

CHAPTER III

THE RESEARCH METHODOLOGY

A. The Design of Research

The design of the research was a quasi experimental design, which focused on quantitative approach. The quasi-experimental design means to approximate as closely as possible the advantages of true experimental design where the problems mentioned above occur. According to Gay and Peter, experimental research is the only type of research that can test hypotheses to establish cause-and-effect relationships.¹ In here, the writer used quasi-experimental design: which used pre-test-pos-test non equivalent group design. This research consists of two variables. Arguments on a card strategy is independent variable that is symbolized by “X”, while the students’ reading comprehension on hortatory exposition text is dependent variable that is symbolized by “Y”. X is an independent variable and Y is a dependent variable as Creswell has stated that an experiment is used when you want to establish possible cause and effect between your independent and dependent variables.²

These groups used different strategies, but both of experimental and control group were tested by the same test. Therefore, the experimental class was

¹ L. R Gay and Peter, *Educational Research: Competencies for Analysis and Application*, (New Jersey Columbus: prentice-Hal,2000), p.367

²*Ibid*, p.299.

provided with pre-test, treatment, and post-test. To analyze the research, the writer used T-test.³

TABLE III.1
Research Design

Group	Pretest	Treatment	Posttest
Experiment	O ₁	X	O ₂
Control	O ₁	-	O ₂

Where:

O₁ = Pre-test

X = Treatment

O₂ = Post-test

B. The Location and Time of the Research

This research was conducted at SMA N 1 Kampar which was located on Airtiris. The research started from January 4th to February 8th 2014.

C. The Subject and Object of the Research

The subject was the second year students at State Senior High School 1 Kampar and the object of this research was using Arguments on a Card strategy toward Reading Comprehension on Hortatory Exposition Text.

D. The Population and Sample of the Research

According to Gay and Peter, population is the group of interest to the researcher, the group to which she or he would like the results of the study to be

³ John W. Creswell. 2008. *Educational Research*. Third Edition, New Jersey: Pearson Prentice Hall. P.299

generalizable.⁴ Generalization is a way to take a conclusion to group of individual that have amount boarder based on the data that we take from some groups of individual that have amount narrower. A part of individual as representative in research is called as sample. Sampling is the process of selecting a number of individuals for a study that they represent the larger group from which they were selected.⁵

Population of this research was all of the second year students at Senior High School 1 Kampar. Where, in second year of SMA N 1 Kampar included 3 classes of science and 5 classes of social, and each of classes have different amount of students.

The total number of population at the second year of SMA N 1 Kampar was 274 students.

⁴ L.R Gay and Peter, *Op.Cit.*, p. 122

⁵ *Ibid.*, p.121

TABLE III.2**The total population of the second year students of SMA N 1 Kampar**

No	CLASS	MALE	FEMALE	TOTAL
1	XI IPA 1	8	29	37
2	XI IPA 2	10	27	37
3	XI IPA 3	9	28	37
4	XI IPS 1	15	17	32
5	XI IPS 2	15	17	32
6	XI IPS 3	17	15	32
7	XI IPS 4	15	18	33
8	XI IPS 5	14	20	34
TOTAL				274

Furthermore, because they are homogeneous or because all samples have the same characteristic, the writer used cluster sampling to choose the classes taking the sample. The population above was large enough to be all taken as sample of the research. The writer took the sample by using cluster sampling. According to Gay, Cluster sampling is randomly selects group, not individuals. All the members of selected groups have similar characteristics.⁶ It meant that the subject of this research had the same material, the same grade, and the same teacher in teaching of these classes. So, the writer selected two groups of the students to be taken as sample XI IPS 1 as an control group, and XI IPS 2 as a

⁶L.R. Gay and Peter Airasian, *Op Cit*, p.129

experimental group. The specification of the research sample can be seen on the table below:

TABLE III.3

Total sample at the second year students of SMA N 1 Kampar

No	Classes	Sample		Total
		Male	Female	
1.	XI IPS 1	15	17	32
2.	XI IPS 2	15	17	32
TOTAL		30	34	64

Based on the table above, the writer took two classes of social department, they were XI IPS I as an control class, and XI IPS 2 as an experimental class. Where, the number of students in XI IPS I was 32, and the number of students in IX IPS 2 was 32. So, the total number of sample in this research was 64 students. According to Hartono, if the samples consist of 30 or more, it is called the big sample.⁷ So, the number of students above was representative enough to be sample of the research.

