

CHAPTER III

RESEARCH METHOD

This chapter presents several topics dealing with research method. Those are research design, population sample and sampling, data collecting method, research instrument, validity, and reliability testing, normality and homogeneity testing, and data analysis.

A. Research Design

The first step before conducting the research is making the research design. The research design is an arrangement of planning or drafting before conducting research. Therefore, before conducting research the researcher had to make several plans in order to get suitable design.

This research is conducted using a quantitative approach. Based on Khotari (2004:3) quantitative research is the measurement of quantity or amount. The design of this research is experimental research design. Creswell (2003), stated that experimental research is most appropriate for answering a research question about the effect of a treatment. The researcher used experimental design because to find out whether there is a significant difference between the students' writing quality who uses Grammarly checker and the students' writing quality who do not use Grammarly checker.

The type of experimental research design used in this research is quasi-experimental design with nonrandomized control group pre-test – post-test design. The researcher used quasi-experimental design because to see the

effectiveness of Grammarly checker towards students' writing quality. According to Millan (2006), the purpose of quasi-experimental design is to determine the cause and effect between the independent and dependent variable. In this study, Grammarly checker is the independent variable which may cause or influence students' writing quality as the dependent variable. The writer used pre-test and post-test on the control and experiment class, to see the effectiveness of Grammarly checker by looking pre-test, and post-test measurement and comparing the gained scores between both classes. The effectiveness can be seen in the improvement of students' score of experiment class in the post-test. The score was taken by the researcher after the student had been given some treatments and from the comparison of both classes. The experiment class is using Grammarly checker in the classroom and the controlled class using Spelling and Grammar Checker in Microsoft Word.

The research design is as follow:

Table 3.1 Nonrandomized Control Group Pretest-Posttest Design

	Group	Pretest	Independent Variable	Post-test
(R)	E	Y ₁	X	Y ₂
(R)	C	Y ₁	O	Y ₂

Where:

E: Experimental Class (which receives the treatment of using *Grammarly checker*)

C: Control Class (which is taught by using Spelling and Grammar Checker in Microsoft Word)

Y₁: Pre-test (this is given to see the students' writing quality)

Y₂: Post-test (this is given after the treatment to see the result after applying the treatment)

X: Treatment by using *Grammarly checker*

O: Treatment by not using *Grammarly checker or using Spelling and Grammar Checker in Microsoft Word*

The procedure of experimental research that applied in this study are:

1. Administering a pre-test with a purpose measuring the writing quality of the fourth semester of English Education program students of IAIN Tulungagung.
2. Applying treatment by using Grammarly checker to the subjects (students of the fourth semester of English Education program students of IAIN Tulungagung).
3. Administering a post-test after applying Grammarly checker with the purpose of measuring the score of the students' writing quality of the fourth semester of English Education program students of IAIN Tulungagung.

B. Population, Sample, and Sampling

In every research, population, sample, and sampling include in the crucial part.

1. Population

The population is entire subjects where data is collected. Ary et. al. (2010:148) defined a population as all members of any exact class of people, events, or objects. In conducting this research, the researcher chose

the fourth semester of English Education program students of IAIN Tulungagung as the population. The fourth semester students of English Education program has five class which consisting of 207 students. The researcher chooses the fourth semester students because the researcher wants to know the students' writing quality due to the fact that they are in advance level and have passed their writing classes. By using Grammarly checker can be known if the students have writing competence includes a good ability concerning grammar, arrangement, and punctuation as they are in their last writing class or not.

2. Sample

A sample is the representative of the population. Selection of the sample is a very important step in conducting research. In this research, the researcher chose the A class and B class as the sample. Every class consists of around 42 students. The A class as the control class that has 42 students and as experiment class, the researcher takes B class that has 41 students.

3. Sampling

Sampling is the process or technique of selecting an appropriate sample. According to Johnson and Christensen (2000: 156), sampling is the process of representing a sample from a population. In this research, the researcher used a purposive sampling technique. According to Teddlie (2007:80), purposive sampling techniques referred to nonprobability sampling techniques involved selecting certain units or cases based on a specific purpose rather than randomly.

