

CHAPTER III

RESEARCH METHOD

This chapter presents the research method. It focuses on Research Design, Data and Data Sources, Variable, Population and Sample, Formulation of Hypothesis, Research Instrument, Validity and Reliability Testing, Normality and Homogeneity Testing, Data Collecting Method, Treatment and Data Analysis.

A. Research Design

Singh (2006:1) stated that research is simply the process of arriving as dependable solution to a problem through the planned and systematic collection, analysis and interpretation of data. Another definition of research is given by Creswell (2008) who states that “Research is a process of step used to collect and analyse information to increase our understanding of a topic or issue”. It consists of three steps: Pose a question, collect data to answer the question, and present an answer to the question.

This researcher used quasi-experimental research design because the researcher could not randomly put the subject, and the classes that used by the researcher was already formed. As Ary *et al* (2010:26) stated, if the researcher could not randomly assign subjects because it had already assembled groups such as classes, it was called as quasi-experimental design.

The procedure of this study was explained as follows: first, the researcher consulted with vice headmaster of SMA Al-Azhaar Tulungagung and the English teacher about the material that will be taught by the time the research took place, time of the research, sample and population, what classes the

researcher should use according to students' equal ability in English, and the suitable question for eleventh graders. Second, the researcher arranged the research instrument and lesson plan. Third, the researcher consulted the research instrument and lesson plan to the English teacher. Forth, revise the research instrument and lesson plan based on the advice from the English teacher. Fifth, gave pre-test for both experimental and control class. Sixth, gave treatment two times for experimental class. In this case, the researcher introduced the concept of QAR. Then, lead the students through the process of answering each type of question and making sure that they understand the whole of questions. The researcher then increased the number of questions of each type, until students are clearly able to understand the differences among types and can identify them with ease. After that, the researcher asked students to read a longer passage and develop a set of questions for their classmates to identify and answer. The last procedure was giving both experimental and control class post-test to compare the result.

The researcher used two classes for experimental group that would be given pre-test, treatment, and post-test while the other was control group that would be given pre-test and post-test.

This design used Nonrandomized Control Group, Pretest-Posttest Design that was one of the most widely used in educational research. The table provided by Ary *et al* (2010:316) was as followed:

Table 3.1 Nonrandomized Control Group, Pretest-Posttest Design

Group	Pretest	Independent Variable	Posttest
E	Y ₁	X	Y ₂
C	Y ₁	–	Y ₂

Based on the table above, there were two groups. The first group was the experimental group that would receive a treatment (X) while the second group was the control group that did not receive treatment (–). Both experimental and control group would receive pre-test to obtain the first data about students' reading score before the treatment. The experimental group [E] was given treatment of being taught by using QAR (X) while the control group [C] was being taught without using QAR (–). Finally, both of the groups would be given post-test to obtain the second data about students reading score. By using T-test, the both scores were compared to find out if there was significant difference of reading comprehension ability before and after being taught by using Question Answer Relationship (QAR) Strategy.

B. Data and Data Source

The data were information or facts used in discussing or deciding the answer of research question. The source of data in the study was the subjects from which the data can be collected for the purpose of research (Arikunto, 2010:129).

In this research, the data was obtained from students' reading comprehension score before and after being taught by using Question Answer Relationship (QAR) Technique. The data source was the eleventh grader for

IPA and IPS class of SMA Al-Azhaar Tulungagung in the academic year 2017/2018.

C. Variable

According to Arikunto (2006:118) variable were the subject of a research, or the things that become points of attention of a research. Another definition stated by Ary *et al* (2010) that variable was a construct or a characteristic that can take on different values or scores. In other words, variable is anything can effect or change the result of a study. There were two kinds of variable: independent variable and dependent variable.

1) Independent Variable

The independent variable was the major variable that used by the researcher to investigate. Sugiyono (2010:61) stated that independent variable is variable that influence dependent variable. It was usually symbolized by "X". In this study, the used of Question Answer Relationship (QAR) was the independent variable.

