III. METHODS

This chapter discusses some aspects. They are classifying like the following: research design, population and sample, data collecting technique, validity and reliability, scoring criteria, procedure of data collecting technique, data treatment, data analysis and hypotheses test.

3.1 Research Design

In this research, the researcher conducted the research by using one class and applied pre-experimental design that was one group pretest posttest design. According to Hatch and Farhady (1982: 20), the research design could be represented as follows:

$$T_1 \; X \; T_2$$

T1: Pretest

X: Treatment/ Experiment

T2: Post test

3.2 Population and Sample

The population of this research was the second year students of SMAN 8 Bandar Lampung in academic year of 2013/2014. The researcher used one class as the sample of this research. The class was XI Science I that consist of 29 students.

The researcher used lottery technique to choose the treatment class. So that those all classes got same chance to be sample.

3.3 Data Collecting Technique

In collecting data, the researcher used the following stages:

1. Pretest

   The researcher administered the pretest in order to find out the students' basic ability. It required 90 minutes for the pretest. In this test, the researcher provided some topics to be chosen by the students to write. The topic in this test was how to make your favorite food or drink. The students have been asked to write a procedure text.

2. Posttest

   Posttest administrated after treatments to find out what are the aspects of writing skills are improved by using of authentic material. It could be seen from the average scores of pretest and posttest.

3.4 Scoring Criteria

Five aspects of evaluated by the researcher were content, language use, form/ organization, vocabulary and mechanic. The researcher used computation as follows:

1. Content scored as much as 30% from the total sentences support the main idea (unity).
2. Organization scored as much as 20% from sentences use correct grammar.

3. Language use evaluated as much as 25% from the total sentences are written in chronological order (coherence).
4. Vocabulary scored 20% as much as from vocabularies is used correctly.
5. Mechanic evaluated as much as 5% from use punctuation, spelling and capitalization correctly.

The scoring criteria above based on Jacobs et al (1981: 90).

Table 1. The criteria of evaluation for writing test (Jacobs et. al., 1981: 90)

Aspect	Criteria	Score
Content	- **Excellent to very good**: Knowledge able, substantive, through development of thesis, relevant theory. - **Good to average**: Some knowledge of subject, adequate range, limited development of thesis, mostly relevant to topic but lacks detail. - **Fair to poor:** Limited knowledge of subject, little substance, inadequate development of topic. - **Poor**: Does not show knowledge of subject, non-substantive, not pertinent, not enough to evaluate.	30-27 26-22 21-17 16-13
Language Use	- **Excellent to very good**. Effective complete constructions, few error of agreement, tense, number, word order, function, pronouns, and preposition. - **Good to average**. Effective but simple construction, minor problem in complex construction, several error of agreement, preposition but seldom obscured/ - **Fair to poor**. Major problem in simple construction, frequent error of negation, agreement, tense. Number, word, pronoun. Meaning confused. - **Very poor**, virtually no mastery of sentence construction rules, dominated errors, does not communicate, not enough to evaluate.	25-22 21-18 17-11 10-5
Organization	- **Excellent to very good**. Fluent expression, ideas clearly stated/supported, well-organized, logical sequencing, cohesive. - **Good to average**. Somewhat choppy, loosely organized but main ideas stand out, limited support, logical but incomplete sequencing. - **Fair to poor.** Non-fluent, ideas confused or disconnected, lack logical sequence and development. - **Very poor.** Does not communicate, no organization, not enough to evaluate	20-18 17-14 13-10 9-7
Vocabulary	- **Excellent to very good.** Sophiscated range, effective words/idioms and usage, word form mastery, appropriate register. - **Good to average.** Adequate range, occasional errors of idiom choice, usage but meaning not obscured. - **Fair to poor.** Limited range, frequent errors of	20-18 17-14 13-10

	idiom/words, meaning confused or obscure. - **Very poor.** Essentially translation, little knowledge of English vocabulary, not enough to evaluate	9-7
Mechanic	- **Excellent.** Few errors of punctuation, spelling, and capitalization/ used correctly - **Good**. Occasional errors of punctuation, spelling, and capitalization. - **Fair.** Numerous errors of punctuation, spelling, and capitalization - **Poor**. No mastery of convention, dominated by errors of punctuation, spelling, and capitalization	5 4 3 2

Based on the content above, the researcher evaluated the aspects of procedure text writing based on the content, grammar, form/ organization, vocabulary and mechanic. The lowest score was 0 and the highest score was 100.

