

CHAPTER 3 RESEARCH METHOD

In this chapter, the researcher will present about research design, population and sample, research variables, instrument of the research, technique of collecting data, and technique of analyzing data.

3.1. Research Design

The type of this research is quantitative research with experimental study. Sugiyono (2018:15) stated that quantitative method is a research method based on the philosophy of positivism, used to examine a population or a specific sample, collecting data using research instruments, analyzing the data by quantitative or statistical to describe and test hypothesis that determined. The design of this study is a true experimental research, because subjects are randomly assigned to group and the control was provided. A true experimental research to know the effectiveness of time token arends method to improve student's speaking ability of tenth grade while the dependent variable is the students' speaking ability. In this research, pre-test and post-test will use for both of experimental class and control class. The experimental class receives a treatment which is using time token arends during the learning process, while the control classes do not receive the treatment. The impact in speaking ability in improvement would be seen from the post-test score in experimental class.

The design of true experimental can be describe as the following:

R	E	O ₁	X	O ₂
R	C	O ₃	-	O ₄

(Mubarok, 2015:101)

Explanation:

R = Randomly

E = Experimental group

C = Control group

O₁ = Pre-test for the experimental group

O₂ = Post-test for the experimental group

O₃ = Pre-test for the experimental group

O₄ = Pre-test for control group

X = Treatment using time token arends

- = No treatment

3.2. Population and Sample

3.2.1. Population

In solving a problem in a study, it is necessary to have data and information in the object examined and what is meant by the object studies is a population, in the absence of a population researchers will get data and information. According to Sugiyono (2009:117) “the population is a generalized region consisting of objects/subjects that have certain qualities and characteristics applied by researchers to be studied and drawn conclusions.” While according to Sudjana (2005:6) says that “population is the totality of all possible values, results of calculating or measuring, quantitative or qualitative regarding certain characteristics of all members of the

complete and clear conclusion that want to be studied traits.” Based on the above opinion, population is not only a number of the object/subject that is learned, but also it involves the whole of characterization of the subject or object.

The population of this research is the tenth grade students of SMA Negeri 1 Tahunan Jepara. There are eleven classes comprising X IIS 1, X IIS 2, X IIS 3, X IIS 4, X MIPA 1, X MIPA 2, X MIPA 3, X MIPA 4, X MIPA 5, X MIPA 6, and X Bahasa.

Table 3.1
Population of the Research

No	Class	Number of Students
1	X IIS 1	36
2	X IIS 2	36
3	X IIS 3	36
4	X IIS 4	36
5	X MIPA 1	36
6	XMIPA 2	34
7	X MIPA 3	35
8	X MIPA 4	35
9	X MIPA 5	33
10	X MIPA 6	36
11	X Bahasa	35
	Total	388

3.2.2. Sample

Sugiyono (2009:118) explains that sample is a part of a number and characteristics possessed of population. The researcher must take the sample which is representative the population. This is done to

make the result of the research can be generalized for the whole member of population. The samples of the research are two classes from tenth grade students SMA Negeri 1 Tahunan Jepara in academic year of 2020. Two classes which are chosen will be an experimental class and control class. They were X MIPA 4 as the experimental group that taught by Time Token Arends strategy and X MIPA 3 as the control group that taught without using Time Token Arends method. The number of students was 35 for X MIPA 4 and 35 for X MIPA 3.

3.2.3. Technique Sampling

According to Sugiyono (2018:134), technique sampling is a technique for taking samples. There are two kinds of technique sampling, probability sampling, and non-probability sampling. In this research, the researcher used a random sampling technique to take the sample. The writer has some considerations in choosing sample random. First, they have already spread randomly in the specified class without determined by their ranks, genres, and strata. In another case, all classes are given the same period.

There were some steps that the research was done in choosing the sampling, the steps were follows:

1. The researcher observes the tenth grades. The purposed to know the characteristic of the students in each class.

2. After observe the class, the researcher made a lottery. It was made from a piece of paper. Each paper contains the name of classes.
3. Next, the paper was put into the glasses and the researcher shock the glass.
4. The researcher shocked twice, in order to determine the experimental group and control group.
5. After getting the number of lotteries, the researcher conducted the research.

3.3. Instrument

The researcher needs an instrument in doing their research. According to Arikunto (2013:203), research instrument is a kind of the tool which used by the researcher to measure a natural object or social that observed to collect the data. Generally, there are two kinds of instruments namely test and non-test. In this research, the researcher uses a test (pre-test and post-test) to gain the data. Suharismi Arikunto in Iryanti (2015), test are questions or practice and other tools that are used to measure skills, intelligence, or a gift that is possessed by someone or group.

Before a test will give to the students, try out test applied first to know the test is good instrument or not. The result of the test is to find out the validity and reliability. The type of a test that was used in this research is an oral test. Oral test was used to collect the data about students speaking

ability. The researcher was applied pre-test and post-test. The test was given before and after teaching by using time token arends strategy.