⁷ Hartono, *Statistic Untuk Penelitian*, (Yogyakarta: PustakaPelajar, 2008), pp.207-208

E. The Technique of Collecting Data

The data of study were scores of the students' reading comprehension on hortatory exposition text obtained by giving test. The tests were given to each group after and before giving the treatment. The first was pre-test that was conducted before the instruction was given. The second was treatments. The treatments was given in six meeting or after giving the pre-test. The third was post-test that was given after giving the treatment. Experimental group got once pre-test and once pos-test. Meanwhile, control group did too. The post-test was administered once for experimental group and control group with similar pos-test instrument. This was applied in order ensure the true score of experimental group. Then, the writer used average score between two post-test score of experimental and control group that were analyzed. The tests were multiple choice questions. This test consisted of 25 items for each pre-test and post-test.

Table III.4
Blue Print of the Collecting Data

Reading Text	Reading's Component	Questions' Number
Reading I	1. Finding synonym of the word	1
	2. Identifying factual information	4
	3. Identifying reference	2
	4. Making Inference	5
	5. Identifying generic structure	3
Reading II	1. Finding synonym of the word	7
	2. Identifying factual information	10

	3. Identifying reference	6
	4. Making Inference	8
	5. Identifying generic structure	9
Reading III	1. Finding synonym of the word	12
	2. Identifying factual information	11
	3. Identifying reference	1
	4. Making Inference	13
	5. Identifying generic structure	15
Reading IV	1. Finding synonym of the word	17
	2. Identifying factual information	19
	3. Identifying reference	18
	4. Making Inference	20
	5. Identifying generic structure	16
Reading V	1. Finding synonym of the word	22
	2. Identifying factual information	23
	3. Identifying reference	21
	4. Making Inference	24
	5. Identifying generic structure	25

F. The Research Procedure

In this research, the writer divided the procedure of this research into three phases. This activity was done to see the students' reading comprehension on hortatory exposition text taught by using this strategy and without using this strategy in teaching learning.

1. The Procedures of Collecting Data for Experimental Group

a. Pre-Test

Before treatment, students in experimental group were given pre-test. The purpose was to know the students' reading comprehension on hortatory exposition text before treatment. Pre-test was conducted at the first meeting. The number of students who followed the pre-test was 32 students. The test items consisted of 25 items of multiple choices.

b. Treatment (Arguments on a Card strategy)

After giving the pre-test, student in experimental class were given the treatment. Treatment was conducted at the second meeting to seventh meeting. The treatment was given in six meetings.

c. Post-Test

Post-test was done at once. After doing treatment, gave post-test to the student. It aimed to know there is an effect on the students' reading comprehension on hortatory exposition text by applying Arguments on a Card strategy. It was done to figure out whether there is a significant different between the two groups.

2. The Procedures of Collecting Data for Control Group

a. Pre-test

The goals, items, and procedures of the test for control group were the same as those conducted for experimental group; the difference was only on the time.

b. Conventional teaching strategy

After giving the pre-test in control class, the writer teach the students by using conventional teaching strategy. It was done at six meeting too.

c. Post-test

Post-test in control group was done at once. Post-test for both experimental and control group were administrated after giving the treatment to experimental group. The result of the post-test for both experimental group and control group were analyzed and used as the final data for this research.

G. The Technique of Data Analysis

In analyzing the students' reading comprehension on hortatory exposition text, the writer used passing grade of English lesson in SMA N 1 Kampar. It was 75 for students' reading comprehension. It means that for those who got score > 75 , they pass the passing grade. While for those who got score < 75 they don't pass the passing grade.

In here, the writer used the statistical calculation of independent sample T-test formula and Nonindependent sample $t_{\text{-test}}$ formula.