C. Data Collecting Method

In collecting the data, the researcher will collect the data in two steps:

1. Pre-test

Pre-test refers to a measure or test given to the subject prior to the experimental treatment. This aims to know the basic competence and their earlier knowledge before they get the treatment. At the first meeting, the researcher gave pre-test to the students. The pre-test was held on March, 16th 2019. The test was writing achievement test that was in the form of creative writing that is a short story with themes love, friendship, and mystery. It was conducted to know the student's writing quality score. It determined the readiness for the instructional program, and to diagnosed individual's specific strengths and weaknesses of the writing quality.

2. Post-test

The last method used to collect the data is administering post-test. A post-test is a measure on some attribute or characteristic that is assessed for participants in an experiment after a treatment (Creswell, 2008: 301). Post-test was held on April, 2nd 2019, this test was intended to know the quality writing of the students and to know the students' writing quality after receiving the treatment. The post-test was administered by asking the students to write one of the kind of creative writing that is a short story with different themes, namely hope, adventure, and honesty. Then, the researcher analyzed the students writing quality using a scoring rubric.

D. Research Instrument

The research instrument is a tool for collecting data that should be valid and reliable. Frankel (2005: 112) stated that the instrument is the device that the researcher used to collect the data. The researcher used test to elicit and collect information on students' writing quality before and after giving treatments.

In this research, the researcher used the test in order to measure the students writing quality. According to Nitko (1989:32), a test is a systematic procedure for observing persons and describing them with either a numerical scale or a category system. The instrument used in this research is testing especially writing tests. Writing test that intended to know the effectiveness of Grammarly checker towards students' writing quality. The test is conducted twice, those are pre-test and post-test, and both of test have the same content and difficulty.

The development of writing test is composed by using seven stages, those are: reviewing literature, developing the blueprint, drafting instrument, validation, revising, try out, and writing final drafting. The process of instrumentation for writing test described below:

a. Reviewing Literature

The researcher reviewed the literature related to material which is the object of the research. In this research, creative writing was used as a type of text.

b. Developing the Blueprint

Developing blueprint was carried out after the researcher reviewing the literature so that the items of an instrument will be correlated with the content of the material.

c. Drafting Instrument

After developing the blueprint, the researcher arranged the items of instrument. The instrument that used was writing essay test and divided into two kinds of test, those are pre-test and post-test.

d. Validation

The researcher needed validation to consider some aspects of blueprint and items of instrument. It had purpose to make a good test based on the expert to measure face validity.

e. Revising

At these stages, the researcher rearranged the aspect of blueprint and instruction for the test items based on the comment and suggestion from the expert validation.

f. Try Out

Try out has to a purpose to measure the validity and reliability of instrument before it was applied in the research class. Try out was held before the pre-test and post-test in another class that was not involved as the research class.

g. Writing Final Drafting

In this last stage, the researcher drafted the complete research instrument as the final step. That was intended to the result of a

reliability test showed that the research instrument has been appropriate and can be used as a device to collect data.

Furthermore, the students' work will be assessed based on the scoring rubric of writing from Cohen (1994:328-329). The scoring rubric can be seen as follows:

Table 3.2 Cohen's scoring rubric (1994: 328-329)

Aspects	Score	Indicators
Content	5 (Excellent)	Main ideas started 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 all clear or accurate, change of opinion very weak
Organization	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.
Vocabulary	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 (Poor)	Limited range, confusing use of words, idioms, and word forms
	1 (Very poor)	Very limited range, very poor knowledge of words, idioms, and word forms.
Grammar	5 (Excellent)	No errors, full control of complex structure
	4 (Good)	'almost no errors, good control of the structure
	3 Average	Some errors, fair control of the structure
	2 (Poor)	Many errors, poor control of the structure
	1 (Very poor)	Dominated by errors, no control of the structure.
Mechanics	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.
	5 (Excellent)	Mastery of spelling and punctuation.

$$\text{SCORE} = \frac{\text{The number gotten}}{\text{the maximal score}} \times 100 = 100$$

In this research, the researcher will take 2 aspects of Cohen's scoring rubric namely grammar and mechanics to assess the students' writing score because the writing quality that the researcher will assess is grammar and writing mechanics. Grammar is the structure of written or spoken language. It refers to the parts of speech and how they combine together to form sentences. Mechanics refers to the rules of the written language, such as capitalization, punctuation, and spelling. The scoring rubric will be as follows:

Table 3.3 Modified Cohen's Scoring Rubric (1994)**Grammar**

Score	Indicators
5 (Excellent)	No errors, full control of the complex structure
4 (Good)	Almost no errors, good control of the structure
3 Average	Some errors, fair control of structure
2 (Poor)	Many errors, poor control of the structure
5 (Excellent)	Dominated by errors, no control of the structure.

