CHAPTER III

METHOD

3.1 Research Design

In this design, the researcher will use at experimental design. Jack R Fraenkel & Norman E Wallen, (2008) state that the best way to do this is to test hypotheses about relationship between variables using experimental design. This research can be classified as quantitative design. Quasi-experimental designs with unequal control groups and pre-test / post- test designs will be conducted. The purpose of this study was to find a significant difference between mastery of English article EFL students who were taught using LINE-based flipped instructions with English article activities with instruction in traditional teaching models. The random sampling method was carried out carefully to order the experimental group. Furthermore, both cohorts were given with pre-test followed by six weeks of treatment and a post-test

3.2 Subject of the Study

The population consists of all EFL eighth grade students from Tajungsari Madrasah Tsanawiyah (MTs), Tlogowungu, Pati, located in Central Java, Indonesia. This school, consisting of two classes in the 2018-2019 academic year. To draw two homogeneous classes where students have the same mastery of English and the environment, confirmation and clarification of English teachers is also made. Based on the above considerations, two classes in a row of 23 students (13 men and 12 women) were associated as experimental groups of class VIII A and 23 students (12 men and 15 women) from class VIII B were labeled as a control group.

3.3 Data and Instruments of the Research
a. Observation

Before conducting the test, the researcher first observes at the school to ascertain whether there is more than one class in the school, to be used as a control and experiment group. After that the researcher looked at the results of grades in semester one as an evaluation material in learning English articles.

b. Test

The English articles test was given twice, in the pre-test and the post-test to answer the key point of research question *"Is there any significant differences before and after applying the teaching process of Flipped Classroom through LINE to students class VIII A & B of MTs Asy'ariyah?"*

The pre-test was administered before giving the treatment to know the knowladge English articles of the students. Then, the post-test was administered to check whether the flipped classroom model can enhance or not toward students' English articles. The instrument of the English articles test in this research adopted from the Huong (2005) and Gillian (2017).

3.4 Data Collection

Data in this study using random sampling. The researcher selected random sample from the students, surveyed them and drew conclusions on the English articles test results or respond based on feedback from the group. The researcher divide into two part experimental blocks and control blocks. The following is a summary of instructional designs presented in table 1 below.
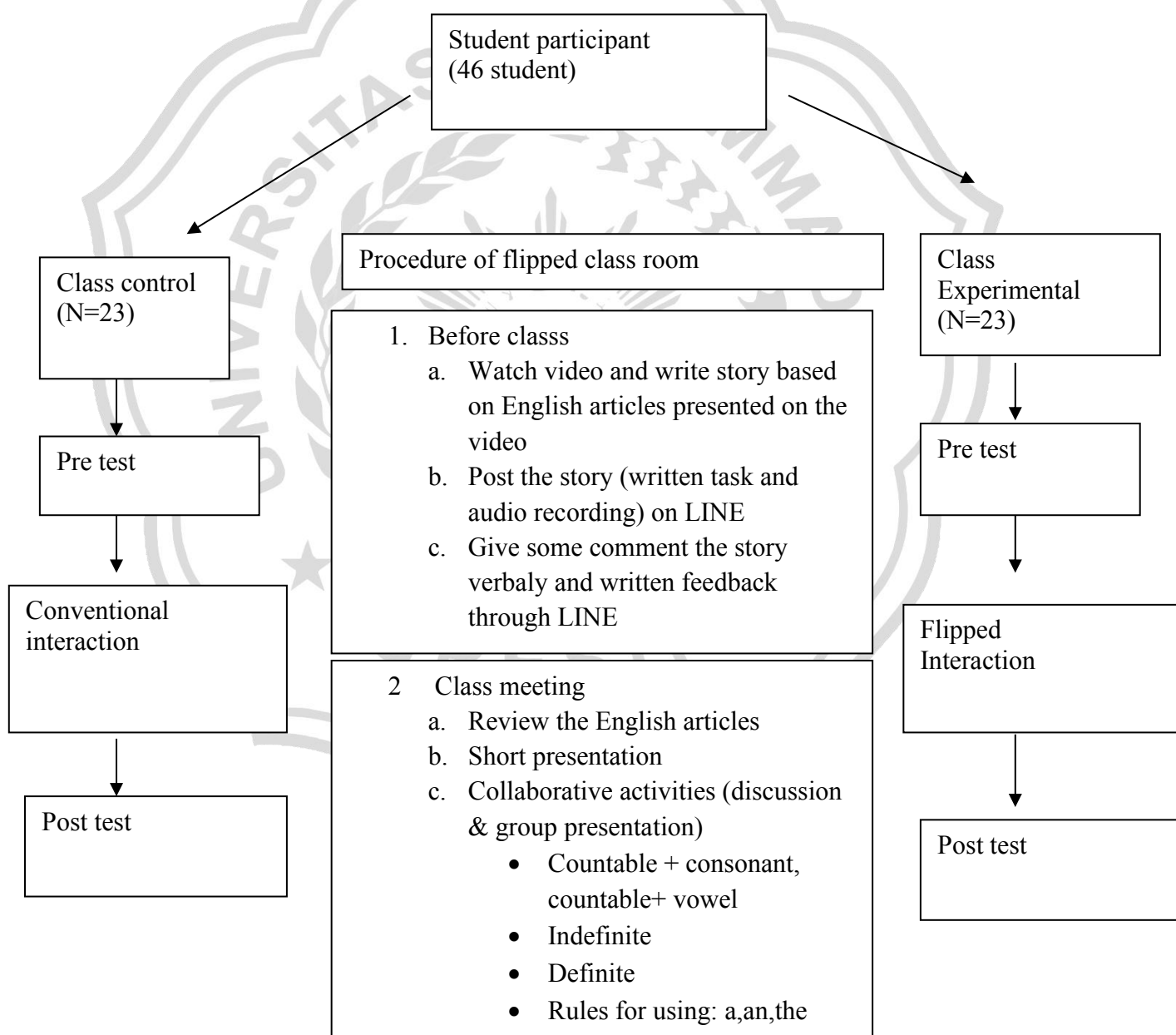
Table 1

