

CHAPTER III

RESEARCH METHOD

In this research, the researcher would like to give the description about the research method which is used to conduct the study. This chapter consists of research design, population and sample, research instrument, procedure of collecting data and data analysis.

3.1 Research Design

The purpose of this study is to know the effect of using digital storytelling toward students' speaking skill at X grade in SMA Ma'arif NU Benjeng. In this study the researcher wants to test the effect of Digital storytelling media in teaching speaking. The researcher using quasi - experimental design, because there are many situations in educational research in which it is not possible to conduct a true experiment and it is because the researcher cannot determine the class. There are two variables in this study, they are digital storytelling media and speaking skill. The dependent variable is digital storytelling media and the independent variable is speaking skills.

There will be two groups. Those are control group and an experimental group. The experimental group will get treatment using digital storytelling media, while the control group will use storytelling. In this study, the researcher using pre-test and post-test both two groups. Pre-test will be conducted before treatment, while post-test will be given after the treatment.

Table 3.1 Table Pre-test, Post-test Quasi Experiment Design

Group	Pre-test	Independent Variable	Post-test
E	Y1	X	Y2
C	Y2	-	Y2

Notes :

E : Experimental group

Y1 : Pre-test

C : Control group

Y2 : Post-test

X : Digital storytelling media

Then, treatment was given to the experimental group. The two groups were taught same topic with different techniques of teaching. The experimental group was taught using digital storytelling media. Meanwhile, the control group was taught using storytelling. Both groups

got the same materials of learning. Pre-test and post-test were given to them. The result was computed statistically.

3.2 Population and Sample

3.2.1 Population

The population of this research was X grade students in SMA Ma'arif NU Benjeng in second semester 2017/2018 academic year which consist of 40 students with 2 classes.

3.2.2 Sample

The researcher used quasi – experimental research design. Sample is the part of the population that you really want to survey. Mcmillan and Schumacher (1984:32), state that the sample is a group of subjects had chosen from the population. The researcher uses population sampling technique because X grade students only consist of 2 classes, so the researcher takes population sampling technique. For the sample, researcher takes two classes which have same average score, that consist of X-IPA (experimental group) who were taught by using creative digital storytelling with 20 students and X-IPS (control group) who were taught by using storytelling with 20 students.

3.3 Data Collection

In this study, the researcher collects the data from speaking test by conducting pre-test before treatment is given to experimental group and control group. After pre-test the researcher gives treatments for four times. Then, the researcher gives post-test to know the effect of digital storytelling media in students speaking skills at X grade of Senior High School students. After that, the researcher collects the data from students' pre-test and post-test score. Then, the researcher begins to analyze the data using independent t-test.

3.3.1 Research Instrument

The main instrument used in this research will be speaking test. To reach the goal of this study, the writer must construct suitable test. She must choose type of test and arrangement of test. There are two tests use by the researcher. Those are pre-test and post-test. Pre-test and post-test will be conducted to the Senior High School students. It is to find out whether they make progress in the speaking ability or not. The researcher designed of pre-test different from post-test, but the tests are still equal in the term of topic and item. The researcher designed speaking test by herself from book sources of the school and the internet. The selection of pre-test and post-test adapted with the syllabus at ten grades with focus on speaking skill. The test can be elaborated as follows:

3.3.1.1 Test

There are two tests which used by researcher namely pre-test and post-test. It is given to experimental and control group to know any progress or not in their speaking ability. Researcher develops the test based on their syllabus which focuses on speaking skill.

a. Pre-test

Pre-test is done by experimental and control group. It is conducted for knowing the previous student's ability on speaking skills. Pre-test will be given before the implementation of digital storytelling media in learning English, because the test is oral test that aims to find out the reaction and response of the students. Every student will come to tell the story in front of the class. Both of experimental and control class got this test.

b. Post-test

In the post test, post-test was also done by experimental and control group. The procedure of post-test has same procedure with the pre-test, but in the post-test was conducted after giving all the treatment only in the experimental group. It measured the result of this treatment success or not. The item and topic of post-test are same with the items and topic given to the experimental and control group in post-test.

The speaking test contained 4 items. The selection test was adopted with a syllabus of Senior High School X grade in second semester. Treatment will be conducted for six meetings in which meeting will be last for 2x45 minutes. First meeting, students will be given pre-test activity. Second meeting until seventh meeting, students will get treatment using digital storytelling media in speaking skills. The last meeting will be a post –test activity.

3.3.1.2 Validity

Validity is how far the instrument measures the test item for the students. Before conducting of the test as an instrument of the research, the test should be tried out in terms of its validity. There are three types of validity, they are content, predictive and construct. To test the content validity, the researcher compared the content of the instrument the subject based on English curriculum and syllabus. After comparing the all items, the researcher can conduct the test for pre-test and post-test.

