CHAPTER III

RESEARCH METHOD

In this part, it describes about research methodology will be use in conducting the research. It is purposed to answer the problem of the study. This chapter consists of Approach and Type of Research, Population and Sample, Research Instruments, Data Collecting Procedures, Level of Dificulty, and Data Analysis Procedures.

A. Approach and Type of Research.

In this study the writer used quantitative approach because the problem of study was answer through a quantitative approach. Quantitative approach is an approach that emphasizes analysis numerical data which is processed by statistical method.

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The type of this study was quasi-experimental design. Quasi experimental design is similar to randomized experimental research in that involve manipulation of an independent variable but differ in that subjects are not randomly assigned to treatment group.[64]Because the quasi-experimental design doesnot provide full control. It is extremely important that writer be aware of thethreats to both internal and external validity and consider these factors in their interpretation.[65]

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[63]SaifuddinAzwar, *MetodePenelitian,* Yogyakarta: Pustakapelajar, 2007,p.5
[64]Donald Ary, Lucy Cheser Jacobs, Chris Sorensen, and Asghar Razavieh, *Introduction to Research in Education,* Eight Edition, Wadsworth: Cengage Learning, 2006, p.316.
[65]*Ibid,*p.316.

The writer used nonrandomized control group pre-test, post-test design with a kind of treatment. There are two groups in this model; control group and experimental group. Both of groups will give pre-test to measure the score of students before the treatment given (Y_1 and Y_2). The treatment will be given for experimental group only (X). Post-test will give for both of groups to measure the score of students after the treatment given (Y_1 and Y_2). The scheme of this model is:[66]

Table 3.1

The Scheme of Quasi Experimental Design

Nonrandomized Control Group, Pretest-Posttest Design

Group	Pre-Test	Treatment	Post-Test
E	Y_1	X	Y_1
C	Y_2	-	Y_2

Where:

E   : Experimental group

C   : Control group

X   : Treatment

Y_1 :Pre-test

Y_2 : Post-test

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[66]*Ibid.*

B. Population and Sample

1. Population

A population is defined as all members of any well defined class of people, events, or object. If someone wants to research all of the elements in research areas, his/her research called poulation research on cencus study.[67]

The population of this study was 55 tenth grader students of MA HidayatulInsanFiiTa'limiddin Palangkaraya ,the scheme of this population is:

Table 3.2

The Number of the Tenth Grade Students of

MA HidayatulInsanFiiTa'limiddin Palangka Raya

No.	Classes	The Number of Students
1.	X-A	30
2.	X-B	25
All Students		**55**

2. Sample

Sample is a subset of individuals or case from within a population.[68]

According to Donald Ary, the small group that is observed is called a

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[67] Donald Ary At All, *Introduction to Research in Education, 8th Edition,* Wardsworth: USA, 2010, P. 266

[68] David Nunan, *Research Methods in Language Learning,* Cambridge: Cambridge University Press, 1992, P. 232

sample.[69] To determine the students as experiment group the witer usedcluster sampling where the writer can choose the sample related to the purpose. Cluster sampling is used if the population not an individual but a group of individuals who are naturally together.[70] The writer chose cluster sampling because the score of population is heterogeneity. This study will put X-B as the experiment class with 25 students and X-A as the control class with 30 students. The scheme of this sample is:

Table 3.3

The Number of Sample

Classes	Groups	Number of Students
X-A	Control	30
X-B	Experiment	25
Total		**55**

C. Research Instruments

1. Research Instrument

The data is very important in the study to support and prove the study itself.There were two instruments were use in this study , namely test and documentation.

a. Test

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[69] Donald Ary At All, *Introduction to Research in Education, 2nd Edition,* P. 129
[70]*Ibid.,* P. 134

According to Heaton "Test may be constructed primarily as devices to reinforce learning and to motivate student, or primarily as a means of a seeing the student's performance the language.[71] A test, in plain woerd, is method of measuring a person ability or knowledge in a given domain.[72] The function of test is to measure level of development or achievement achieved by students after they have done learning process in current time.

