# CHAPTER III RESEARCH METHOD

#### A. Research Approach

#### 1. Research Method

Quantitative approach used to investigate the effectiveness of TTA strategy to teach speaking in hortatory exposition text. It has some characteristics, such as: it uses a pre-test and post-test as one of the data collection technique, it uses a statistical data as a result, and it uses variable and indicator.

The researcher used the experimental research as the design of this research. Experiment are carried out in order to explore the strength of the relationship between variable. A variable, as the term itself suggests, is anything which does not remain constant.<sup>1</sup>

There are two classes in this model, experimental and control class. In this research experimental class received a new treatment that was taught by using time token arends. Control class was taught by conventional method. The design could be described as follows:<sup>2</sup>

<sup>&</sup>lt;sup>1</sup> David Nunan, *Research Method in Language Learning*, (Cambridge: Cambridge University Press, 1992), p.25

<sup>&</sup>lt;sup>2</sup> Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*, (Jakarta: Rhineka Cipta, 2006), p. 86

E	01	Х	02
С	03	Y	04

Where:

E = Experimental group

C = Control group

 $0_1 =$  Pre- test for experimental group

 $0_2 =$ Post- test for experimental group

 $0_3$  = Pre- test for control group

 $0_4$  = Post- test for control group

- X = Treatment using time token arends strategy
- Y = Treatment without using time token arends learning strategy
- 2. Time and Place

This research conducted in a month (on 30<sup>th</sup> of April-31<sup>th</sup>of May in the academic year of 2015/2016 on the second semester. The samples were 2 classes that taken by cluster random sampling. It conducted on SMA Wahid Hasyim, Tersono, Batang.

- 3. Subject
  - a. Population

Population is a generalization area that consists of: object/ subject that has a quality and certain characteristics that have been decided by the researcher to be studied and then make a conclusion.<sup>3</sup>

<sup>&</sup>lt;sup>3</sup> Sugiyono, *Metode Penelitian Pendidikan (Pendekatan kualitatif, Kuantitatif, dan R&D)*. (Bandung: Alfabeta, 2013), p.117

The population of this research is the students of SMA Wahid Hasyim, Tersono, Batang, at the eleventh grade in the academic year of 2015/2016. The researchers chose students of SMA Wahid Hasyim, Tersono, Batang as the population because most of students had some problems in speaking such as less vocabulary and afraid of making mistakes. This condition is suitable for applied TTA strategy. The reason is because it has some advantages such as; Encouraging the students to increase initiation and participation, avoiding the domination of the students who speak English well from them who cannot speak English at all, helping students actively in the learning process, increasing students' skills in communication, drilling the students to reveal their opinion, teaching students to respect other person's opinion.

b. Sample

Sample is a part of number and population's characteristics.<sup>4</sup> Sample is a part of population that the researcher is concerned.<sup>5</sup> The numbers of students in each class are follows:

<sup>&</sup>lt;sup>4</sup> Sugiyono, *Metode Penelitian Pendidikan (Pendekatan kualitatif, Kuantitatif, dan R&D)*, p.118

<sup>&</sup>lt;sup>5</sup> Boediono, Wayan Koster, *Teori Dan Aplikasi Statistika & Probabilitas.* (Bandung: Remaja Rosdakarya, 2008), p.9

XI IPA	: 35
XI IPS I	: 35
XI IPS II	: 33

The researcher took two classes with the similarity average score and has the same number of students; XI IPA and XI IPS I these two classes are taken as samples. The sampling technique of this research is cluster random sampling. It is kind of probability sampling. It is used in this research because the samples are taken in a cluster. It is used to takes the sample that had been set.

c. Sampling Technique

Sampling technique is a sample taking technique. The researcher used cluster random sampling, because the sample member taking based on the population which had been set. <sup>6</sup>

### 4. Focus of Research

- a. Variable
  - 1) Independent Variable

Independent variable is the variable that expects to influence the other.<sup>7</sup>

<sup>&</sup>lt;sup>6</sup> Sugiyono, *Metode Penelitian Pendidikan (Pendekatan kualitatif, Kuantitatif, dan R&D).* (Bandung: Alfabeta, 2013), p.120

<sup>&</sup>lt;sup>7</sup> David Nunan, *Research Method in Language Learning*, Cambridge: Cambridge University Press, 1992), p.25

This variable is often called as a stimulus variable, predictor, antecedent, and antecedent. Independent variable is a variable that give influence or the cause of emerging the dependent variable.<sup>8</sup>

The independent variable of this research is the effectiveness of time token arends strategy (TTA) in teaching learning process.

The indicators of this variable are:

- a. Teacher divided students in to group
- b. Teacher gave speaking coupon and a topic to each student
- c. Students discussed the of topic with their group
- d. Students described the content of coupon orally
- 2) Dependent Variable

The variable upon which the independent variable is acting is called the dependent variable.<sup>9</sup>

Also well-known called as output variable, criteria, and consequence. Dependent variable is a variable that influenced or the consequences, because of the free variable.<sup>10</sup>

<sup>&</sup>lt;sup>8</sup> Sugiyono, *Metode Penelitian Pendidikan (Pendekatan kualitatif, Kuantitatif, dan R&D).* (Bandung: Alfabeta, 2013), p.