3.3.1.3 Reliability

Reliability is a necessary characteristic of any good test, for it is valid at all, a test must first be reliable as a measuring instrument (Heaton, 1988). In this study, the researcher adopted rubric from Harris (2013) to use scoring rubric. So, this reliability was measuring the rubric was valid or not in this research. The researcher did try out in the X-IPA and X-IPS. Based on the result of trying out for pre-test and post-test, researcher found that both of pre-test and post-test were reliable. It was shown from the result of test items reliability in scoring rubric after try out. The all aspects in scoring rubric had covered criteria of students speaking skills.

3.3.1.4 Scoring Rubric

This study uses scoring technique based on the standard criteria of speaking performance. The scoring guide used the method of analytical and was chosen because it was ideally suited to the classroom situation. According to Brown (2004) there are some criteria that used to measure student's speaking ability such as; pronunciation, grammar, vocabulary, fluency and comprehension. From those some criteria, they have each score and the name is rating scale. It used to help give score for students. The researcher uses analytical scoring rubric that has been created with several modifications such as add the weight of each aspect, change the rating scale, and add detail indicator. The students speaking performance were assessed using a scoring rubric proposed by Harris Nguyen (2013). Whereas, the researcher divides the scoring grade into for criteria, they are: excellent if they get 90 – 100, very good if they get 70 – 89, good if they get 50 – 69 and fair if they get < 50. The rubric shown in the following table.

Table 3.3.1.4 Scoring Rubric

No	Aspect	Score	Criteria
1.	Content & organization 15%	Excellent 90 – 100	The students always have accurate content, very clear information and well organization.
		Very good 70 – 89	The students are essentially accurate content, clear information and organized.
		Good 69 – 50	The students see unclear content and information in most of the time but organized.
		Fair < 50	The students see not relevant content and poorly organized.
2.	Word choice 20%	Excellent 90 – 100	The students word choice contributes to effectiveness of the speech and students se appropriate vocab.
		Very good 70 – 89	The students use good word choice and a half of the audience seems understand and students se several inappropriate vocab.
		Good 69 – 50	The students use inappropriate word choice, so the audience seems confused at time and students se

			many inappropriate vocab.
		Fair < 50	The students have poor word choice and use wrong vocab.
3.	Grammar 15%	Excellent 90 – 100	There isn't mistake is using grammar.
		Very good 70 – 89	There are some mistakes in using grammar.
		Good 69 – 50	Almost of the grammar is wrong.
		Fair < 50	All the grammar is totally wrong.
4.	Pronunciation 25%	Excellent 90 – 100	Speaking with correct pronunciation and understandable.
		Very good 70 – 89	Speaking with several incorrect pronunciation but understandable.
		Good 69 – 50	Speaking with incorrect pronunciation but still understandable.
		Fair < 50	Speaking with incorrect pronunciation and understandable.
5.	Fluency 25%	Excellent 90 – 100	Thoughts expressed completely with few pauses or hesitation.
		Very good 70 – 89	Some hesitation but manages to continue and complete thoughts.
		Good 69 – 50	Speech choppy and/or slow with frequent pauses, most thoughts are complete.
		Fair < 50	Speech halting and uneven with long pauses or incomplete thoughts.

Table 3.3.1.4 Scoring Grade

Categorization	Score
Excellent	90 – 100
Good	70 – 89
Fair	50 – 69
Poor	<50

3.3.2 The Procedure of Collecting Data

The first is preparing instruments, the researcher identify the topic from curriculum and syllabus to make items for test. The second is the researcher tried out the test to find out the validity and reliability of those items. The third is giving pre-test both of the classes before implementing creative digital storytelling and getting the score of the test. The fourth is the researcher giving treatment to experimental class to implementation digital storytelling media. The fifth is giving post-test both experimental and control group. The last if all the data have ready done, the last thing that researcher should do is calculating all of data to know the effect of digital storytelling media in speaking skills.

Schedule:

Table 3.3.2 Schedule

No.	Meeting	Activities
1.	First meeting	Giving pre-test for experimental and control group
2.	Second meeting	Giving first treatment using digital storytelling media
3.	Third meeting	Giving second treatment using digital storytelling media
4.	Fourth meeting	Giving third treatment using digital storytelling media
5.	Fifth meeting	Giving fourth treatment using digital storytelling media
6.	Sixth meeting	Giving fifth treatment using digital storytelling media
7.	Seventh meeting	Giving sixth treatment using digital storytelling media
8.	Sixth meeting	Giving post-test for experimental and control group

3.4 Data Analysis

3.4.1 Homogeneity Test of Variance

For homogeneity test, the researcher used one Levene's test of homogeneity test in SPSS 16.0 version. The purpose of this test was to analyze the variances of the observation in experimental and control group were equal, because the researcher could not random the students so, homogeneity test was necessary to make sure the students in both of the class had the same ability in speaking skills or not and the researcher could conduct the treatment. The test of Levene's test (P) was defined as follows:

$$W = \frac{(N - k) \sum_i^k = 1 N_i (Z_{i.} - Z_{..})^2}{(k - 1) \sum_i^k = 1 \sum_j^m = 1 (Z_{ij.} - Z_{i.})^2}$$