Writing Mechanics

Aspects	Score	Indicators
Spelling	5 (Excellent)	Mastery of spelling.
	4 (Good)	Few errors in spelling.
	3 Average	Fair number of spelling error.
	2 (Poor)	Frequent errors in spelling.
	5 (Excellent)	No control over spelling.
Punctuation	5 (Excellent)	Mastery of punctuation.
	4 (Good)	Few errors in punctuation.
	3 Average	Fair number of punctuation error.
	2 (Poor)	Frequent errors in punctuation.
	5 (Excellent)	No control over punctuation.
Capitalization	5 (Excellent)	Mastery of capitalization.
	4 (Good)	Few errors in capitalization.
	3 Average	Fair number of capitalization error.
	2 (Poor)	Frequent errors in capitalization.
	5 (Excellent)	No control over capitalization.

$$\text{Score} = \frac{\text{the number gotten}}{\text{maximal score (20)}} \times 100 = 100$$

E. Validity and Reliability Testing

A researcher is always dependent upon measurement. There are two important characteristics that every measuring instrument should go through a process of validity and reliability check.

1. Validity

According to Allison (2002:85), the validity of a test concerns whether it was measuring what we think and say it was measuring. It can be defined that validity as the extent to which the instrument measures what it supposes to measure. An instrument or a test can be called valid if it at least consists of the content and constructs validity.

a. Content Validity

In this research, the researcher uses content validity. Content validity is a kind of validity which depends on careful analysis of the language being tested. A test has content validity if its contents constitute a representative sample of the language skills, structure, etc. In order to judge whether or not the test has content validity, we need a specification of the skills or structure being tested. A comparison of test specification and test content is basic for the judgment for content validity. In this test, the researcher gave the writing test to measure the students' writing quality score in creative writing that is a short story and then the researcher assess the result of students using a scoring rubric. The

researcher made this test based on the blueprint of research. The content validity in this research can be shown as below:

Table 3.4 Content Validity

Competence	Form of test	Indicators
Making creative writing (short story)	Written test	<ul style="list-style-type: none"> • Students are able to understand the short story. • Students are able to understand the generic structure of a short story. • Students are able to choose a suitable theme to write a short story. • Students are able to compose a short story based on the generic structure.

b. Construct Validity

The form of the test must be suitable for writing test not the other skills or components of language. Brown (2004:25) mentioned that a construct is any theory, hypothesis, or model that tries to explain observed phenomena in our universe of perception. Construct validity involves determining the extent to which a measure represents concept it should represent and does not represent concept it should not represent (Dane, 2011: 140). The construct validity can be concluded as build the instrument based on the theories of language that appropriate with the purpose of the studies. In this research, a written test is tested to measure students' writing quality in the use of grammar and writing mechanics. In this research, the writing test should have knowledge of sub-abilities about the generic structure of the short story, language use, and

mechanics. The sub-abilities only can be measured if the form of test is written. Thus, in the pre-test students have to make paragraphs of the short story and in the post-test students also make paragraphs of the short story after they got a treatment using Grammarly checker.

c. Face Validity

Face validity is hardly a scientific concept but it is very important. According to Ary (2010:228) states face validity refers to the extent to which examinees believe the instrument is measuring what it is supposed to measure. The test in this research was designed to measure students' writing quality, thus to achieve face validity, the researcher provided the instructions to ask students to write. The researcher uses face validity in this research by consulting with expert. The face validity of this research is based on experts' opinion.