<sup>&</sup>lt;sup>9</sup> David Nunan, *Research Method in Language Learning*, (Cambridge: Cambridge University Press, 1992), p.25

<sup>&</sup>lt;sup>10</sup> Sugiyono, *Metode Penelitian Pendidikan (Pendekatan Kualitatif, Kuantitatif, dan R&D).* (Bandung: Alfabeta, 2013), p 61

The dependent variable of this research is speaking in hortatory exposition. While the indicator of this variable is students compose opinions related to the social phenomenon in the school environment in the form of hortatory exposition orally based on the topics that has been set.

- 5. Technique of Collecting Data
  - a. Test

Test is used to measure the abilities of the object that observed.<sup>11</sup> It is used to measure the differences before and after the implementation of TTA strategy. One of the characteristics of quantitative research is used pre-test and post-test as one of the data collection technique so, the researcher conducted the both of the test to investigate the differences.

1) Pre-test

Pre-test is used before teaching both experimental and control class. The pre-test used to know the students' score before the researcher gives an explanation for the control class and treatment using time token arends strategy for the experimental class.

<sup>&</sup>lt;sup>11</sup> Suharsimi Arikunto, *Prosedur Penelitian (Suatu Pendekatan dan Praktik)*, (Jakarta: Rineka Cipta), 2013.p.268

2) Post-test

The post test used to know the students achievement after the implementation of time token arends learning strategy.

b. Observation

Observation is used as the data analysis technique when the research is related to the human. Sutrisno Hadi (1986) stated that, observation is a complex process, a process arranged from various biological and psychological process. The most important thing in observation are observing and memorizing processes.

The researcher used structured observation as one of the data collection technique because the researcher knows exactly what, when, and where related to the research also the variable that will be observed.<sup>12</sup>

c. Documentation

Documentation method is a method used to search for data related to variable with the form of note, transcript, book, newspaper, magazine, ancient inscription, agenda, etc.<sup>13</sup>

<sup>&</sup>lt;sup>12</sup> Sugiyono, Metode Penelitian Pendidikan (Pendekatan kualitatif, Kuantitatif, dan R&D). (Bandung: Alfabeta, 2013). p.203

<sup>&</sup>lt;sup>13</sup> Boediono, Wayan Koster, *Teori Dan Aplikasi Statistika & Probabilitas.* (Bandung: Remaja Rosdakarya, 2008), p.

The researcher used camera and mobile phone to document the process of collecting data, in a form of picture and recording. Moreover, it is used to proof that the research is real, not a fictive research.

6. Scoring Technique

Aspects	Score	Description					
	4	Have few traces of foreign accent					
	3	Always intelligible, though one is					
		conscious of a definite accent					
Pronunciation	2	Pronunciation problem necessitate					
		concentrated listening and occasionally					
		lead to misunderstanding					
	1	Very hard of understand because of					
		pronunciation problem					
	4	Makes few (if any) noticeable errors					
		grammar and word order					
	3	Occasionally makes grammatical and					
		or word order errors which do not,					
		however obscure the meaning					
Grammar	2	Make frequent errors of grammar and					
		word order which occasionally obscure					
		meaning					
	1	Grammar and word order errors make					
		comprehension difficult. Must often					
		rephrase sentences and or restrict him					
		to basic patterns					
	4	Use of vocabulary and idioms is					
		virtually that of a native speaker					
	3	Sometimes uses inappropriate terms					

## Table of analytic scoring of speaking<sup>14</sup>

<sup>&</sup>lt;sup>14</sup> David P. Harris, *Testing English as a Second Language*, (Washington DC: Georgetown University, 1969). p.84

Aspects	Score	Description					
		and or must rephrase the idea because					
		of lexical inadequate					
Vocabulary	2	Frequently uses the wrong words;					
		conversation somewhat limited					
	1	Misuse of word and very limited					
		vocabulary make comprehension quite					
		difficult					
	4	Speed as fluent and effortless as that of					
		native speaker					
	3	Speed of the speech seems to be					
		slightly affected by language problem					
Fluency	2	Speed and fluency are rather strongly					
		affected by language problem					
	1	Usually hesitant; often forced into					
		silent by language limitations					
	4	Appears to understand everything					
		without difficulty					
	3	Understand nearly everything at					
		normal speed, although occasional					
		repetition may be necessary					
Comprehension	2	Understand most of what is said					
		slower than normal speed with					
		repetition					
	1	Has great difficulty following what is					
		said. Can comprehend only "social					
		conversation" spoken slowly with					
		frequently repetitions.					

Based on "Testing English as a Second Language"

7. Technique of Analysis Data

There were two kinds of test that were held in experimental research, they are pre-test and post-test. The data

obtained from the test that was analyzed with some tests below:

- a. Analyzing Pre-test
  - a. Normality Test

The researcher used Chi-Square formula. Here are the steps of Chi-Square test.