3.4. Variable of the Research

According to Sugiyono (2018), research variables are things that shape what is defined by the researcher to be studied in order to obtain information about it and the conclusion drawn on next. There are two types of variables: independent variable and dependent variable.

1. Independent Variable (X)

It is a variable that influences or causes of change or emergence of the dependent variable. The independent variable in this research was the use of Time Token Arends method technique in teaching speaking mastery.

2. Dependent Variable

It is variable that is influenced by independent variable. The dependent variable in this research was the improvement of tenth grade students speaking ability of SMA Negeri 1 Tahunan Jepara in academic year 2020.

Based on the variables above, the researcher could made indicators that support the variables. The indicator of teaching and learning using Time Token Arends method is students will be able to develop their speaking especially in daily conversation.

3.5. Trying out Instrument

The best instrument had to fulfill two importance requirements, these were validity and reliability. Validity and reliability were used to test the legality of data. These were the explanations of validity and reliability below:

3.5.1. Validity

Based on Sugiyono (2018:193), valid means the instrument can be used to measure what should be measured. This means that it relates directly to the purpose of the test. There are some kinds of validity, such as content validity and construct validity. Content validity, the test is a good reflection of what has been taught and the knowledge which the teacher wants his students to know. Although, construct validity concerns on whether or not the test is actually in line with the theory of what it means to the language that is being measured. In this research, the researcher used judgment experts by consulted to the English teacher who was expert to measure that the instrument was accurate or not and to know the validity of the instrument.

3.5.2. Reliability

Reliability is consistency. The research instrument has high reliability if it can produce consistent result. According to Sugiyono (2018), the reliability test use to measure the reliability of a research instrument.

Instrument can called reliable when it can generate the same data or the result, if it used several times to measure the same object.

Actually, the ideal of test should be valid and reliable. The valid and reliable are absolute requirement to get the result of research is valid and reliable (Sugiyono, 2018:193). Based on the reliability, the researcher could conclude that the instrument research was affective to use in pre-test and post-test or not.

3.6. Method of Collecting Data

In this research, the researcher used test as the data collection. The test would be in the form of speaking test to know the different result of students' speaking ability who being taught by time token arends strategy and without using time token arends. The researcher would give a pre-test and post-test to both of experimental and control class. The technique of collecting the data as follows:

3.6.1. Pre-test

Pre-test is a test which is conducted before teaching both of experimental and control class. Pre-test has purpose to find out the basic knowledge and students ability in researcher teaching the control class and give treatment using time token arends to the experimental class. The students have to answer all of the items question, both of the class get the same test.

3.6.2. Treatment

After having pre-test to both of experimental class and control class, the researcher gave a treatment to the experimental class using time token arends method. It aimed to know the student's ability in speaking skill after giving treatment. There are some steps in giving treatment in experimental group. After the researcher get the result of pre-test, the researcher will teach the students relate to the material about speaking skill. The researcher will recheck student's understanding and then make a group. The researcher will explain the rule of time token arends method and make a group. The researcher give some questions based on the material, and all of member has to answer the question using token. The treatment for both of groups will be given in two meetings. The detail of treatment can be seen as below:

Table 3.2

Treatment procedure of experimental group and control group

1. Experimental group

	Treatment 1	Treatment 2
Observing		
	<ul style="list-style-type: none"> ❖ The researcher starts the class by praying together ❖ The researcher shows a picture about Snow White 	<ul style="list-style-type: none"> ❖ The researcher starts the class by praying together ❖ The researcher reviews the last material

	❖ The students give a response about the picture	❖ The students perform their assignment in front of the class
Asking		
	<ul style="list-style-type: none"> ❖ The students are given a chance to ask about the material ❖ The other students have a turn to answer the question from their friends 	<ul style="list-style-type: none"> ❖ The students are given a chance to ask about the material ❖ The other students have a turn to answer the question from their friends
Exploration		
	<ul style="list-style-type: none"> ❖ The teacher shows the students a picture about story of Snow White ❖ The teacher asks the students to tell the story by using his own word. 	<ul style="list-style-type: none"> ❖ The teacher shows the students a picture about story of Aladdin. ❖ The teacher asks the students to tell the story by using his own word.
Association		
	❖ The researcher rechecks students understanding about the material	❖ The researcher rechecks students understanding about the material