2. Reliability

A test must be valid and reliable. According to Harris (1969:14), reliability means the constancy of test scores; a test cannot measure anything well unless it measures consistently. Reliability is a necessary characteristic of any good test and the purpose is to know the consistency of the test. A test must be reliable as measuring the instrument. It means that the measurement of the instrument has the same result, in the same way of each time and it is used under the same condition with the same subject. To make sure that the instrument (test) was reliable, the researcher conducted a try-out for the test to the different subject before truly conducting this

research to the sample of the research. In this research the writer used *Intra Rater* to look for the reliabilities which it's count using computer in *SPSS* 16. According to Uyanto (2009:275) the value of Cronbach's alpha can be interpreted as follow:

Table 3.5 Cronbach's Alpha Interpretation

Coefficient Reliabilities	Interpretation
0,00-0,20	Less reliable
0,21-0,40	Rather reliable
0,41-0,60	Quite reliable
0,61-0,80	Reliable
0,81-1,00	Very reliable

Here the result of try out test

Table 3.6 Reliability Testing

Case Processing Summary

		N	%
Cases	Valid	41	100.0
	Excluded ^a	0	.0
	Total	41	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.848	2

Referring to Table 3.6, it can be seen that the result of *Cronbach's Alpha* was 0.848 it was higher than 0.05. Based on the categories of reliability testing stated by Uyanto it categories into very reliable.

F. Normality and Homogeneity Testing

1. Normality Testing

Normality testing is conducted to know whether the given data is normal or not. The normality testing in this research using statistical computation SPSS Statistics 20.0 One-Sample Kolmogorov-Smirnov Test by the value of significance (α) = 0.05. Testing of data normality is conducted by the rules as follow:

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

The result of reliability using SPSS 16.0 can be seen as follows:

**Table 3.7 Normality Testing
One-Sample Kolmogorov-Smirnov**

		PRETEST	POSTTEST
N		41	41
Normal Parameters ^a	Mean	63.7805	80.4878
	Std. Deviation	4.84516	4.84831
Most Extreme Differences	Absolute	.206	.199
	Positive	.206	.199
	Negative	-.185	-.167
Kolmogorov-Smirnov Z		1.316	1.272
Asymp. Sig. (2-tailed)		.063	.079

a. Test distribution is Normal.

Based on table 3.6 above, it showed that the significant value of pre-test was 1,316 and from the post-test was 1,272. Both values from pre-test and

post-test were higher than 0.05. Then, the value from Asymp. Sig. (2-tailed) of the pre-test was 0.63 it is higher than 0.05 ($0.63 > 0.05$) it meant that the data was in a normal distribution. For the post-test score was 0.79 and it was higher than 0.05 ($0.79 > 0.05$) it meant that the data was in a normal distribution. It also meant that H_0 is accepted and H_a is rejected. From the data above, can be concluded that pre-test and posttest were normal distribution because the value significant of pre-test and post-test was higher than 0.05.

2. Homogeneity Testing

Homogeneity testing is conducted to know whether the gotten data has a homogeneous variance or not. The homogeneity testing in this research using statistic computation SPSS Statistics 20.0 that is Levene Statistic test by the value of significance (α) = 0.05. The samples can be categorized as homogeneity if the value of significance > 0.05 , it means that the data of the sample has the same variance. The result can be seen as follows:

Table 3.8 Homogeneity Testing

	Levene Statistic	df 1	df2	Sig.
Students' writing score Based on Mean	0.99	1	81	.754
Based on Median	.043	1	81	.836
Based on median and with adjusted df	.043	1	80.381	8.36
Based on trimmed mean	.152	1	81	.697

Based on table 3.7 above, it can be known that the significant value was 0.754. The test was called homogeneous if the significance scores more than

0.05. Based on the table above, the test is homogeneity because of $0.754 >$

0.05. So, it can be concluded that the data is homogeneity.

G. Data Analysis

In managing and analyzing the data collected, the researcher uses quantitative data analysis by using the statistical technique. The analysis is used to find the significant difference between the students' writing quality before and after using Grammarly checker. After getting the data either from the pre-test and post-test, the researcher analyzes the data by using the formula of T-test in SPSS 16.0 statistics program to know the significant effect on the students' writing quality who uses Grammarly checker and students who do not use with Grammarly checker.