1. Independent sample T-test

Independent sample $t_{\text{-test}}$ formula is used to find out whether there is significant difference or there is no significant difference between two or more variables can be analysed by using Independent Sample t_{test} .⁸ Gay added that the

⁸Hartono, *Statistik Untuk Penelitian* (Pekanbaru: Pustaka Pelajar, 2010), p.177-9

t-test for independent sample is used to determine whether there is probably a significant difference between the means of two independent samples.⁹ Independent sample t-test was used to find out the results of the first and second hypotheses. They were as follow:

1. To find out whether there was significant difference of reading comprehension on hortatory exposition text before being taught by using Arguments on a Card Strategy for experimental class and conventional teaching strategy for control class.
2. To find out whether there was significant difference of reading comprehension on hortatory exposition text after being taught by using Arguments on a Card Strategy for experimental class and conventional teaching Strategy for control class.

In this research, the writer analyzed by using SPSS 16.

The formula was as follows:

$$t_o = \frac{M_x - M_y}{\sqrt{\left(\frac{SD_x}{\sqrt{N-1}}\right)^2 + \left(\frac{SD_y}{\sqrt{N-1}}\right)^2}}$$

Where:

- t_o = Table Observation
- SD = Standard Deviation
- M_x = Mean of variable x and
- M_y = Mean of variable y

⁹L.R Gay, Op.cit, p. 484.

SD_x = Standard deviation of experimental group

SD_y = Standard deviation of control group

N = The Number of respondent

The t-table has the function to see if there is a significant difference among the mean of the score of both experimental and control group.

Then, the data from the classroom used the category standard as follows: ¹⁰

Table III.5

The Classification of Students' Score

THE SCORE OF COMPREHENSION LEVEL	CATEGORY
80-100	Very Good
66-79	Good
56-65	Enough
40-55	Less
30-39	Fail

The t-test was obtained by considering the degree of freedom (df) = $(n_1+n_2)-2$ statistically, the hypotheses were:

$$H_0: t_0 < t\text{-table}$$

$$H_a: t_0 > t\text{-table}$$

H_a is accepted if $t_0 > t\text{-table}$ or there is significant effect after using Arguments on a Card Strategy toward students' reading comprehension on hortatory exposition text.

¹⁰Suharsimi Arikunto, *Dasar-dasar Evaluasi Pendidikan (edisi revisi)*, (Jakarta: Bumi Aksara, 2009), p.245

Ho is accepted if $t_o < t_{\text{table}}$ or there is no significant effect after Arguments on a Card Strategy toward students' reading comprehension on hortatory exposition text.

2. Nonindependents Sample T-test Formula

Nonindependent sample t_{test} is known also as Paired-Sample t_{test} . The writer used this formula to obtain the result of the third hypothesis that was to find out whether there was significant effect of using Arguments on a Card Strategy toward reading comprehension on hortatory exposition text of the second year students at State Senior high School 1 Kampar. L.R Gay states that t test for non independent samples is used to compare groups that are formed by some type of matching or to compare a single group's performance on a pre- and posttest or on two different treatments¹¹. In this time, the writer used pre-test and post-test score of the experimental class in order to find the significant effect of using Arguments on a Card Strategy toward reading comprehension on hortatory exposition text of the second year students at State Senior High School 1 Kampar. To obtain the data, the writer used SPSS 16. The formula of paired-sample t_{test} :

$$t = \frac{\bar{D}}{\frac{\sum D^2 - \frac{(\sum D)^2}{N}}{N(N-1)}}$$

D : Gain Score ($D=X_2-X_1$)

The t -table has the function to see if there is a significant difference among the mean of the score of both pretest and posttest. The t -obtained value is

¹¹L.R Gay, Op.cit, p. 488.

consulted with the value of t-table at the degree of freedom (df) = N-1 which is statistically hypothesis:

Ha: $t_o > t\text{-table}$

Ho: $t_o < t\text{-table}$

Ha is accepted if $t_o > t\text{-table}$ or there is significant effect after using Arguments on a Card Strategy toward students' reading comprehension on hortatory exposition text.