The writer collected the data of this study by using a test. The result of the test was used to measure the students' reading scores on narrative text. According to level of comprehension, this test was constructed in literal level 70%, and Inferential level 30%. The test in this study was multiple choice test item which consists of 40 items for pre-test and 40 items for post-test.the test items were adapted from Develoving English Competiences For Senoir High School (SMA/MA) Grade X by Achmad Doddy, Achmad Sugeng, Effendi, Jakarta: Pusat Perbukuan Departemen Pendidikan Nasional , 2008, and Interlanguage English for Senior High School Students X by Joko Priyana Virga Renita Sari, Arnys Rahayu Irjayanti, Gramedia Widiasarana Indonesia (Rasindo), Jakarta: Pusat Perbukuan Departemen Pendidikan Nasional , 2008

In this study the writer used Multiple Choice Test, because the multiple choise is objective test. Objective test are frequently criticised on the grounds that they are simpler to answer than subjective examinations. Item in an objective test, however, can be made just easy or as difficult as the test

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[71]J.B Heaton, *Language Testing,* England: Longman, 1974, p.1

[72]H. Douglas Brown, *Teaching by Principles an Interactive Approach to Language Pedagogy*, New York: Addison Wesley Longman, Inc., 2001, p. 384

constructor wishes.[73] Beside of having the strength, a test in form of multiple choise also has a weakness. Multiple choice test type encourages guessing. It can be solved by doing try out of the test items to find out the test validity and realibity.[74]

a. **Scoring Rubric**

Indicator	Assessment		
	Technique	**Instrument**	**Example**
Students read narratitive text properly	Written test	Multiple choice (question and answer)	Answer the questions based on the narrative text given!

Note:
Maximal score = 100

$$Result = \frac{Maximal\ score \times correct\ answer}{Number\ of\ items}$$

$$= \frac{100 \times 40}{40}$$

$$= 100$$

b. **Aspect of Scoring**

In connection with the score of students test, the writerused the following table as scoring.

Table 3.4

Aspect of scoring for students Reading Comprehension.[75]

No.	Categories	Scoring
1	Excellent	85-100

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[73]J.B Heaton, *Language Testing,* p.12

[74]J.B Heaton, *Writing English Language Test.* England: Longman,1975, p.12

[75]Craig A. Mertler, *Designing Scoring Rubrics for Your Classroom, Practical Assessment, research & evaluation,* 7(25).2005 Retrived July 8, 2005, p.4-5

2.	Good	70-84
3.	Enough	60-69
4	Less	50-59

b. Documentation

This technique used to collect written data which are related to the research. Through this technique, the writer would like to get some document from MA HidayatulInsanFiiTa'limiddin Palangkaraya, such as :

1) The data of students (the students' names, class and the number of the students),

2) The syllabus of English subject for the tenth grade students of MA HidayatulInsanFiiTa'limiddin Palangkaraya..

3) The students' pre-test and post-test result.

4) The photos of teaching learning scenario.

2. **Research Instrument Try out**

In order to prove the test is suitable to the students who are the sample of this study, the writer conducting a try out test. Then, the writer chose the students in the same school but different class to try out the test. XI-BAHASA is as the try out class with 22 students. The test is students' reading score in multiple choice test form and there are 100 items. The result of the try out test was there were 80 items was valid and 20 itemswas invalid. The writer used 40 items to gave pre-test and 40 items to gave post-test. The purpose of instrument try out is in order to validity and reliability of the test item. The writer used procedures of instrument try out as follow:

1. Preparing the instrument of try out

2. Giving the test items to the students who will be student's try out.

3. Determine the allocation of time.

4. Collecting and scoring the student answer.

5. Analizing the result of the student test.

After collecting the information about the instrument quality done, the writer will continue to check the validity of test and realibility of test also the level of difficulty of the test time.

3. Research Instrument Reliability

Reliability refers to the consistency of test score. It means how consistent test scores or other evaluation results are from one measurement to another.[76] Basically there are three basic methods and the type of information each provides are as follow:

a. Test–Retest method, which indicates the stability of test scores over some given period of time.

b. Equivalent forms method, which indicates the consistency of test scores over different forms of the test.

c. Internal consistency method, which indicates the consistency of test scores over different parts of the test.

The steps in determining the reliability of the test were:

a) Making tabulating of tester's scores.

b) Measuring the mean of the testers' scores with the formula :

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[76]WilmarTinambunan, *Evaluation of Student Achievement*, Jakarta: Depdiknas,1988. p.4.

$$M = \frac{\sum X}{N} \times 100$$

c)   Measuring the total variants with the formula:

$$S^2 = \frac{\sum X^2 - \frac{((\sum X))^2}{N}}{N}$$

Where:

S^2 = the total variants

$\sum X$ = the total of score

$\sum X^2$ = the square of score total

N = the number of testers

d)   Calculating the instrument reliability using KR-21.

