, the writer used content validity. Muijs (2004) also added content validity refers to whether or not the content of the manifest variables (e.g. items of a test or questions of a questionnaire) is right to measure the latent concept (self-esteem, achievement, attitudes, etc.) that we are trying to measure.

Finally, the writer determined the validity by referring to the material that was given to the students based on the students' text book. In other words, the test given to the students was based on the material that they had learned. To find out the validity of test, writer calculated it by using SPSS 23 version. The standard

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value of validity is $r_{item} > r_{table}$. Based on the tryout result, it was determined that all of the items were valid. The result of tryout is as follows:

Table III. 4
The Item Validity of Try Out

Item Number	r-item	r-table	Result
1.	0.21	0.20	Valid
2.	0.26	0.20	Valid
3.	0.57	0.20	Valid
4.	0.36	0.20	Valid
5.	0.39	0.20	Valid
6.	0.46	0.20	Valid
7.	0.44	0.20	Valid
8.	0.49	0.20	Valid
9.	0.46	0.20	Valid
10.	0.53	0.20	Valid
11.	0.27	0.20	Valid
12.	0.45	0.20	Valid
13.	0.42	0.20	Valid
14.	0.48	0.20	Valid
15.	0.37	0.20	Valid
16.	0.48	0.20	Valid
17.	0.37	0.20	Valid
18.	0.49	0.20	Valid
19.	0.36	0.20	Valid
20.	0.40	0.20	Valid
21.	0.79	0.20	Valid
22.	0.75	0.20	Valid
23.	0.84	0.20	Valid
24.	0.82	0.20	Valid
25.	0.87	0.20	Valid

3.6.2 Reliability of the Instrument

A test must be reliable as measuring instrument. Reliability is a necessary characteristic of any good test. Brown (2004) said that a reliable test is consistent and dependable. It means the test should be similar result when the tester gives the

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same test to the same respondent on two different occasions. According to Cohen et.al, (2007) the guidelines for reliability are as follows:

Table III.5
Category of Reliability

No	Reliability	Category
1	>0.90	Very highly reliable
2	0.80-0.90	Highly reliable
3	0.70-0.79	Reliable
4	0.60-0.69	Minimally reliable
5	<0.60	Unacceptably low reliability

In this research, the writer used software SPSS 23 version to calculate the reliability of test. There were two kinds of questions used in the test, so there were two calculation of reliability. The result of multiple choice test reliability is as follows:

Reliability Statistics

Cronbach's Alpha	N of Items
.738	20

The reliability of test was 0.738. It is categorized into reliable level. Then, the result of short-answer test reliability is as follows:

Reliability Statistics

Cronbach's Alpha	N of Items
.874	5

The reliability of test was 0.874. It is categorized into highly reliable level.

3.7 The Technique of Data Analysis

There are two types of data analyzed, observation data and test data.

3.7.1 Observation Data

In analyzing observation data, the writer used the following formula to get the percentage of the observation (Sudjiono, 2007):

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$$P = \frac{F}{N} \times 100 \%$$

Where : P : Percentage

F : Frequency of the score

N : Number of Case

To see the level of success in implementing learning process, there are five categories that can be seen in the following table:

Table III.6
The Level of Success in Implementing Learning Process

No	Percentage	Categories
1	86 - 100%	Very High
2	71 - 85%	High
3	56 - 70%	Average
4	41 - 55%	Low
5	< 40%	Very Low

(Adapted from Aqib:2009)

3.7.2 Test Data

In order to find out whether there is or not a significant effect of using multimedia reading materials which was created by Macromedia Flash on reading comprehension, data of this research were analyzed statistically. To analyze the students' score in pre-test and post-test, the writer used the following formula:

$$S = \frac{B}{N} \times 100$$

Where:

S : students' score

B : total correct item

N : maximum correct item

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The classification of the students' score are as follows:

Table III. 7
The Classification of Students' Score

Score	Categories	Description
80-100	Very Good	The students can identify topic, specific information, generic structure, meaning of words and communicative purpose of texts very clearly.
66-79	Good	The students can identify topic, specific information, generic structure, meaning of words and communicative purpose of texts clearly.
56-65	Enough	The students have limited understanding to identify topic, specific information, generic structure, meaning of words and communicative purpose of the texts.
40-55	Less	The students have little understanding to identify topic, specific information, generic structure, meaning of words and communicative purpose of the texts.
30-39	Fail	The students have no understanding to identify topic, specific information, generic structure, meaning of words and communicative purpose of the texts.

Then, to find out whether there is difference, the writer used statistical method that is independent samples t-test formula by using SPSS.23.0 version. According to Pallant (2010), an independent samples t-test is used when you want to compare the mean score, on some continuous variable, for two different groups of participants. So, the writer used independent samples t-test to compare the mean score in two different groups; control class and experimental class.

After finding the difference, the writer found out the effect size of the phenomenon. Pallant (2010) stated that effect size statistics provide an indication of the magnitude of the differences between groups. The effect size statistic used in this research is eta squared. The formula of eta squared is as follows:

$$\eta^2 = \frac{t^2}{t^2 + (n_1 + n_2 - 2)}$$

Where:

η^2 : Eta Square

t : t obtained

n_1 : The number of experimental class

n_2 : The number of control class

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