3.5 Procedure of Data Collecting Technique

The collecting the data the researcher made some steps:

1. Determining the population and sample

   In this stage, the researcher chose SMAN 8 Bandar Lampung as the population sample of this research. There were eight classes in the second year level. The researcher took one class as the sample, and the class was XI Science I that consist of 29 students.

2. Finding and selecting the materials.

   In this stage, the researcher found some topics for the pretest. The topics have been taken from the students' handbook and based on the teaching and learning syllabus.

3. Administrating the pretest and getting the result.

   The researcher conducted the pretest before giving the treatments and it has been done in 90 minutes. The pretest was conducted to know the

students' ability about procedure text writing text. The students chose one topics (how to plant a flower, how to operate a television, how to withdraw money via ATM, and how to serve a plate of fried rice) to be written in their text writing. They should write their task at least one piece of paper. Before the meeting was over, the researcher asked the students to revise their text.

4. Conducting treatment by using authentic material.

   After giving the pretest to the students, the experimental class has been given treatments two times. The time of the treatments was 90 minutes. The experimental class has been given the treatment by using authentic material as the media and has been explained about the procedure text. In the first meeting the researcher used instant coffee packages and instant noodle packages. In the second meeting the researcher used two videos (how to make a kite and how to make gado-gado) and the researcher practiced how to make a glass of strawberry juice in front of the class. The treatment also involved pictures, realia (real things), and demonstration as part of teaching learning process.

5. Administering the posttest.

   The posttest was conducted after treatment. The researcher gave the same topics to the students (how to send message via email, how to kept a pet, how to make your favorite food or drink) and the students chose one from the topics.

6. Analyzing the data.

   After scoring students' work, the researcher compared the result of the pretest and posttest to find out the improvement and what the aspects of writing skill are improved by using authentic material. The score of posttest was better than pretest, it means there was improvement on students' writing achievement.

3.6 Instrument of the Research

To gain the data, the researcher applied one kind of instrument:

Writing Test

The Instrument of this research was procedure text writing test. The researcher was conducted writing test to find out how far teaching procedure text writing by using authentic material improved students' writing achievement and what aspects of writing skill that could be improved by using authentic material. The students are asked to write procedure text by the researcher. The students had been given a chance to make writing for about 90 minutes.

3.6.1 Validity

Content validity is concern with whether or not the content of the test is sufficiently representative and comprehensive for the test to be valid measure it is supposed to measure. In content validity, the materials would be given by the curriculum used. In this case, the researcher gave procedure text that supposed to comprehend by the second year students of senior high school. To get the content validity of writing test, the researcher tried to arrange the materials based on the

objective of teaching in syllabus for second grade of senior high school students, and the students were making a procedure text writing based on teacher instruction (how to make your favorite food or drink).

Construct validity is concern with the teacher the test is actually in line with the theory of what it means to know the language that is being measured, it would be examine whether the test questions actually reflect what it means to know a language. If a test has construct validity, it is capable of measuring certain specific characteristic in accordance with a theory of language behavior and learning. This type of validity assumes the existence of certain learning theories or constructs underlying the acquisition of abilities and skill. In this case, to find out the construct validity of the test, the researcher formulated the test by the concept of writing skill.

Because the researcher arranged the materials based on the objective of teaching in syllabus for second grade students of senior high school, and the researcher formulated the test by the concept of writing skill, so the test is valid.

3.6.2 Reliability

Reliability is measure of accuracy consistency, dependability, or fairness of scores resulting from administration of particular examination. Here, the researcher used inter-rater reliability. Inter-rater reliability used when score in test was independently estimates by two or more judges or rater. In this case the first rater

was the researcher himself, and the second rater was the English teacher in that school.

To determine the level of reliability of scoring system, the Pearson Moment is applied the data.

The formula can be seen as follows:

$$r = 1 - \frac{6.\sum d2}{N\ (N2-1)}$$

r : coefficient of rank correlation
d^2 : Square of differences of rank correlation
d : Sum differences between each pair of ranks
N : Number of students

(Sugiyono, 2006: 228)

The criteria of the reliability are as follows:

0.8 – 1.0 : very high reliability
0.6 - 0.79 : high reliability
0.4 – 0.59 : medium reliability
0.2 – 0.39 : low reliability
0 – 0.19 : very low reliability

(Arikunto, 2005)

To measure the reliability of the instrument in this research, the researcher used Spearman Rank-Correlation which the formula can be described as follows:

Reliability of pretest:

$$r = 1 - \frac{6.\sum d2}{N\ (N2-1)}$$

$$r = 1 - \frac{6.\ 525}{29\ (841-1)}$$

$$r = 1 - \frac{3150}{24360}$$

$$r = 1 - 0.13$$

$$r = 0.87 \text{ (very high reliability)}$$

From the calculation above (r= 0.87), it can be said that the instrument of pretest that the researcher used in this research is reliable.