Stage	Experimental group	Control group
Stage 1 : Introduction	1. Students are introduced to the use of Flipped classes through LINE and are assigned to create individual LINE to increase their mastery in English articles. 2. pre test	1. Students are introduced to English articles through traditional learning. 2. pre test
Stage 2 : Learning material	1.**A** Countable + consonant such as a book An Countable + vowel such as an apple	1.A Countable + consonant such as a book An Countable + vowel such as an apple
	2.A(an) to indefinite articles such as	2.A(an) to indefinite

	I need **a** phone	articles such as I need **a** phone
	3. The, to definite articles such us I have a cat. **The** cat is black.	3.The, to definite articles such us I have a cat. **The** cat is black.
	4.Rules for using articles a, an	4.Rules for using articles **a, an**
	5.Rules for using articles the	5.Rules for using articles **the**
Stage 3: LINE Flipped Implementation (week 1 to 5)	1. **Outside Class** (a) Each week, the teacher sent video about English articles to each student's LINE (b) Each week, every student watched a 5 to 10-minute video clip. (c) Every student learnt the concept of each English articles topic individually (d) Each student was given a 10-English articles individual task to complete (e) Submit the individual's LINE task to teacher's LINE. 2. **In Class** (40 minutes) (a) Classroom discussions and individual presentation (b) Teacher provides feedback to clarify English articles mastery of the students on each discussed topic.	1. **In class** (40 minutes) (1) The teacher gave a 10 minute lecture based on four target English articles through Microsoft PowerPoint. (2) The teacher encouraged students to do 10-item exercises. This activity lasted for 15 minutes. (3) The students were allowed to ask the instructor questions and share knowledge with peers. Then the instructor gave the students exercises as homework (15 minutes). 2. **After class** The students were assigned to do a 15- item exercise as homework and then submitted it in the

		following week.
Stage 4: Assessment (Week 6)	Post-test A questionnaire was administered	Post test

(Preliminary instructional stage, learning material, implementation, and assessment have been adapted from suranakkarin,2018 & Huong,2018)

Table 2

Procedure of flipped study.

Student participant (46 student)

Class control (N=23)

Pre test

Conventional interaction

Post test

Procedure of flipped class room

1. Before classs
   a. Watch video and write story based on English articles presented on the video
   b. Post the story (written task and audio recording) on LINE
   c. Give some comment the story verbaly and written feedback through LINE

2. Class meeting
   a. Review the English articles
   b. Short presentation
   c. Collaborative activities (discussion & group presentation)
      - Countable + consonant, countable+ vowel
      - Indefinite
      - Definite
      - Rules for using: a,an,the

Class Experimental (N=23)

Pre test

Flipped Interaction

Post test

3.4 Data Analysis

After conducting the pre and post test, the next step is to analyze the data. In conducting research, it is necessary to analyze data to interpret data obtained from the field. Data analysis was performed to answer the research problem with data obtained through pre and post test. The researcher analyzed the data using independent sample t-tests. Because the sample is small and the groups are independent, t-tests for independent samples are conducted to determine whether there are differences between the experimental and control groups.

The researcher used SPSS version 16.0 to calculate statistics on student knowledge in the use of English articles. This study was conducted to determine the effect of treatment whether it is significant or not using the flipped classroom method through LINE. Assumptions for independent t-tests where: (1) Independence: Observations in each sample must be independent (they do not influence each other); (2) Normal Distribution: Both populations must be normally distributed. This research is included in parametric research which is divided into two types of data; ratio and interval. The data of this study are ratios because zero has a value or absolute zero. when the data ratio, the data is definitely homogeneous and the distribution is normal. Finally, (3) Variant Homogeneity: The two populations must have the equal variant (the degree which the distribution are spread out is approximately equal).