2) Dependent Variable

Dependent variable was a variable that would be observed and measured by researcher. According to Sugiyono (2010:61) dependent variable was variable that influenced because of any independent variable. It was symbolized by "Y". Dependent variable in this study was students' scores in reading comprehension.

D. Population and Sample

a. Population

According to Hanlon & Larget (2011), population is all the individuals or units of interest. Sugiyono (2014: 80) stated that population is a generalization of object or subject which is has quality and characteristic that is concluded by researcher. It means that research population was all individual or objects that have similar characteristics or trait. Due to the large of population, researchers often put sample for their study so that it would not cost much and time-consuming.

The population of this study was all the eleventh graders of SMA Al-Azhaar Tulungagung in the academic year 2017/2018. There were 2 classes of eleventh grade that consist of 25 students for IPA class and 27 students for IPS Class. The researcher used those two classes or groups for experimental and control group. The researcher chose eleventh grade as suggested by the English teacher in SMA Al-Azhaar suggested for using those classes due to the same number of students. It was because in tenth grade of SMA Al-Azhaar there were only eighteen students per each class.

b. Sample and Sampling

According to Chaudhury (2010), a sample is any part of the fully defined population. Another definition of sample is given by Hanlon & Larget (2011), a sample is a subset of the individuals in a population; there is typically data available for individuals in samples. Sampling, itself, refers to a technique to take sample (Sugiyono, 2013).

In this study, the researcher used purposive sampling technique to take the sample. Purposive sampling was based on the judgement of the researcher as to who will provide the best information to succeed for the objectives study (Etikan *et al*, 2017). According to Teddlie (2007:80), purposive sampling techniques that have also been referred to as nonprobability sampling techniques, involved selecting certain units or cases “based on a specific purpose rather than randomly.”

The sample was taken two classes from eleventh graders of SMA Al-Azhaar. They were XI IPA class as the experimental group that taught by using Question Answer Relationship and XI IPS class as the control group that taught without using Question Answer Relationship (QAR). The number of student was 25 for XI IPA Class and 27 for XI IPS Class. The researcher used this purposive sampling due to suggestion from the English teacher that both classes have the same number of students and that both classes have equal of English ability.

E. Formulation of Hypothesis

The hypothesis of this research is :

a. Null Hypothesis (Ho)

The null hypothesis states that there is no significant difference on the students' reading comprehension between students who are taught by using Question Answer Relationship (QAR) Strategy and students who are not taught by using Question Answer Relationship (QAR) Strategy.

b. Alternative Hypothesis

The alternative hypothesis states that there is significant difference on the students' reading comprehension between students who are taught by using Question Answer Relationship (QAR) Strategy and students who are not taught by using Question Answer Relationship (QAR) Strategy?

F. Research Instrument

The researcher used a test as an instrument of the research. A test is a set of stimuli presented to an individual in order to elicit responses on the basis of which a numerical score can be assigned (Ary *et al*, 2010:201). It meant that the test conducted by the researcher would provide the data of students' score in reading comprehension in the form of numerical score. Considering that SMA Al-Alzhaar in the near future would conduct mid-term test, the researcher used this type of instrument in order not time-consuming. The test was a multiple choice which was consisted of 20 numbers of questions. Each questions would be scored 5 if answer correctly. The blueprint and specification of the test can be seen in *Appendix 1*. The test would be tested for experimental class and control class. Before, the pre-test is tested on the sample, the test was tried out on 15 students of MAN 3 Blitar to know the validity of the instrument. (See Appendix 2 for the score of try out). After that, the researcher made the test for post-test to have the same content with pre-test. The test was given two times. They were mentioned as follow:

a. Pre-Test

The researcher gives the pretest to students of experimental and control group to measure students' reading comprehension before treatment process. The test will be given to know the basic competence for students and to know earlier knowledge before they get treatment. The score will be analyzed to determine the students' score between pretest and posttest. (See appendix 3 for the instrument of pre-test)

b. Post-test

The posttest will conduct to measure students' reading comprehension of experimental group and control group after treatment process, this test will be given to know the students' achievement in speaking before and after they get treatment. (See appendix 4 for the instrument of post-test)

G. Validity and Reliability Testing

There are two important characteristics that every measurement instrument should process: validity and reability.