$$r_{11} = \frac{k}{k-1}\left[1 - \frac{M(k-M)}{k.S^2}\right]$$

Where:

r_{11} = Reliability of instrument

k = the number of items

M = the mean score for all the testers

S^2 = the standard deviation of the test score

e)   The last decision is comparing the value of r_{11} and T$_{table}$

f)   To know the level of reliability of instrument, the value of r_{11} was

interpreted based on the qualification of reliability as follows:

r_{11} > T$_{table}$ = **Reliable**

r_{11} < T$_{table}$ = **Not Reliable**

Table 3.5
Criteria of Reliability

Reliability	Interpretation
0.800- 1.000	Very High Reliability
0.600-0.799	High Reliability
0.400-0.599	Fair Reliability
0.200-0.399	Poor Reliability
0.000-.0199	Very Poor Reliability

4. Research Instrument Validity

Heaton stated that validy of a test is the extanent to which it measures what is supposed to measure and nothing else.[77] Validity, on the other hand, involves the degree to which weare measuring what we are supposed to,more simply, the accuracy of the measurement. Validity is more important than reability because if an instrument does not accurately measure what it is supposed to, there is no reason to use it even if it measures consistently (reliably). The test can be said valid if it is able to measure what it is suppose to be measure. Validity in this study distinguished into some kinds as follows:[78]

1. Face Validity

Face validity is an estimate of whether a test appears tomeasure certaint critetion; it does not guarantee that the test actually measures phenomena in that domain. The face validity represents that instrument should contain a representative sample of the content being assessed, and in a format

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[77]J.B. Heaton , *Writing English Language Test,* England : Longman, p. 153
[78]*Ibid.*

that is appropriate for those using the instrument. To face validity of the test items as follows:

    a) The evaluation by multiple choice tests based on scoring system.

    b) Kinds of the test items consist of reading narrative text

    c) Language uses English.

    d) The test items are suitable with syllabus of English subject of the MA HidayatulInsanFiiTa'limiddin Palangkaraya.

2. Constuct Validity

Construct validity refers to the degree to which the research adequately captures the construct of interest. Construct validity can be enhanced when multiple estimates of a construct are used.[79] A language test considered to have construct validity when it is capable to measure certain specific characteristics in accordance with theories of language behavior of language learning.

The tests would be based on the syllabus in making. The test will be refered to scope and limitation of the study. The test was about narrative text, reading literacy (Literal) and reading interpretative (inferential) which was refer to Senior High School students. The item test is suitable to the syllabus of the tenth grade students of MA HidayatulInsanFiiTa'limiddin Palangkaraya.

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[79] Alison Mackey and Susan M. Gass, *Second Language Research Methodology and Design*, p. 125

3. Content Validity

According to Heaton, a good test should posses' validity: that is it should measure what is intended to measure and nothing else.[80] If a test does this, it said to be valid. All of the test must be relates to what students learned. In this study instruments are equal and proportional in their distributions as the indicators of test.

In this study, the writer used multiple choice item tests for students. It was useful to measure their reading comprehension thematerial should be test is about narrative text, it contained generic structure and language features.The contents of test items were then shown in the following table:

Table 3.6

Content Specificationof Items Research Instruments

Skill to measure	Level of comprehension	Percentage (%)	Number of Test Item
Reading Comprehension	Literal	70%	Pre-Test(1, 2, 3, 4, 7, 8, 10, 11, 12, 13, 14, 16, 19, 21, 22, 23, 24, 25, 28, 31, 32, 33, 35, 37, 38, 41, 42, 43, 45, 47) Post-test(1, 2, 3, 4, 7, 8, 9, 11, 12, 13, 15, 16, 17, 21, 22, 23, 25, 27, 28, 31, 32, 33, 35, 41, 42, 43, 45, 47, 48, 49)
	Inferential	30%	Pre-test (5, 6, 9, 15, 17, 18, 20, 26, 27, 29, 30, 34, 36, 39, 40, 44, 46, 48, 49, 50) Post-test (5, 6, 10, 14, 18, 19, 20, 24, 26, 29, 30, 34, 36, 37, 38, 39, 40, 44, 46, 50)

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[80] J. B. Heaton, *Writing English* p.153

From the table above, it was shown that the test items content of 100 items each pre-test 50 and post test 50 items.The percentage of level of comprehension was 70% of literal questions with 60 items and 30% of inferential questions with 40 items. The writer did try out test for getting the pre-test and post-test item. The result of try out test was 56 items of literal questions and 24 item of inferential question. Based on the result of the try out test there were 40 items for pre test and 40 items for post test.