	<ul style="list-style-type: none"> ❖ The teacher divides the students become 6 groups, each group consist of 5 students. ❖ The teacher gives 3 coupons of talk to each students and 1 coupon about 30 seconds, and explain about the rule of time token arends ❖ The students learn the material using cooperative learning method with time token arends technique ❖ Every student start the discussion about the topic and each students have 2 minutes to speak with their turn in their group discussion ❖ Teacher controls the students by walking around 	<ul style="list-style-type: none"> ❖ The teacher divides the students become 6 groups, each group consist of 5 students. ❖ The teacher gives 3 coupons of talk to each students and 1 coupon about 30 seconds, and explain about the rule of time token arends ❖ The students learn the material using cooperative learning method with time token arends technique ❖ Every student start the discussion about the topic and each students have 2 minutes to speak with their turn in their group discussion ❖ Teacher controls the students by walking around
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	and students who have used up the coupon may not to speak anymore.	and students who have used up the coupon may not to speak anymore.
Communication		
	<ul style="list-style-type: none"> ❖ 1 student in each group have to presents the result of the discussion for 1 minute ❖ The students make a short story based on the material as individual assignment ❖ The researcher gives a motivation and feedback to the students, and closing the class by praying together. 	<ul style="list-style-type: none"> ❖ 1 student in each group have to presents the result of the discussion for 1 minute ❖ The students make a short story based on the material as individual assignment ❖ The researcher gives a motivation and feedback to the students, and closing the class by praying together.

2. Control group

	Treatment 1	Treatment 2
Observing		
	<ul style="list-style-type: none"> ❖ The researcher starts the class by praying together 	<ul style="list-style-type: none"> ❖ The researcher starts the class by praying together

	<ul style="list-style-type: none"> ❖ The researcher shows a picture about story of Snow White ❖ The students give a response about the picture 	<ul style="list-style-type: none"> ❖ The researcher shows a picture about story of Aladdin ❖ The students give a response about the picture ❖ The students shows their assignment in front of class
Asking		
	<ul style="list-style-type: none"> ❖ The students are given a chance to ask about the material ❖ The other students have a turn to answer the question from their friends 	<ul style="list-style-type: none"> ❖ The students are given a chance to ask about the material ❖ The other students have a turn to answer the question from their friends
Exploration		
	<ul style="list-style-type: none"> ❖ The teacher shows the students a picture about story of Snow White. ❖ The teacher asks the students to tell the story by 	<ul style="list-style-type: none"> ❖ The teacher shows the students a picture about story of Aladdin. ❖ The teacher asks the students to tell the story by

	using his own word.	using his own word.
Association		
	<ul style="list-style-type: none"> ❖ The researcher gives a topic related material ❖ The students make a pair consist of 2 people 	<ul style="list-style-type: none"> ❖ The researcher gives a topic related material ❖ The students make a group consist of 2 people
Communicating		
	<ul style="list-style-type: none"> ❖ The students show the result of discussion ❖ The students conclude the material as individual assignment and make a dialogue ❖ The researcher gives a feedback, motivation, and closing the class by praying together. 	<ul style="list-style-type: none"> ❖ The students show the result of discussion ❖ The students conclude the material as individual assignment ❖ The researcher gives a feedback, motivation, and closing the class by praying together.

3.6.3. Post-test

The last method of collecting data was administering post-test. The purpose of administering post-test was to measure the student's speaking ability after they receiving the treatment. By analyzing the student's post-test score's, the researcher could measure the significant difference in

student's improvement in speaking ability between the experimental and control class.

3.7. Method of Data Analysis

In analyzing the data, the researcher used statistical calculating of t-test to find out the difference score of student's achievement in teaching speaking using Time Token Areds compared to without Time Token Areds, data processing is the step to know the result of both experimental group using Time Token Areds method as variable X and control group without using Time Token Areds as variable Y, and their differences.

After the researcher got the result of pre-test and post-test score, before conducting the T-test, normality and homogeneity test are measured. The researcher used t-test formula.

1. Test of Normality

Normality test is used to determine whether a data set is well by normal distribution or not. To know the normality, the researcher used Kolmogorov-Smirnove method. The normality testing was done toward the pre-test and post-test scores.

The hypothesis for normality testing said that the data was in normal distribution if H_0 was accept and it was not normal distribution if H_a was accepted. The significance value is higher than 0.05 (5%), while H_0 was accept if the significance value was higher than 0.05 (5%).

2. Test of Homogeneity

Homogeneity test was used to find out that the data was homogeneous variance or not. The test is purposed to know the similarity of the condition of two populations. The score of the test should be higher than 0.05 in order to have the data was homogeneous.

3. Hypothesis Testing

The test of hypothesis was used to know whether the hypothesis is accepted or rejected. The hypothesis should be accepted if the significance level was lower than 0,05.

The researcher used t-test to analyze the data. The formula adapted from Nusrotus Sa'idah (2020: 204) is:

$$t_0 = \frac{X_1 - X_2}{S \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Description:

- S : Standard deviation
- X_1 : Mean of Variable X (Experimental class)
- X_2 : Mean of Variable Y (Control class)
- n_1 : Total of Variable X (Experimental class)
- n_2 : Total of Variable Y (Control class)

Through analyzing the data by using SPSS, the researcher will determine the hypothesis whether there is a significance difference between the student's score who teach by using Time Token Arends method and student's score who teach by conventional method or not.