

## **CHAPTER III**

### **RESEARCH METHODOLOGY**

This chapter are consisting of A) Research Design, B) Population, Sample, and Sampling, C) Research Instrument, D) Validity and Reliability Testing, E) Normality Testing, F) Homogeneity, G) Try out, H) Data Collecting Method, I) Treatment, and J) Data Analysis.

#### **A. Research Design**

This research was conducted in term of quantitative approach. The type of this research was experimental research. Experiment is test an idea (or practice or procedure) to determinewhether it influences an outcome or dependent variable (Creswell, 2008: 299). The research design in this study was pre-experimental design (as part of experimental research), which used the one group of pretest-posttest design. This study used pre-experimental because it does not have random assignment of subject to group or other strategy to control extraneous variable. That is why in this study the researcher just takes one group or class and uses pretest and posttest to see the result of the treatment.

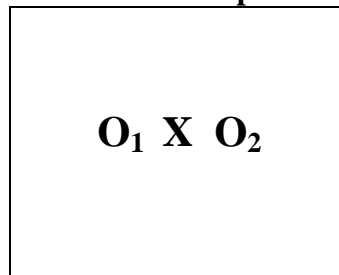
The characteristics of pre-experimental design are this design may have pre-test and posttest, without a control group. Munir (2016) divides the procedures of the research into three part, they are; pre-treatment, treatment, and post-treatment. In addition, according to Airasian (2000: 372), the one group pretest and posttest design takes a group that is

pretested, exposed to treatment, and post tested. There are three steps of this design, are:

1. Administering a pretest measuring the dependent variable.
2. Applying the treatment X to the experimental group.
3. Administering a posttest measuring the dependent variable.

According to Sugiyono (2011: 74-75) in Rubianto (2013: 32), the formula of pre-experimental design one-group pre-test post-test design can be designed as follows.

**Table 3.1 the Formulation of Pre-Experimental Design**



Note:

**O<sub>1</sub>** : pre-test score (before give treatment)

**X** : Treatment

**O<sub>2</sub>** : post-test score (after give treatment)

This research intended to investigation the effectiveness of using *Picture Series* to improve students writing skill in developing narrative text at MAN Trenggalek in academic years 2016/2017. The uses of the treatment is aimed at proving whether the increase scores possibly got by

the researcher. Thus, the effectiveness of treatment will be known the significant score when the students taught using *Picture Series*.

## **B. Population, Sampling, and Sample**

### **1. Population**

Population is represent entire / all subject research. Arikunto (2006: 130) stated that Population is all the subject of the research. In other word, population is the big research group chosen to represent all members of group. Sugiyono (2015: 80) said that population is generalization region which consisted of object or subject that has quality and specific characteristic which defined by researcher to be learned and then the conclusion taken by researcher. In addition, Seltman (2015: 34) defined population as the entire set of actual or potential observational units.in other word, population means all subjects where the data can be gathered.

So all of this objects can be source of data in research. In this case, the population of this research includes all the eight grade students in MAN Trenggalek in the academic year 2016/2017. Total of the population consist of 380 students included; X MIA 1,2,3,4,5,6; X IIS 1,2,3; and IIK 1,2.

### **2. Sampling**

To get samples, we need sampling technique. Sampling is the way or the technic to take samples. This is supported by Bungin (2004: 105), he stated that sampling is technic to take sample, how we are designing technic in taking sample to be representative sample.

Sugiyono (2015: 81) stated that sampling is a technic of taking sample. He also stated that there are two kinds of sampling technics; probability sampling and non-probability sampling. There are eleven classes in tenth grade, here the researcher used purposive sampling technique. Purposive sampling technique is a type of non probability sampling where the researcher consciously selects particular elements or subjects for addition in a study so as to make sure that elements will have certain characteristics pertinent to the study. It normally targets a particular group of people.

### **3. Sample**

Sample is a part from population which be subject of the research. According to Arikunto (2002: 109) samples are partially or representative of the population studied. Arikunto (2006) he also stated that if the subject is less than one hundred it is better to take the entire subject. Furthermore, if the subject is more than one hundred it can be taken between 10-15% or 20-25% or more than it. In this research, the researcher take for X MIA 2 class totally 32 students. In addition, Sugiyono (2015: 81) stated that sample is a part of totally and characteristic which owned by the population.