1 Validity

According to Bolarinwa (2015), Validity expresses the degree to which a measurement measures what it purports to measure. It meant that measuring validity is important in order to know whether the instrument that was used by the researcher is really measure what should be measured. According to Ary *et al.* (2010:226) there were three types of

validity. Those are content validity, criterion validity and construct validity. In this study, the researcher used content and construct validity to make an instrument. They are as follows:

a) Content Validity

The test was used in order to know students' ability in reading comprehension. It meant the test would have content validity if it could represent the content of the universe. Ary *et al* (2010:226) stated that to have a content validity, the instruments are representative of some defined universe or domain of content. This validity is important in evaluating achievement test.

In this study, the test which was given twice at pre-test and post-test was in the form of multiple choices. The test was made up based on course objective the syllabus of Eleventh Grade of SMA Al-Azhaar Tulungagung (See appendix 5 to see the Syllabus). The contents validity in this research could be shown from the table :

Table 3.2 Content Validity

Standard Competence	Basic Competence
11. Memahami makna teks fungsional pendek dan esei berbentuk narrative, spoof dan <u>hortatory exposition</u> dalam konteks kehidupan sehari-hari dan untuk mengakses ilmu pengetahuan.	11.2 Merespon makna dan langkah retorika dalam esei yang menggunakan ragam bahasa tulis secara akurat, lancar dan berterima dalam konteks kehidupan sehari-hari dan untuk mengakses ilmu pengetahuan dalam teks berbentuk narrative, spoof, dan <u>hortatory exposition.</u>

Indicator	No. Assessment Indicator	Rubric
1. Mengidentifikasi tujuan komunikasi pada teks hortatory exposition.	2, 8, 17	Students were assessed based on 20 question of multiple-choices.
2. Mengidentifikasi main idea suatu paragraph atau topik pada teks hortatory exposition.	1, 4, 7, 11, 14	
3. Mengidentifikasi informasi tertentu yang ada pada teks hortatory exposition.	3, 6, 10, 12, 15, 16, 18, 20	
4. Mengidentifikasi reference yang ada pada teks hortatory exposition.	5, 9, 19	

$$\text{SCORE} = \frac{\text{Number of correct answer}}{\text{Number of items tested}} \times 100$$

This test instrument would be validated by English teacher of SMA Al-Azhaar Tulungagung before the test was tried out and tested in experimental and control group. (See appendix 6 for expert validation.)

b) Construct Validity

According to Ary *et al* (2010:231), construct validity focuses on test scores as a measure of a psychological construct. The word construct refers to any underlying ability which is hypothesized in a theory of language ability. It means that the instrument was made up based on the theory which the instrument would measure. In this research, the instrument has been constructed based on reading comprehension theory. After

the instrument was constructed, the test was tried out and then the researcher used SPSS 16.0 of Pearson Correlation to count the validity test per items.

Basic decisions making in validity testing per items are as follows:

1. If the score of $r_{hitung} > r_{table}$ in score signification 5% , then the test items is valid.
2. If the score of $r_{hitung} < r_{table}$ in score signification 5% , then the test items is not valid.

The process calculation of validity testing (see appendix 7) by using SPSS 16.0 version for windows found that the 20 questions of multiple choices which had been tried out were valid. The result of validity can be seen as follows:

Table 3.3 The Result of Construct Validity

No. item	r_{hitung}	$r_{table 5\%}$	Kriteria
1	0,517	0,514	Valid
2	0,543	0,514	Valid
3	0,568	0,514	Valid
4	0,554	0,514	Valid
5	0,582	0,514	Valid
6	0,630	0,514	Valid
7	0,530	0,514	Valid
8	0,519	0,514	Valid
9	0,582	0,514	Valid
10	0,565	0,514	Valid
11	0,568	0,514	Valid
12	0,519	0,514	Valid
13	0,559	0,514	Valid

14	0,539	0,514	Valid
15	0,565	0,514	Valid
16	0,572	0,514	Valid
17	0,536	0,514	Valid
18	0,539	0,514	Valid
19	0,556	0,514	Valid
20	0,582	0,514	Valid

2. Reliability

According to Bolarinwa (2015), Reliability refers to the degree to which the results obtained by a measurement and procedure can be replicated.