Where

- W : Result of test
- K : Number of different groups to which sample case belongs
- N : Total number of cases in all groups
- N_i : Number of cases in *i*th groups
- Y_{ij} : Value of the measured variable for *j*th case from *i*th group

$$Z_{ij} = |Y_{ij} - \gamma_i|, \gamma_i \text{ is mean of } i - \text{th group}$$

$$Z_{ij} = |Y_{ij} - \gamma_i|, \gamma_i \text{ is median of } i - \text{th group}$$

The significance of W was tasted against F (α , K-1, N-K) where F was a quintile of the F-test distribution, which k-1 and N-k its degree of freedom, and α was the chosen level of significance (0.05 or 0.01).

The procedure in analyzing the homogeneity by using SPSS VERSION 16.0 were as follows: after the pre-test data both experimental and control groups were input, then clicked Analyze → Compare Mean → Independent Sample t-Test, in Independent Sample t-

Test menu, input the score variable into Test Variable column and the group variables, then defined groups, put code 1 for the experimental group in group 1 and code 2 for the control group in group 2, continue then click OK.

3.4.2 Technique of Analyzing Data

The purpose of analyzing data was to answer the research problem with getting through pre-test and post-test. In this study, the researcher analyzed the data by using independent t-Test in SPSS 16.0. The researcher used independent sample t-Test because the sample was small and the groups were independent. It was carried out to decide whether there was significant different between the experimental and control group after one month treatment. Assumption for the independent t-Test: a) Independence: Observation within each sample must be independent, they do not influence each other. b) Amount of subject in every group is same or neared. c) Normal distribution: The score in each population must be normally distributed. d) Homogeneity of Variance: two populations must be equal variances (the degree to which the distributions are spread out is approximately equal). In this research, the researcher did not use normality distribution because our data is parametric. There are two kinds of parametric data, they are ratio and interval. The data in this study is including ratio. The result data in ratio is definite homogeny and normal distribution.

3.4.3 Hypothesis Testing Using Independent Sample t-Test

The used of independent t-Test is to find out the significant differences of digital storytelling for increasing students speaking skills between the experimental group and control group. The steps of t-Test calculating were:

1. Test the hypothesis of the research and setting α (alpha) level at 0.05 (two tailed test).

The hypothesis could be formulated as follow:

Null hypothesis is $\mu_1 - \mu_2 = 0$ ($\mu_1 = \mu_2$)

Alternative hypothesis is $\mu_1 - \mu_2 \neq 0$ ($\mu_1 \neq \mu_2$)

H_0 : There is no significant different score of the students before and after being taught using digital storytelling media at the X grade students of SMA Ma'arif NU Benjeng.

H_1 : There is significant different score of the students before and after being taught using digital storytelling media at the X grade students of SMA Ma'arif NU Benjeng.

2. Finding t-value using Independent t-Test and comparing the probability with the level of significance the hypothesis. After the score were computed in SPSS 16.0 version, then saw the output of Independent t-Test and interpreted the output that if gig (2 tailed)

$>\alpha$ (0.05), the researcher should accept the H_0 but if sig (2 tailed) $<$ (0.05) so the researcher can reject H_0 it means H_1 is accepted.

T-Test was calculated in order to find out the comparison of two means between experimental and control group in pre-test and post-test. In analyzing the data the researcher used independent t-Test formula. In calculating t-Test, the formula was as follow:

$$t = \frac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{S_{\bar{x}_1 - \bar{x}_2}}$$

Where

- t : t value
- \bar{x}_1 : Average group 1
- \bar{x}_2 : Average group 2
- S : Standard error of two groups
- $\mu_1 - \mu_2$: Always defaults to 0

$$S_{\bar{x}_1 - \bar{x}_2} = \frac{\sqrt{S^2_{\text{pooled}} + S^2_{\text{pooled}}}}{n_1 + n_2}$$

Where

- $S_{\bar{x}_1 - \bar{x}_2}$: Standard error of two groups
- S^2_{pooled} : Variants of two groups
- n_1 : Number of sample group 1
- n_2 : Number of sample group 2
- Pooled variance : The average of two sample variances, allowing the larger sample to weight more heavily.

Formula:

Estimated standard error of the difference

$$S_{\bar{x}_1 - \bar{x}_2} = \frac{\sqrt{(SS_1 + SS_2)(1 + 1)}}{(n_1 + n_2)(n_1 + n_2)}$$

In calculating t-test, the researcher uses SPSS 16.0 version. The first steps, input the data of post-test in SPSS program between experimental and control group, then click Analyze then Compare Mean Then Independent Sample T-Test. In Independent Sample T-Test, input the score variable into Test Variable column, and group variable Grouping

Variable column, then clicks Define Group, choose group 1 (for experimental) and group 2 (for control), then click OK.