To measure the validity of the instrument, the writer used the formulation of Product Moment by Pearson as follows:[81]

$$\mathbf{r_{xy}} = \frac{\mathbf{N \sum XY - (\sum X)(\sum Y)}}{\sqrt{\{N\Sigma X^2 - (\Sigma X)^2\}\{N\Sigma Y^2 - (\Sigma Y)^2\}}}$$

Where:

r_{xy} : Total coefficient of correlation

$\sum X$: Total value of score X

$\sum Y$: Total value of score Y

$\sum XY$: Multiplication result between score X and Y

N : Number of students

To know the level of validity of instrument, the value interpreted based on the qualification of validity as follows:
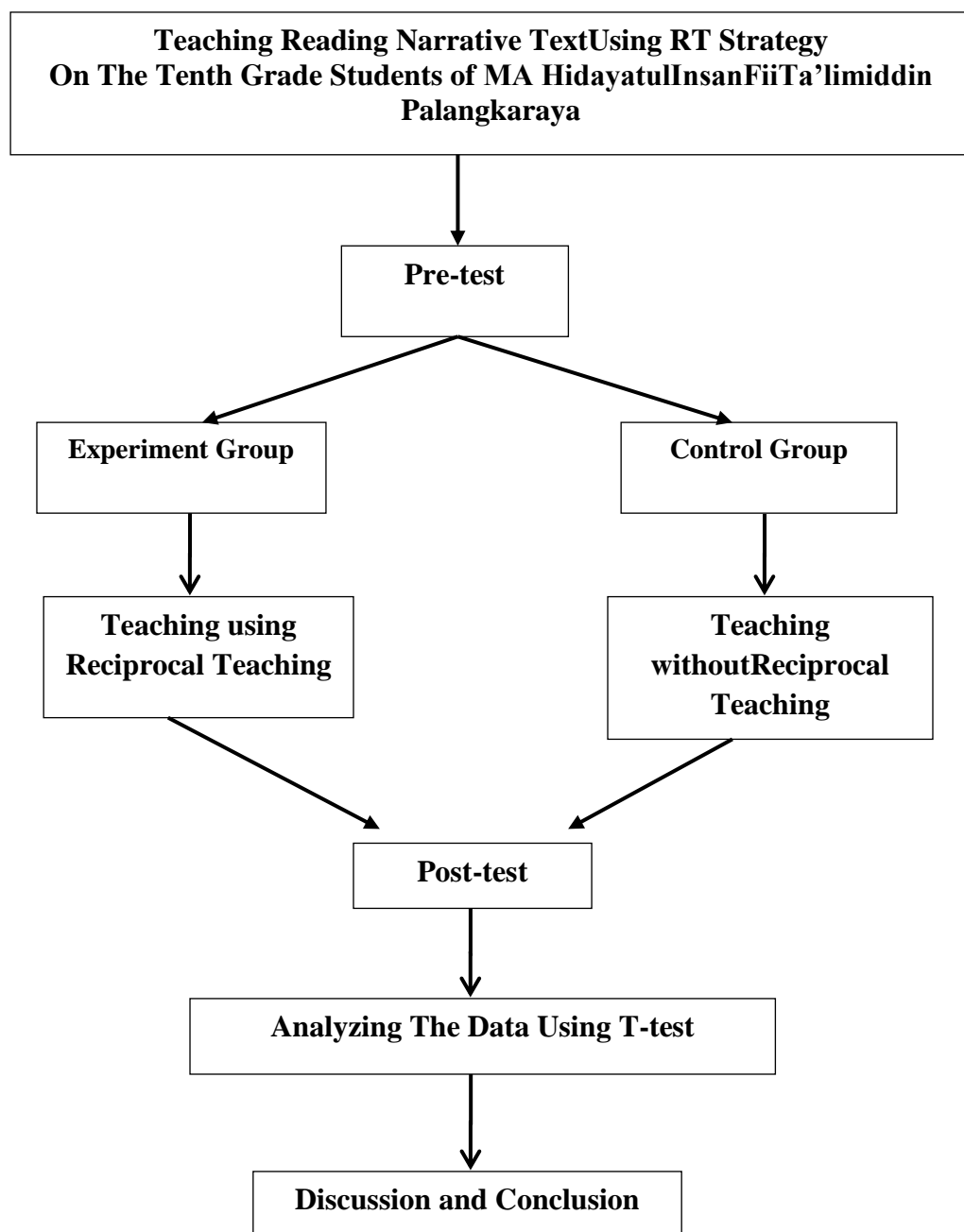
t-$_{test}$>t-$_{table}$ = Valid

t-$_{test}$>t-$_{table}$ = Not Valid

[81]Riduwan, *MetodedanTeknikMenyusun Thesis,* Bandung: Alfabeta, 2007, P. 110

The writer analyzed the data using Pearson Product Moment calculation manually.Then, re-check the manual calculation using Microsoft Excel program