Reliability was necessary characteristic of any good test for it to be valid at all. Reliability was an indicator of consistency, that was an indicator of how stable a test score or data is across applications or time. A measure should produce similar or the same results consistently if it measures the same “thing.” A measure can be reliable without being valid. A measure cannot be valid without being reliable (Hale *et al*, 2014:45). It meant the test could be valid if it was reliable as well.

Reliability test instrument can be done by using Cronbach’s Alpha. The instrument has a high degree of reliability if the value of Cronbach’s Alpha obtained as follows:

Table 3.4 Cronbach’s Alpha Interpretation

Cronbach’s Alpha	Interpretation
0,00 – 0,20	Less Reliable
0,21 – 0,40	Rather Reliable
0,41– 0,60	Quite Reliable
0,61 – 0,80	Reliable
0,81 – 1,00	Very Reliable

The result of reliability testing by using SPSS 16.0 (See appendix 8 for the calculation of reliability) can be seen from the table :

Table 3.5 The Result of Reliability Testing
Reliability Statistics

Cronbach's Alpha	N of Items
.881	20

From the table above, the value of Cronbach alpha is 0,881. It means that the test is very reliable.

H. Normality and Homogeneity Testing

In this part the researcher discussed about the result of normality and homogeneity testing.

1. The result of Normality Testing

Normality testing is conducted to determine whether the data are normal distribution or not. The researcher used SPSS.16 One- Sample Kolmogorov-Smirnov test by the value of significance (α) = 0.050.

Basic decisions making in normality testing are as follows:

3. If the significance value > 0.050 , then the data has normal distribution
4. If the significance value < 0.050 , then the data does not have normal distribution

Here, the researcher conducted normality testing for experimental class and control class. The result can be seen below:

1.1 Normality Testing of Experimental Class

The calculation result of normality testing for experimental class is as follows:

**Table 3.6 The Result of Normality Testing of Experimental Class
One-Sample Kolmogorov-Smirnov Test**

		Pre_Test	Post_Test	Unstandardized Residual
N		23	23	23
Normal Parameters ^a	Mean	58.91	72.83	.0000000
	Std. Deviation	15.808	14.758	11.54793927
Most Extreme Differences	Absolute	.119	.168	.098
	Positive	.119	.122	.093
	Negative	-.106	-.168	-.098
Kolmogorov-Smirnov Z		.573	.803	.470
Asymp. Sig. (2-tailed)		.898	.539	.980
a. Test distribution is Normal.				

Based on the table above is known that the significance values of experimental class for pre-test and post-test are 0,898 and 0,539. The significance values of both pre-test and post-test are bigger than 0,050. It means that the data of experimental class has normal distribution.

1.2 Normality Testing of Control Class

The calculation result of normality testing for experimental class is as follows:

**Table 3.7 The Result of Normality Testing of Control Class
One-Sample Kolmogorov-Smirnov Test**

		Pre_Test	Post_Test	Unstandardiz ed Residual
N		25	25	25
Normal Parameters ^a	Mean	50.40	59.60	.0000000
	Std. Deviation	15.806	15.133	8.85917390
Most Extreme Differences	Absolute	.210	.159	.091
	Positive	.115	.114	.057
	Negative	-.210	-.159	-.091
Kolmogorov-Smirnov Z		1.050	.797	.453
Asymp. Sig. (2-tailed)		.221	.549	.986
a. Test distribution is Normal.				

Based on the table above is known that the significance values of experimental class for pre-test and post-test are 0,221 and 0,549. The significance values of both pre-test and post-test are bigger than 0,050. It means that the data of control class has normal distribution.

2. The result of Homogeneity Testing

Homogeneity testing is conducted to know whether the data has a homogeneous variance or not. To know the homogeneity, the researcher used Homogeneity of Variances Test by using SPSS.16. The value of significance (α) = 0.050.