### **C. Research Instrument**

In this study, the researcher uses test as the instrument to know the effectiveness of using *Picture Series* to improve students' writing skill in developing narrative text. The test in this research used writing test; pre-test and post-test. Pre-test and post-test give to the one group.

1. Pre-test

The total of pre-test is one writing test. That test is about description instruction to students for making their own narrative text with entitled *Malin Kundang* minimal three paragraphs more or less 300 words. The researcher give pre-test before students got treatment.

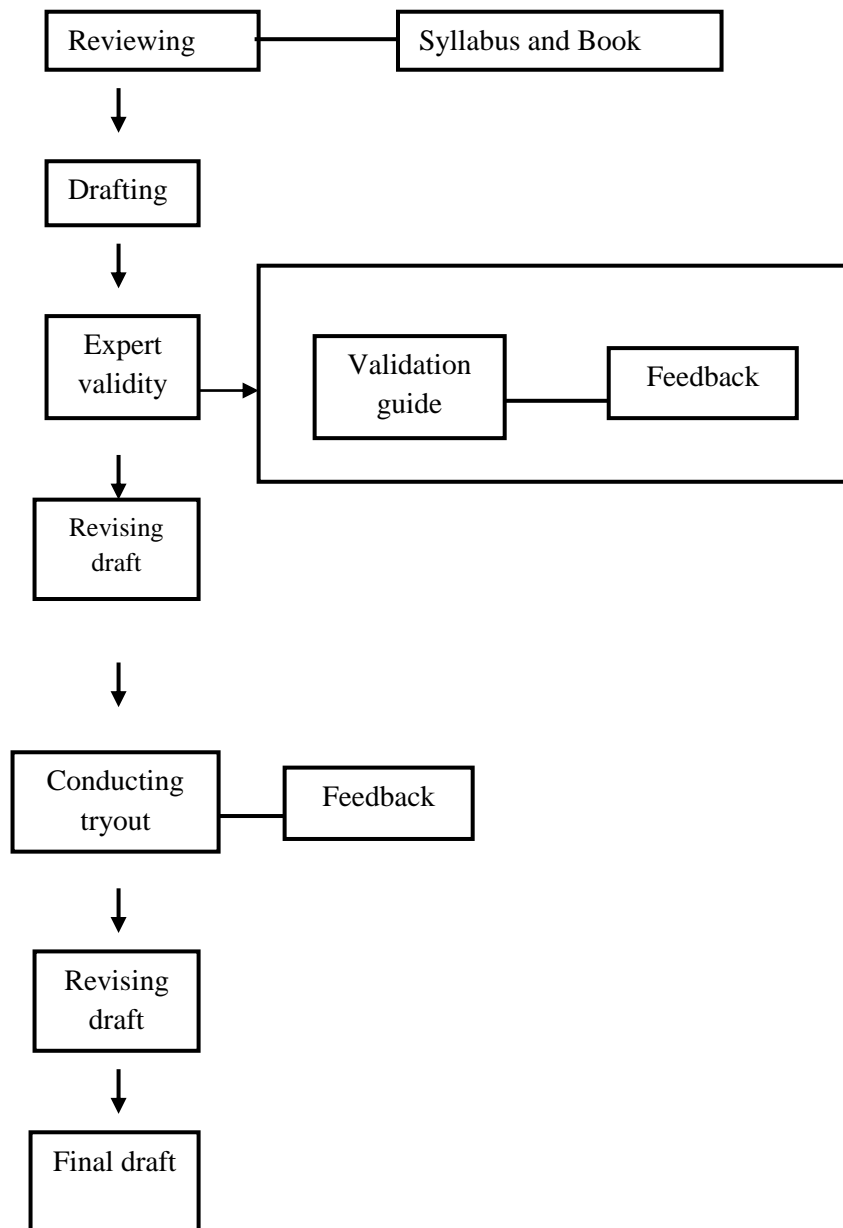
2. Post-test

The total of post-test is one writing test. That test is about description instruction to students for making their own narrative text with entitled *Cinderella* minimal three paragraphs more or less 300 words. In this test, the researcher gives students picture series or sequenced picture of *Cinderella* as media. The researcher give pre-test after students got treatment.