- 1) Determine the range (R); the largest data reduces the smallest
- 2) Determine the class interval (K) with formula:  $K = 1 + (3,3) \log n$
- 3) Determine the length of class, using formula:

$$\mathbf{P} = \frac{range}{number \ of \ class}$$

- 4) Make a frequency distribution table
- 5) Determines the class boundaries (bc) of each class interval
- 6) Calculating the average Xi ( $\bar{x}$ ), with the formula:  $\bar{x} = \frac{\sum xi}{n}$
- 7) Calculate the variants, with formula:

$$\mathbf{S} = \sqrt{\frac{\Sigma(x^1 - \bar{x})}{n - 1}}$$

- 8) Calculate the value of Z, with the formula:  $Z = \frac{x \bar{x}}{s}$ 
  - x =limit class
  - $\bar{x}$  = average
  - S = standard deviation

- 9) Define the wide area of each interval
- 10) Calculate the frequency expository (Ei) , with the formula:

Ei = n x wide area with the number of sample

11) Make a list of frequency of observation (Oi), with the frequency expository as follows:

Class	Bk	$Z_i$	$P(Z_i)$	L	Ei	Oi	$(E_i - O_i)^2$
							E <sub>i</sub>

12) Calculate the Chi-Square, with the formula: <sup>15</sup>

$\chi^2 - \Sigma^k$	$(o_i - E_i)^2$
$\lambda - \Delta i = 1$	Ei
Chi Can	

$\chi^2$	= Chi Square
Oi	= frequency from sample
Ei	= frequency that was obtained from
	data sample

- K = number of class interval
- 13) Determine dk = k-1 and  $\alpha = 5\%$
- 14) Determining the value of  $\chi^2_{table}$ ,
- 15) Determining the distribution normality with test criteria:

<sup>&</sup>lt;sup>15</sup> Sudjana, *Metode Statistika*, (Bandung, Tarsito, 2002), p. 273

If If  $\chi^2_{count} > \chi^2_{table}$ , so the data is not normal distribution and the other way if the  $\chi^2_{count} < \chi^2_{table}$ . so the data is normal distribution.

- b. Homogenity test
  - Calculate varians both class (experimental and control class), with the formula:

$$S_1^2 = \frac{\sum (x - \bar{x})^2}{n_1 - 1} \text{ and}$$
$$S_2^2 = \frac{\sum (x - \bar{x})^2}{n_2 - 1}$$

2) Determine  $F = \frac{Vb}{Vk}$ 

Where:

Vb : Bigger Varian

Vk : Smaller Varian

Determine  $dk = (n_{1-1}) : (n_{2-1})$ 

- 3) Determine  $F_{table}$  with  $\alpha = 5\%$
- Determining the distribution homogeneity with test criteria:

If  $F_{count} > F_{table}$  the data is not homogenous and the other way, if the If  $F_{count} > F_{table}$  the data is homogenous.<sup>16</sup>

<sup>&</sup>lt;sup>16</sup> Sugiyono, Statistika Untuk Penelitian, (Bandung: Alfabeta, 2007), p. 140

c. Hypothesis Test

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

with:

$$S = \sqrt{\frac{(n_1 - 1) S_1^2 + (n_2 - 1) S_2^2}{n_1 + n_2 - 2}}$$

s = standard deviation

 $x_1$  = the mean score of the experimental group

 $x_2$  = the mean of the control group

 $n_1$  = the number of experimental group students

 $n_2$  = the number of control group students

 $s_1^2$  = the standard deviation of experimental group

$$s_2^2$$
 = the standard deviation of both groups

The hypotheses are:

Ho : 
$$\mu_1 = \mu_2$$

Ha :
$$\mu_1 \neq \mu_2$$

 $\mu_1$  = Average data of experiment class

 $\mu_2$  = Average data of control class

If  $t_{count} > t_{table}$  So Ho is rejected and there is difference of average value from both of groups.

- b. Analyzing Post-test
  - a) Normality Test

Normality used to know the normality of the data that is analyzed whether both groups have normal distribution or not after getting treatment. The step was same as the normality test on the initial data.

b) Homogeneity Test

Homogeneity test is used to know whether experiment class and control class that are taken from population that have same variant or not after getting treatment. The steps of homogeneity test are the same as the homogeneity test on the initial data.

c) Hypothesis Test

Hypothesis test is used to know whether there is a difference on post-test of experimental class and control class. The data which is used to test the hypothesis is post-test score both of class. To test the difference of average used t-test.

Ho : 
$$\mu_1 \leq \mu_2$$
  
Ha :  $\mu_1 > \mu_2$ 

Description:

 $\mu_1$  = Average data of experiment class  $\mu_2$  = Average data of control class

If  $t_{count} > t_{table}$  So Ho is rejected and there is difference of average value from both of classes. The formula of t-test was:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{s \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

with:

$$S = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}}$$