Basic decisions making in homogeneity testing are as follows:

1. If the significance value > 0.050 , then the data distribution is homogeneous
2. If the significance value < 0.050 , then the data distribution is not homogeneous

Here, the researcher conducted homogeneity testing. The result can be seen below:

**Table 3.8 The Result of Homogeneity Testing
Test of Homogeneity of Variances**

score_posttest

Levene Statistic	df1	df2	Sig.
.301	1	46	.586

Based on the table above is known that the significance value of post-test is 0,586. As on the basic decision making in homogeneity testing, if the significance value is bigger than 0,050, then the data distribution is homogeneous. It can be concluded that significance value that is 0,586 is bigger than 0,050 and the data distribution is homogeneous.

I. Data Collecting Method

The data collecting methods and instrument are needed to obtain the research data. The method of collecting data used in this research was administering test. According to Ary *et al.* (2010:201) the tests were valuable measuring instruments for educational research. He, then, defined test as a set of stimuli presented to individual in order to elicit responses on the basis of which a numerical score can be assigned. It meant that by conducting the test, the researcher would get numerical score to collect the data.

According to Arikunto (2010:193) test is a sequence of questions or practice which used to measure skill, intelligence knowledge, ability or potency of someone or a group. The test here consisted of pre-test and post-

test. The function of pre-test was to know students' reading comprehension before getting the different treatment. Whereas the function of post-test was to know the result of the experiment after the treatment had been given.

The procedures in collecting the data were:

a. Pre-test

Creswell (2008:301) stated that Pre-test provided a measure on some attribute or characteristic that you assessed for participant in an experimental before they receive a treatment. The pre-test was assessing students' previous knowledge and then progresses based on what the students should learn by the time of the next assessment period.

In this study, the pre-test was conducted in the first meeting, before treatment process. It was given to experimental group and control group as well to know students' ability. The kind of test was multiple choices which 20 number in total about Hortatory Text. Time allocation was 60 minutes. The pre-test for experimental group will be conducted on February 22th 2018 and for the control group will be conducted on February 22th 2018. There are 25 students in experimental group and 27 students in control group.

b. Post test

Post-test is one kind of test which given after treatment. A post-test was a measure on some attribute or characteristic that is assessed for participants after a treatment, Creswell (2008:201). Post-test was given in the last meeting of teaching learning process. It was used to measure

students' achievement after given different treatment. The form of test was same as pre-test. Time allocation was 60 minutes. The post-test for experimental group will be conducted on March 8th 2018 and for the control group will be conducted on March 5th 2018. There are 25 students in experimental group and 27 students in control group. After the researcher knew about score of the test, the researcher compared both of the score.

J. Treatment

Treatment here meant that the researcher applied Question Answer Relationship (QAR) Strategy in teaching process. The treatment was given to experimental class two times. The first treatment was given on February 28th 2018 and the second treatment was given on March 1st 2018 (See appendix 9 for the lesson plan). The treatment was given twice due to the limitedness time. The process of this strategy described as follow:

First, the researcher introduced the concept of QAR by explaining each type of question (In the Book and In My Head), providing a clear example of each, and discussing the difference in each. Next, the researcher gave a short piece of text for students to read, in this case was a hortatory exposition text. Then, lead the students through the process of answering each type of question and making sure that they go back into text to verify their answer and they understand the whole of questions. The researcher then increased the number of questions of each type, until students are clearly able to understand the differences among types and can identify them with ease. Finally, the

researcher asked students to read a longer passage and develop a set of questions for their classmates to identify and answer.

This teaching strategy would be taught for experimental group while the control group would be taught without using Question Answer Relationship (QAR) Strategy.

K. Data Analysis

According to Marshall and Rossman in Manaf (2011:173), describe data analysis as the process of bringing order, structure, and interpretation to the mass of collected data. It can be a messy, ambiguous, time-consuming, creative and fascinating process.

The researcher used quantitative data analysis by using statistical computation. The data collected was processed by comparing students' pre-test and the post-test score and see whether there would be significant different after given by treatment. To know the significant differences researcher used SPSS 16.0 version.