#### **D. Validity and Reliability of the Test**

1. **Validity of the Test**

In this research, the researcher uses test as the instrument to see the effectiveness of using picture series to improve students' writing skill in developing narrative text. The instrumentation diagram to show the validity and reliability of the test can be seen below:

**Table 3.2 Validity and Reliability Testing**

Based on the chart above, the steps of instrumentation are:

a) Review Literature

The first step to get valid and reliable test is the researcher will review the book and syllabus of Tenth Grade Senior High School to get some important information as source of drafting instrument that related with the material of Senior High School.

b) Drafting Instrument

After the researcher got some important information from reviewing literature, the researcher start to draft the test that relates with material of Senior High School.

c) Expert Validity

After the researcher finished drafting the instrument, the researcher shows the test to expert like English teacher or lecturer who master the writing materials especially narrative text to validity the instrument. This has purpose to know how much valid the instrument to use in pre-test post-test and either related with its construct validity, face validity, and content validity. So, by validating expert the researcher will get feedback and validation guide.

d) Revising Draft

Then, the researcher revising the draft of instrument, the researcher used feedback collected from the expert validation.

e) Conducting Try Out

Next, the researcher will conduct try out the instrument to students who have the different class of tenth grade MAN Trenggalek consist of 15 students as the subject try out to get feedback from students. The result of try out which is analyzed using Alpha Cronbach is used to revise the draft to be the valid instrument because the reliability and validity of the instrument can be objectively computed by using the formula of Alpha Cronbach.

f) Revising Draft

Next, in here the researcher revise again the instrument based on the try out feedback. So, the researcher revise instrument to make the question ideal or not easy or too easy, difficult or too difficult.

g) Final Draft Instrument

The last step is final draft. It means that the instrument has good or best where the instrument is appropriate.

Validity is measuring what it is designed to measure. The most complex criterion of an effective test and the most important principle of language testing is validity. According to Brown (2004:22), he stated that validity is the extent to which inferences made from assesment result are appropriate, meaningful, and useful in term of the purpose of the assesment. In addition, Ary (2010:225) validity is the most important consideration in developing and evaluating measuring instruments.

To measure whether the test has a good validity, the researcher analyzed the test from face validity, construct validity, and content validity.

1) Face Validity

Face validity, concerns with the lay out of the test. According to Ary (2010:228), he stated that it is a term sometimes used in connection with a test's content. Face validity refers to the extent to which examiners believe the instrument is measuring what it is supposed to measure. It is not a technical form of



validity. The researcher analyzed the students' level by consulting to the expert. The experts here were the advisor, the English teacher, and the material books of tenth grade level. The researcher also shows the test to the English teacher to get feedback. So, this test is valid in term of face validity.

## 2) Content Validity

A test is said to have content validity if its contents constitutes a representative sample of language skills, structures, etc being tested. In order to judge whether or not the test has content validity, we need a spesification of the skills or structure being tested. A comparison of test spesification and test content is basis for judgment for content validity. The researcher made this test based on the course objectives in the syllabus of tenth grade second semester of MAN Trenggalek. It represents the material learned in the class. In this case writing test, have represented the material which will be measure. In this school writing narrative text was taught at second semester tenth grade MAN Trenggalek and the researcher conducted the research at second semester also. So, this test is valid in term of content validity.