D. Data Collecting Procedure.

Figure 3.1 Data Collecting Procedure

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┌─────────────────────────────────────────────────────────┐
│      Teaching Reading Narrative TextUsing RT Strategy     │
│  On The Tenth Grade Students of MA HidayatulInsanFiiTa'limiddin │
│                     Palangkaraya                          │
└─────────────────────────────────────────────────────────┘
                           │
                           ▼
                    ┌──────────────┐
                    │   Pre-test   │
                    └──────────────┘
                    /              \
        ┌──────────────────┐    ┌──────────────────┐
        │ Experiment Group │    │  Control Group   │
        └──────────────────┘    └──────────────────┘
                │                        │
                ▼                        ▼
        ┌──────────────────┐    ┌──────────────────┐
        │  Teaching using  │    │    Teaching      │
        │Reciprocal Teaching│   │withoutReciprocal │
        │                  │    │     Teaching     │
        └──────────────────┘    └──────────────────┘
                \                        /
                    ┌──────────────┐
                    │  Post-test   │
                    └──────────────┘
                           │
                           ▼
        ┌────────────────────────────────────────┐
        │     Analyzing The Data Using T-test     │
        └────────────────────────────────────────┘
                           │
                           ▼
            ┌────────────────────────────┐
            │  Discussion and Conclusion │
            └────────────────────────────┘
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Based on the figure above, the data collecting procedure wereexplain as follows:

1. Observing the class. The writer directly did observation in the fieldwhere the place was taken.It was done to observe the class condition in learning English, to know how the students' attitude while teaching learning process was going on.

2. The observation was purpose to get specific data, they were:

   a. The general description of the location of the study.

   b. The syllabus and lesson plan of the school.

   c. The number of class.

   d. The number of students and students' name

   e. The number of the English Teacher.

   f. The process of teaching learning English.

3. Grouping the students into experimental group and control group.

4. Giving pre-test to the experimental group and control group.

5. Teaching English Reading for four times to students in the experimental group by implementing the Reciprocal Teaching strategy and teach English reading to students in the control group with Teacher Centered Method.

6. Giving post-test to the experimental and control group

7. Analyzing the data using T-test.

8. Discussion and Conclusion.

E. Level of Difficulty

Difficulty standard test is the ability test in the number subject of participant test who can answer correctly.[82] If the participants test who can answer correctly, the difficulty level of the test is low. Otherwise, if only a few of the subjects who answer correctly, the difficulty level of the test is high.

Difficulty standard is stated P and the formula as follows:

$$P = \frac{B}{j}[83]$$

Explanation:

P = Index of Difficulty

B = the number of students who answer question correctly

J = the number of all students who follow the test

Then the classifications of the reliability are:

-      $0,00 < 0,30$ = difficult

-      $0,30 - 0,70$ = fair

-      >0.70 = easy.[84]

F. Data Analysis Procedure

In order to analyze the data, the writer will do some procedures below:

1. Giving tests (pre-test and post-test) to the students at tenth grade students of MA HidayatulInsanFiiTa'limiddin Palangkaraya.

2. Collecting the score of the students worksheet result.

3. Giving score the students' answer using the formula:

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[82]SumarnaSurapnata, *Analisi, Validitas,danInterpretasi Hail TesImplementasiKurikulum 2004,* Bandung: PT.Remaja Rosdakarya,2006,p.114

[83]SuharsimiArikunto,*Dasar- DasarEvaluasiPendidikan,*Jakarta: Bumi Aksara,1999, p. 208

[84]*Ibid, p. 210*

$$S = \frac{n}{N} \times \mathbf{100}\%$$

Where:

S : Students' score

n : Number of true answer

N : Number of tests items

4. Tabulating the data into the distribution of frequency of score table, then find out the mean of students' score, standard deviation, and standard error of variable X1 (Experiment group) and X2 (Control group) by using the formulas bellow:

a. Mean of students' score

$$\overline{X} = \frac{\sum f X_i}{n}$$

Where:

$\sum f X_i$: Total of score

N   : Total of the students

b. Standard Deviation[85]

$$S = \sqrt{\frac{n.\sum f X_i{}^2 - (\sum f X_i)^2}{n.(n-1)}}$$

c. Standard Error[86]

$$SE_M = \frac{SD}{\sqrt{N-1}}$$

[85]Riduwan, *MetodedanTeknikMenyusun Thesis*, Bandung: Alfabeta, 2010, P. 351
[86]AnasSudijono, *PengantarStatistikPendidikan*, Jakarta: Rajawali Press, 2012, P. 282

Where:

SE_M : Standard error of the mean

SD   : Standard deviation

N   : Number of cases

1   : Bilangan konstan

5. Normality Test

Used to know the normality of the data that is going to be analyzed whether both groups has normal distribution or not. Chi square is used here.[87]

$$\mathbf{X^2}_{\mathbf{observed}} = \sum_{i=1}^{k} \frac{(f_o - f_e)}{f_e}$$

Where:

$X^2_{observed}$: Chi square

f_o : Frequency from observation

f_e : Expected frequency

Calculation result of $X^2_{observed}$ was compared with X^2_{table} by 5% degree of significance using the criteria:

If $\mathbf{X^2}_{\mathbf{observed}} \geq \mathbf{X^2}_{\mathbf{table}}$, so the distribution list is not normal.

If $\mathbf{X^2}_{\mathbf{observed}} \leq \mathbf{X^2}_{\mathbf{table}}$, so the distribution list is normal.

6. Homogeneity Test

Used to know whether experimental group and control group that are decide, come from population that has relatively same variant or not. The formula is:[88]

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[87]Riduwan, *MetodedanTeknikMenyusun Thesis,* Bandung: Alfabeta, 2010, P. 182.

$$\mathbf{X^2}_{\mathbf{observed}} = (\boldsymbol{lon\ 10}) \times (\boldsymbol{B} - \sum(\boldsymbol{dk})\ \boldsymbol{log\ S^2}_i)$$

Where: $\mathbf{B} = (\boldsymbol{log\ S^2}_i) \times \sum(\boldsymbol{n}_i - \mathbf{1})$

Notice:

$\mathbf{X^2}_{\mathbf{observed}} \leq \mathbf{X^2}_{\mathbf{table}}$ is homogeneity.

$\mathbf{X^2}_{\mathbf{observed}} \geq \mathbf{X^2}_{\mathbf{table}}$ is not homogeneity.

If calculation result of $\mathbf{X^2}_{\mathbf{observed}}$ is lower than $\mathbf{X^2}_{\mathbf{table}}$ by 5% degree of significance, it means both group has same variant.

7. Calculating the data by using t_{test} to test the hypothesis of the study, whether the use of RT Strategy give effect to the students' reading scores or not. To examined the hypothesis, the writer uses t_{test}. T-test is statistical test which is used to examine the truth or falseness of null hypothesizes states that between two of Sample Mean taken randomly from the same population, there is no significant different.[89] T-test is used to measure whether RT Strategy give effect to the students reading narrative text score using formula as follows:[90]

$$\mathbf{t_o} = \frac{M1 - M2}{SEm1 - m2}$$

Note:

M1- M2   : The difference of two means

SEm1 – m2   : The standard error of the difference between two means

To know the hypothesis is accepted or rejected using the criterion:

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[88]*Ibid*, P. 178

[89]AnasSudijono, *PengantarStatistikPendidikan*, Jakarta: Raja GrafindoPersada, 1987, p.278

[90]*Ibid,* p. 284.

If t-test (the value) $\geq$ t$_{table}$, it means Ha is accepted and Ho is rejected.

If t-test (the value) $\leq$ t$_{table}$, it means Ha is rejected and Ho is accepted.

8. Interpreting the result of t$_{test.}$ Previously, the writer accounted the degrees of freedom (df) with the formula:[91]

df = (N$_1$ + N$_2$ − 2)

Where:

df : Degrees of freedom

N$_1$: Number of subject group 1

N$_2$: Number of subject group 2

2 : Number of variables

After that, the value of t$_{test}$ consulted on the t$_{table}$ at the level of significance 1% and 5%. In this research, the writer used the level of significance at 5%. If the result or t$_{test}$ is higher than t$_{table}$, it means H$_a$ is accepts. But if the result of t$_{test}$ is lower than t$_{table}$, it means H$_o$ is accepts.

9. Making the conclusion of data analysis obtained.

10. In addition, the writer used SPSS 21.0 program to compare the data.

11. Discussing and concluding the result of data analysis.

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[91]*Ibid,*p. 285