Reliability of posttest

To measure of two raters, the researcher used Spearman Rank-Correlation which the formula can be described as follows:

$$r = 1 - \frac{6.\sum d2}{N\,(N2-1)}$$

$$r = 1 - \frac{6.\ 638}{29\,(29-1)}$$

$$r = 1 - \frac{3828}{24360}$$

$$r = 1 - 0.15$$

$$r = 0.85 \text{ (very high reliability)}$$

From the calculation above (r= 0.85), it can be said that the instrument of posttest that the researcher used in this research is reliable.

3.7 Data Analysis

In order to get the results of this research, the researcher analyzed the data using some steps as follows:

1. The researcher made a scoring of students pretest and posttest

2. After the researcher got the raw score of pretest and posttest, the researcher tabulated that result of the test and calculated the score of pretest and posttest. The researcher used SPSS to calculate it. Then found the score that indicate whether there was an improvement on students' writing achievement after the treatment by using authentic material.
3. The researcher compared students score of pretest and posttest based on the aspect of writing to find out what the aspect of writing are improved after the treatment by using authentic material.
4. The researcher constructed the conclusion. The conclusion could be developed from the result of statistical computerization that was repeated measure T-Test in SPSS and researcher observation during the teaching learning process.

3.8 Data Treatment

According to Setiyadi (2006: 168-169), using T-test for the hypothesis testing has three underlying assumption, namely:

1. The data in interval ratio.
2. The data is taken from random sample in a population.
3. The data is distributed normally.

Therefore, the researcher used the following procedures to treat the data treatment.

3.8.1 Normality Test

It is kind of test employed to know whether the data are normality distributed or not. The students' score of pretest and posttest were analyzed to gain the normality test. Hypothesis for the normality test are as follows:

H_0 = the data is distributed normally

H_1 = the data is not distributed normally

Based on the normality testing, the researcher found that the data of the pretest was normal because the sig. > 0.05. The sig. of the pretest is 0.229 and the data of the posttest was normal too because the sig. > 0.05. The sig. of the posttest was 0.912.

Table 2. Distribution of normality test

		Pretest	Posttest
N		29	29
Normal Parameters[a]	Mean	60.48	77.93
	Std. Deviation	5.470	6.187
Most Extreme Differences	Absolute	.193	.104
	Positive	.193	.071
	Negative	-.113	-.104
Kolmogorov-Smirnov Z		1.041	.560
Asymp. Sig. (2-tailed)		.229	.912

3.9 Hypotheses Testing

After collecting the data, the researcher analyzed them in order to find out whether there was an improvement in the students' writing achievement or not after the treatment. The researcher used repeated measure T-test to find out the improvement of the treatment effect. The formulation can be seen as follows:

$$t = t\ \frac{Md}{\sqrt{\frac{\sum x^2 d}{N(N-1)}}} \qquad \text{and} \qquad \sum x^2 d = \sum d^2 - \left(\frac{\sum d)^2}{N}\right.$$

t : Test
Md : Mean from the differences pretest and posttest (posttest – pretest)
xd : Deviation of each subject (d - Md)
$\sum x^2 d$: Total of quadratic deviation
N : Subject on sample

(Arikunto, 2010: 349-350)

The criteria are shown as follow:

H_0 : There is no difference of the students' procedure writing achievement after being taught by using authentic material. The criteria is Ho (null hypothesis) is accepted if alpha level is higher than 0.05 ($\alpha > 0.05$)

H_1 : There is difference of the students' procedure writing achievement after the implementation by using authentic material. The criteria H_1 is accepted if alpha level is lower than 0.05 ($\alpha < 0.05$).

Table. 3 The Improvement of Students' Score

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	60.48	29	5.470	1.016
	Posttest	78.17	29	6.187	1.149

Based on the hyphotheses testing, the researcher found that there is difference of students' procedure writing achievement after the implementation by using authentic material. It can be seen from students' pretest mean score from 60.48 up to 78.17 in the posttest. It means that authentic material can be used in teaching procedure text writing to improve students' procedure text writing achievement.