**Table 3.3 Basic Competence (KD) and Learning Materials of Syllabus Tenth Grade Second Semester in Senior High School**

<i><b>Kompetensi Dasar</b></i>	<i><b>Materi Pembelajaran</b></i>
<p>3.8 Membedakan fungsi sosial, struktur teks, dan unsur kebahasaan beberapa teks naratif lisan dan tulis dengan memberi dan meminta informasi terkait legenda rakyat, sederhana, sesuai dengan konteks penggunaannya</p> <p>4.8 Menangkap makna secara kontekstual terkait fungsi sosial, struktur teks, dan unsur kebahasaan teks naratif, lisan dan tulis sederhana terkait legenda rakyat</p>	<ul style="list-style-type: none"> <li>- <i>Fungsi Sosial</i> Mendapat hiburan, menghibur, mengajarkan nilai-nilai luhur, mengambil teladan</li> <li>- <i>Struktur Teks</i> Dapat mencakup:               <ol style="list-style-type: none"> <li>1. Orientasi</li> <li>2. Komplikasi</li> <li>3. Resolusi</li> <li>4. Orientasi ulang</li> </ol> </li> <li>- <i>Unsur Kebahasaan</i> <ul style="list-style-type: none"> <li>- <i>Kalimat-kalimat dalam simple past tense, past continuous, dan lainnya yang relevan</i></li> <li>- <i>Kosa kata: terkait karakter, watak, dan setting dalam legenda</i></li> <li>- <i>Adverbia penghubung dan penunjuk waktu</i></li> <li>- <i>Ucapan, tekanan kata, intonasi, ejaan, tanda baca, dan tulisan tangan</i></li> <li>- <i>Topik</i> Cerita legenda yang dapat menumbuhkan perilaku yang termuat di KI</li> </ul> </li> </ul>

### 3) Construct Validity

The construct validity of test which is capable of measuring certain specific characteristic in accordance with a theory of language behavior and learning. Based on the theory above, in the test the researcher asked the students to write their own narrative text contain three paragraphs more or less 300 words to measure students' writing skill in writing narrative text and this is fulfill the construct of writing test therefore, valid in term of construct validity.

## 2. Reliability of the Test

The ideal test should be both reliable and valid. According to Ary (2002:250) states that reliability is concerned with the effect of such random errors of measurement on the consistency of scores.

In this research, the researcher used SPSS 16.0 for window to know the reliability of test instruments. To measure the reliability of the test by Alpha Cronbach as follow:

$$\alpha = \left( \frac{K}{K-1} \right) \left( \frac{s_r^2 - \sum s_i^2}{s_x^2} \right)$$

$\alpha$  = Reliability coefficient Alpha Cronbach.

$K$  = Number of item.

$\sum s_i^2$  = Number of variation score item.

$\sum s_r^2$  = Variation scores of test.

- If alpha > 0,90 it means that perfect reliability.
- If alpha between 0,70 – 0,90 it means high reliability.
- If alpha between 0,50 – 0,70 it means moderate reliability.
- If alpha < 0,50 it means low reliability.

The validity and reliability of the test also can be measured by SPSS Alpha Cronbach. If the result shows alpha >0,7, it means that the reliability is sufficient, while if the alpha >0,8. It means that all of items are consistent and reliable. The result can be seen in the table below:

**Table 3.4 Reliability Result**

Reliability Statistics	
Cronbach's Alpha	N of Items
.887	2

To know the items is reliable or not it can be seen from Alpha Cronbach's column. The Alpha Cronbach's score = 0,887 means that it is reliable.

#### **E. Normality Testing**

Normality testing is conducted to know whether the gotten data is normal or not. According to Usman and Akbar (2008: 140) stated that normality testing is useful to determine whether the data which have been collected have normal distribution or be taken from normal population.

In this research, the computation of normality testing in this research using SPSS 16.0 that is non-parametric statistic One-Sample Kolmogorov-Smirnov test because the research without determine the specific qualifications about the population parameter which be a sample. The value of significance ( $\alpha$ ) = 0.05. Testing of data normality is conducted by the rules as follow:

- a. If the value of significance  $> 0.05$ , so the distribution data is normal.
- b. If the value of significance  $< 0.05$ , so the distribution data is not normal.

**Table 3.5 The Normality Result of the Try Out Score**

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		15
Normal Parameters <sup>a</sup>	Mean	.0000000
	Std. Deviation	1.44204683
Most Extreme Differences	Absolute	.179
	Positive	.090
	Negative	-.179
Kolmogorov-Smirnov Z		.693
Asymp. Sig. (2-tailed)		.723
a. Test distribution is Normal.		