3.4.1 Normality Distribution Test

To analyze the normal distribution, this study uses Kolmogorov Smirnov Sample in SPSS version 16.0. It is aim to find out the distributions of pretest score in two groups are normally distributed or not. In this case the result of the normality distribution is also uses to find out the normality distribution between two groups (experimental group and control group) in pre test score are normal or not. The first step in calculating the normality distribution test state that the hypothesis:

Ho: the score of the experimental and control group are normality distributed.

The second step is calculating the normality distribution test tried to compare the Sig. with the level of significance for testing the hypothesis. If the Sig. is more than the level significance (0.05) the null hypothesis is accepted, the score normally distributed. On the other hand, if the Sig, is less than the level of significance (0.05) the null hypothesis is rejected. The procedure analyze is press menu, click Analyze,

click Descriptive Statistic, click Explore and move all variable to Dependent List box, click Plots and tick Normality Plots with test then Continue.

3.4.2 Homogeneity Test of Variance

Homogeneity test of variance uses to know whether two groups are in the same position. For homogeneity test, the researcher uses Levene's test of homogencity in SPSS 16.0 version because Levene's test of the homogeneity uses to assess the equality of the variance for a variable calculates for two or more groups. In this study has two groups; experimental and control groups. So, in this study uses Levene's test. The test of Levene's test or Pvalue defined as follow (Brown: 1974):

$$W = \frac{(N-k)}{(k-1)} \frac{\sum_{i}^{k} = 1 N i \, (Z i. - Z .)^2}{\sum_{i}^{k} = 1 \sum_{j}^{ni} = 1 \, (Z i j. - Z i.)^2}$$

Where

W   : Result of test

K   : Number of different groups to which the sample belong

N   : Total number of cases in all groups

Ni   : Number of cases in i" groups

Yij : Value of the measured variable for case from group

To analyze the homogeneity, the researcher uses SPSS (Statistical product and service solutions) version 16.00. The homogeneity assumption is checked in SPSS by Levene's test with the following procedures. The first procedure is inserting the pre-test data both experimental and control groups using the data view. The second procedures is going to the analyze menu, selecting compare means, and the choosing independents sample t-test. The last procedure is interpreting the homogeneity test output, the researcher needs to see Levene's test column to know whether the equality of variances in the groups of scores were homogeny or not.

3.4.3. Hypothesis Testing

By using independent t-test, the aim in the end of this study is to find out the significant differences of flipped classroom strategy trough LINE for increase

students understanding in the English articles between the experimental group and control group. The steps of t-Test calculation were:

1. The test hypothesis of the research and setting the alpha level at 0.05 (two tailed test). The hypothesis could be formulated as follow :

   Null hypothesis is $\mu1-\mu2 = 0$ ($\mu1=\mu2$)
   Alternative hypothesis is $\mu1-\mu2\neq0$ ($\mu1\neq\mu2$)

   HO : there was no significant effect on the use of flipped classroom trough LINE strategy between experimental and control group.

   HI : there was a significant effect on the use of flipped classroom trough LINE strategy between experimental and control group

2. Finding t-value using Independent t-Test and comparing the probablity with the level of significance the hypothesis. After the scores were computed in SPSS 16.0 version, then saw the output of Independent t-Test and interpreted the output that if sig (2 tniled)> (0.05), the researcher should accept the HO but if sig (2 tailed) < (0.05) so, the researcher can reject HO it means Hl is accepted.

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

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

Where:

t   is t value

x_1 is average group 1

x_2 is average group 2

S   is standard error of the two groups

μ1- μ2   is always defaults to 0

Where:

$$Sx_1 - x_2 = \frac{\sqrt{S^2pooled + S^2pooled}}{n_1 + n_2}$$

SX_1-X_2 is standard error of two groups

S^2 pooled   is variants of the two groups

n_1 is Number of sample group 1

n_2 is 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

$$S_{x_1-x_2} = \frac{\sqrt{(SS_1 + SS_2)(1 + 1)}}{(n_1 + n_2)(n_1 + n_2)}$$

Finally, following statistical procedure determine the result of the test. To calculate t-test, the researcher uses SPSS 16.0 program. The post-test of experimental and control group are analyzed by using SPSS 16.0 program with the following procedure. The first procedure is inserting post-test data both experimental and control group using data view. The second procedure is going to analyze Menu, selecting compare means, and then choosing independent sample t test. The last procedure is interpreting t-test output, automatically it could answer to the research question about the comparison between two group.

However, pre-test and post-teat are employed to collect primary data in order to find out the significance on the effect of Flipped Classroom trough LINE in teaching english articles.