Ho is accepted if $t_o < t\text{-table}$ or there is no significant effect after using Arguments on a Card Strategy toward students' reading comprehension on hortatory exposition text

H. Validity and Reliability of Instrument

To obtain the data from the sample of the research, the writer constructed and used the instruments of the research. It was a written test taken from English book material for 25 items. The kind of the test was multiple choices with four options, they were A, B, C, or D. The written tests were made from the indicators of reading comprehension on hortatory exposition text are:

1. Finding synonym of the word
2. Finding factual information
3. Identifying reference
4. Making inference
5. Identifying generic structure

Before giving the test to the sample of the research, the writer made try out to the other class to determine the validity and reliability of the instruments. The test items which were not valid and variable were changed to the other item.

1. Validity

To analyze the validity of data, the writer used item difficulty by using the formula below¹²:

$$FV = \frac{R}{N}$$

Where = FV : Index of difficulty

R : the number of the correct answer

N : the number of students taking test

The standard level of difficulty is < 0.30 and >0.70. Then, the proportion correct is represented by “p”, whereas the proportion of incorrect is represented by “q”. It can be seen in the following table:

Table III.6
Indicator 1: Finding Synonym

Indicator	Students are Able to Find Synonym of the Word					N
Item No.	1	7	12	17	22	32
Correct	21	16	10	21	21	
P	0.66	0.50	0.31	0.66	0.66	
Q	0.34	0.50	0.69	0.34	0.34	

¹² J. B. Heaton, *Writing English Language Test*, (New York: Longman, Inc., 1988), pp.178-179

Based on the table above, the proportion of the correct answer for reading comprehension test of item number 1 shows the proportion of correct **0.66**, item number 7 shows the proportion of the correct **0.50**, item number 12 shows the proportion of the correct **0.31**, item number 17 shows the proportion of the correct **0.66**, and item number 22 shows the proportion of the correct **0.66**. Based on the standard level of difficulty “p” <0.30 and >0.70 , it indicates that item difficulties in average of items number for finding synonym of the word from reading comprehension are accepted.

Table III.7

Indicator 2: Factual Information

Indicator	Students are Able to Find Factual Information					N
Item No.	4	10	11	19	23	32
Correct	21	11	18	19	17	
P	0.66	0.34	0.56	0.59	0.53	
Q	0.34	0.66	0.44	0.41	0.47	

Based on the table above, the proportion of the correct answer for reading comprehension test of item number 4 shows the proportion of correct **0.66**, item number 10 shows the proportion of correct **0.34**, item number 11 shows the proportion of correct **0.56**, item number 19 shows the proportion of correct **0.59**, and item number 23 shows the proportion of correct **0.53**. Based on the standard level of difficulty “p” <0.30 and >0.70 , it indicates that item difficulties in average

of items number in finding factual information from reading comprehension are accepted.

Table III.8

Indicator 3: Identify Reference

Indicator	Students are Able to Identify Reference					N
Item No.	2	6	14	18	21	32
Correct	12	20	10	13	16	
P	0.37	0.62	0.31	0.40	0.50	
Q	0.63	0.38	0.69	0.60	0.50	

Based on the table above, it can be seen that the proportion of the correct answer for reading comprehension test of item number 2 shows the proportion of correct **0.37**, item number 6 shows the proportion of correct **0.62**, item number 14 shows the proportion of correct **0.31**, item number 18 shows the proportion of correct **0.40**, and item number 21 shows the proportion of correct **0.50**. Based on the standard level of difficulty “p” <0.30 and >0.70 , it indicates that item difficulties in average of items number for finding locating reference in reading comprehension are accepted.

Table III.9

Indicator 4: Making Inference

Indicator	Students are Able to Make Inference					N
Item No.	5	8	13	20	24	32
Correct	22	14	11	10	13	
P	0.69	0.44	0.34	0.31	0.40	
Q	0.31	0.56	0.66	0.69	0.60	

Based on the table above, the proportion of the correct answer for reading comprehension test of item number 5 shows the proportion of correct **0.69**, item number 8 shows the proportion of correct **0.44**, item number 13 shows the proportion of correct **0.34**, item number 20 shows the proportion of correct **0.31**, and item number 24 shows the proportion of correct **0.40**. based on the standard level of difficulty “p” <0.30 and >0.70 , it indicates that item difficulties in average of items number for making inference from reading comprehension are accepted.