Based on the table above, it shows that significance value is 0.723 higher than 0.05, it can be concluded that the test distribution is normal. After that, the next step is calculating the homogeneity of the data by using SPSS version 16.0.

#### **F. Homogeneity Testing**

Homogeneity testing is conducted to know whether the gotten data has a homogeneous variance or not. The computation of homogeneity testing using SPSS Statistics 16 is One-Sample Kolmogrov-Smirnov test by the value of significance (  $\alpha$  ) = 0.050. before doing homogeneity testing, the researcher decides hypothesis in this homogeneity as follow:

$H_0$  : 1 variance ( Experimental group ) are same.

$H_a$  : 1 variance ( Experimental group ) are different.

There is also certainty in taking decision of homegeneity testing, as follow:

The value of significance  $> 0.050$ , so  $H_0$  is accepted means that the data of sample has same variance.

**Table 3.6 The Homogeneity Result of the Try Out Score**  
**Test of Homogeneity of Variances**

posttest

Levene Statistic	df1	df2	Sig.
19.056	4	7	.001

The table above shows that the value of significance  $< 0.050$ , it means that  $H_a$  is accepted means that the data of sample has different variance.

### **G. Try Out**

To know the test is suitable or not to be used in the pre-test and post-test, so the researcher held try out of pre-test and post-test that will be used by researcher in this research in another class that different with sample class. The researcher got class X MIA 3 as the try out class. The researcher got half of totally students in that class. 15 students were as subject of try out. The researcher held try out on Monday, March 20<sup>th</sup> 2017 at 11.45 am until 01.30 pm. The researcher gave two kind of test that used in pre-test post-test that had a same difficulty.

From the try out result, the researcher concluded that the students who got less score are 4 students, the students who got average score are 6 students, and the students who got good score is 5 students. So, both of the test are suitable to use in pre-test post-test. Because average of students

that got less score and good score is mostly equal. So, the researcher uses test in the research pre-test post-test.

## **H. Data Collecting Method**

The data collecting method is the method to obtain the data in the research. The aim of the data collecting in conducting scientific research was to get material that needed by the research. To know picture series is effective or not to improve students' writing skill in this quantitative research, in collecting the data the researcher used test as the instrument to get the data through writing narrative text before used picture series and did after use picture series. the technique of collecting data was clarified as follow:

### **1. Pre-test**

At the first meeting, the researcher gave a pre-test to the students. It was conducted to know how far the students score in writing narrative text. The researcher held pre-test on Tuesday, March 21<sup>st</sup> 2017. The location of that research was in class X MIA 2. The total number of students was 31 students. One of them did not attend in the class because he had permission to follow organization meeting. The researcher conducted pre-test to know how far the students score in writing. The pre-test comprised 1 item consisted an instruction to write narrative text.

## 2. Post-test

Before the researcher conducted post-test, the researcher gave treatment to one group. The researcher applied the technique or treatment using *Picture Series*. After the researcher finished give treatment, the researcher continued with giving post-test. Post-test is used as the final test after the researcher applied the treatment in one group. The researcher held post-test in the third meeting on Tuesday, 18<sup>th</sup> April 2017. The location of that research was in class X MIA 2. The total number of students was 31 students. One of them did not attend in the class because he had permission to follow organization meeting. The post-test comprised 1 item consisted an instruction to write narrative text. This writing instruction is different with pre-test, because in here the researcher gives Picture Series to help the students in their writing.

The researcher uses scoring rubric for measuring pre-test and post-test answers. Scoring rubric that will used by researcher is analytic scoring rubric by Cohen (1994:328-329) quoted by Isnawati (2015: 43). To get score of the students, the researcher uses inter-rater reliability. Inter-rater reliability is achieved when two scorers or two raters do the scoring. The two scorers were the researcher and the English Teacher. Then, as in intra-rater reliability, the two sets scores gotten from the two raters are calculated to get the correlation coefficient. The analytic scoring rubric can see as below:



**Table 3.7 Analytic Scoring Guide of Writing Test**

<b>Content</b> 5 – Excellent: main ideas stated clearly and accurately, change of opinion very clear 4 – Good: main ideas stated fairly clearly and accurately, change of opinion relatively clear 3 – Average: main ideas somewhat unclear and inaccurate, change of opinion somewhat weak 2 – Poor: main ideas not clear or accurate, change of opinion weak 1 – Very Poor: main ideas not at all clear or accurate, change of opinion very weak
<b>Organization</b> 5 – Excellent: well organized and perfectly coherent 4 – Good: fairly well organized and generally coherent 3 – Average: loosely organized but main ideas clear, logical but incomplete sequencing 2 – Poor: ideas disconnected, lacks logical sequencing 1 – Very Poor: no organization, incoherent
<b>Vocabulary</b> 5 – Excellent: very effective choice of words and use of idioms and word forms 4 – Good: effective choice of words and use of idioms and word forms 3 – Average: adequate choice of words but some misuse of vocabulary, idioms and word form 2 – limited range, confused use of words, idioms, and word forms 1 – Very Poor: very limited range, very poor knowledge of words, idioms, and word forms
<b>Grammar</b> 5 – Excellent: no errors, full control of complex structure 4 – Good: almost no errors, good control of structure 3 – Average: some errors, fair control of structure 2 – Poor: many errors, poor control of structure 1 – Very Poor: dominated by errors, no control of structure
<b>Mechanics</b> 5 – Excellent: mastery of spelling and punctuation 4 – Good: few errors in spelling and punctuation 3 – Average: fair number of spelling and punctuation errors 2 – Poor: frequent errors in spelling and punctuation 1 – Very Poor: no control over spelling and punctuation

## I. Treatment

The researcher uses picture series as treatment after pretest and second meeting. The researcher gives treatment three times. Its purpose to

know is picture series effective or not to improve students writing skill on narrative text. The researcher uses picture series with entitled *Little Riding Hood*. The researcher gave treatment in the first meeting after pre-test on Tuesday, March 21<sup>st</sup> 2017 12.40 pm until 01.15 pm and in the second meeting on Tuesday, 04<sup>th</sup> April 2017 two times 11.45 am until 01.15 pm. So, totally of treatment was given three times. The location of that research was in class X MIA 2. The total number of students was 31 students. One of them did not attend in the class because he had permission to follow organization meeting.

#### **J. Data Analysis**

Analyze data is very important in this study. Analyzing data is a process of analyzing the acquired from the result of the research. The gathered data are used to find out the differences of students' achievement in the one-group pre-test post-test in writing before and after being taught by using picture series. The data which is needed in this research is students' writing skill improvement about the narrative text of the tenth grade students of MAN Trenggalek in the academic year 2016-2017 before and after taught by using Picture Series.

The data obtained from research result is the results of student's test that were analyzed quantitatively. In line with this, the researcher used statistic calculation through T-Test on SPSS (Statistic Product and Statistic Solution) 16.0 version. The researcher uses the formula of T-Test in order to find the significant different of students' writing achievement one-group pre-test post-test before using picture series and after using picture series.

The researcher used T- test according to Ary (2006) with the following formulation:

Formulation:

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

**Where:**

t : the value of  $T_{count}$

MD : average difference

$\sum D^2$  : different score squared then summed

$(\sum D)^2$  : different score summed then squared

N : number of samples

This formula is used to calculate the effectiveness of picture series media that had given to subject of the research. The researcher choose to used the formula's above because it is suitable with technique and questions which has been tested in Senior High School. This formula is used in research one group design which observation is done when the subject before taught using picture series and after using picture series. So, the formula above can help the researcher to count the value to get the valid result about the effectiveness of using picture series to improve students' writing skill in developing narrative text. To find out is there any significant effect before and after being taught using picture series media

toward students' writing achievement in developing narrative text, the assumptions can be if  $\text{sig} > 0.05$  the null hypothesis ( $H_0$ ) is accepted and if  $\text{sig} < 0.05$  the null hypothesis ( $H_0$ ) is rejected. The technique of data analysis which used by the researcher belonged to quantitative data analysis and the data were analyzed statistically by using T-test.