Table III.10
Indicator 5: Generic Structure

Indicator	Students are Able to Identify Generic Structure					N
Item No.	3	9	15	16	25	32
Correct	15	20	12	17	19	
P	0.47	0.62	0.37	0.53	0.59	
Q	0.53	0.38	0.63	0.47	0.41	

Based on the table above, the proportion of the correct answer for reading comprehension test of item number 3 shows the proportion of correct **0.47**, item number 9 shows the proportion of correct **0.62**, item number 15 shows the proportion of correct **0.37**, item number 16 shows the proportion of correct **0.53**, and item number 25 shows the proportion of correct **0.59**. based on the standard level of difficulty “p” <0.30 and >0.70 , it indicates that item difficulties in average of items number for identify generic structure from reading comprehension are accepted.

2. Reliability

Brown says that reliability has to do with accuracy of measurement. This kind of accuracy was reflected in obtaining of similar results when measurement was repeated on different occasions or with different instruments or by different persons. The characteristic of reliability was sometimes termed consistency.¹³

¹³ H. Douglass Brown, *Language Assessment: Principles and Classroom Practices*. (New Rork: Pearson Education Inc, 2003)19

Reliability means that scores from an instrument are stable and consistent.¹⁴ It Means that the test was reliable when an examiner's results were consistent on repeated measurement. Writer estimated the reliability of instruments through its internal consistency. Regarding to the internal consistency of instruments, here the writer used cronbach alpha formula.

To obtain the reliability of the test, it must know the mean and standard deviation of test. Reliability in general refers to appropriateness of a given test of its component part as measure of what it was purposed to measure. It means the test will be valid to the extent that was measured what it was supposed to measure.

Ary et al in Ilham Akbar stated that coefficient alpha or also called cronbach alpha has wider applications than K-R 20 formula. When items are scored dichotomously, it yields the same result as the K-R 20, but it can also be used when items are not score dichotomously¹⁵. Coefficient generally provides a good estimate of reliability¹⁶. The cronbach coefficient was computed by using SPSS 16. The following is the level of internal consistency of cronbach¹⁷.

¹⁴ John W. Creswell, *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*. (3rd ed.; New Jersey: Pearson Education, Inc., 2008), p. 169

¹⁵Ilham Akbar Yarmi, *TheEffect of Using Directed Reading-Thinking Activity (DR-TA) Strategy toward Students' Reading Comprehension of Narrative Text at the First Year of Senior High School Al Huda Pekanbaru*. (Graduated Thesis, State Islamic University Sultan SyarifKasim of Riau, 2012).p.43

¹⁶*Ibid.*,

¹⁷*Ibid.*,

Table III.11

**A Commonly Accepted Rule of Thumb
For Describing Internal Consistency by Using Cronbach**

Cronbach's alpha	Internal Consistency
.9	Excellent
.9 > .8	Good
.8 > .7	Acceptable
.7 > .6	Questionable
.6 > .5	Poor
.5 >	Unacceptable

To obtain the reliability of the test given, the writer used the SPSS 16 to find out whether the test is reliable or not.

Table III.12**Cronbach Alpha Table**

Reliability Statistics		
Cronbach's Alpha ^a	Cronbach's Alpha Based on Standardized Items ^a	N of Items
.766	.800	25

Based on the table above, it can be seen that score of reliability of the tests is **0.766**. Then, to know the significance level between r_o and r_t , the writer compares r_o and r_t (r table), where in level of significance of 5% is 0.349, and in level of significance of 1% is 0.449. The r_o is higher than r table whether in the level of 5% and 1% ($0.349 < 0.766 > 0.449$). It means that the test is reliable. While the score of reliability is 0.766, it means that $.800 > .766 > .700$. So, the reliability of test was Acceptable.