CHAPTER III

RESEARCH METHODOLOGY

A.   Research Design

This research was an experimental research. In a sample definition, experimental research is the only type of research that can test hypotheses to establish cause and effect relationship (Gay & Airasian, 2000, p. 321).

Experimental research is divided into three group designs; they are pre experimental, true experimental, and quasi experimental design (Gay & Airasian, 2000, p. 378). Then, the kind of this research was quasi-experimental by using pre-test and post-test non equivalent control group. Quasi experimental research is the stuff of field experimentation (Cohen, et.al, 2007, p. 282). This research involved two groups; they were an experimental group and a control group. This research tried to find out the effect on students' reading comprehension taught by using DARTs strategy.

Therefore, there were two variables in this research, first was using DARTs (Directed Activities Related to Texts) strategy as the variable X and second was students' reading comprehension as the variable Y. The type of this research can be designed as follows (Cohen, 2007, p. 283).

TABLE III.1
Research Design

Group	Pre-test	Treatment	Post test
E	O_1	X	O_2
C	O_3	-	O_4

36

E   = Experimental Group
C   = Control Group
O_1 = Pre-test to Experimental Group
O_2 = Post-test to Experimental Group
X   = Receive the treatment using DARTs strategy
O_3 = Pre-test to Control Group
O_4 = Post-test to Control Group

B. Location and Time of the Research

This research was conducted at State Senior High School 1 Kampar Kiri Tengah from March to April in 2017.

C. Subject and Object of the Research

The subject of this research was the eleventh grade students of State Senior High School 1 Kampar Kiri Tengah. The object of this research was the effect of using DARTs (Directed Activities Related to Texts) strategy on students' reading comprehension in narrative text.

D. Population and Sample of the Research

1. Population

The population of this research was the eleventh grade students of State Senior High School 1 Kampar Kiri Tengah 2016/2017 academic year. There were six classes of the eleventh grade students. It consisted of four social classes and two science classes. The total number of population was 198 students, each of class has different total numbers of students; the first class or XI IPA 1 there are 36 students, there are 36 students in the XI IPA 2 class, 33 students in XI IPS 1 class, 29 students in the XI IPS 2 class, 32 students in XI IPS 3 class and the last class or XI IPS 4 there are 32 students.

2. Sample of The Research

Sample is the amount of participants that is selected by the writer to collect the data of research. According to Gay and Airasian (2000), sampling is the process of selecting a number of individuals for a study in such a way that they represent the larger group from which they were selected. In selecting the participants, the writer used cluster random sampling technique. She had chosen the classes to be the sample by lottery. The writer made the paper rolls, and then selected it randomly. The classes involved were class XI IPS 3 for experimental class and class XI IPS 4 for the control class. In addition, both classes were given pre-test and post-test. Also, the experimental class was given the treatment by using DARTs strategy and control class was given the conventional strategy. The experimental class consisted of 32 students while the control class consisted of 32 students. Hence, the total of the samples was 64 students.

E. Technique of Collecting Data

In collecting the data for this research, the writer used test as a technique to collect the data. This technique was used to find out the students' score in reading comprehension of narrative text. The test was given in the pre-test and post-test. Pre-test was used to determine students' reading comprehension before getting treatment. Post-test was used to determine students' reading comprehension after getting treatment. The number of each pre-test and post-test consisted of 25 items. After the

students did the test, then the writer took the total score from the result of reading comprehension test. The classification of the students' score can be seen as follows: (Arikunto, 2009, p. 281):

TABLE III.2
The Classification of Students' Score

Score	Categories
80-100	Very Good
66-79	Good
56-65	Enough
40-55	Less
30-39	Fail

Furthermore, below is the description of the Blue-print of the test. It was developed into the questions of test. The instrument of reading comprehension of narrative text in this research included some aspects. They were about identifying the orientation of the text, identifying complication of the text, identifying social function of the text, identifying the meaning of word of the text, and identifying the generic structure of the text. So, the students had to choose the best answer.

TABLE III.3
Blue Print of Reading Comprehension (Try Out)

No	Indicator of Variable Y	Items number in Try Out
1	The students are able to identify the orientation of narrative text	2, 7, 12, 17, 22, 27, 32, 37, 42, 47
2	The students are able to identify complication of narrative text	3, 8, 13, 18, 23, 28, 33, 38, 43, 48
3	The students are able to identify social function of narrative text	1, 6, 11, 16, 21, 26, 31, 36, 41, 46
4	The students are able to identify the meaning of word of narrative text	4, 9, 14, 19, 24, 29, 34, 39, 44, 49
5	The students are able to identify the generic structure of narrative text	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
	Total	50

TABLE III.4
Blue Print of Reading Comprehension (Pre-test and Post-test)

No	Indicator of Variable Y	Number of items	Items number in Pre-test	Items number in Post-test
1.	The students are able to identify the orientation of narrative text	5	2, 7, 12, 17, 22	2, 7, 12, 17, 22
2.	The students are able to identify complication of narrative text	5	3, 8, 13, 18, 23	3, 8, 13, 18, 23
3.	The students are able to identify social function of narrative text	5	1, 6, 11, 16, 21	1, 6, 11, 16, 21
4.	The students are able to identify the meaning of word of narrative text	5	4, 9, 14, 19, 24	4, 9, 14, 19, 24
5.	The students are able to identify the generic structure of narrative text	5	5, 10, 15, 20, 25	5, 10, 15, 20, 25
Total			25	

Furthermore, below is the description of validity, reliability, homogeneity, and normality of data of this research.

1. **Validity**

In research, validity is a requirement in the test. The validity of test is very important to prove that the test can be used. According to Cohen, et.al (2007), validity is an important key to effective research. It means that the research is called as effective if the test is valid. Besides, Ary, et. al (2010) stated that validity is the most important consideration in developing and evaluating measuring instruments. Based on the statement above, validity is a way to know that the instrument can be used in research. On the other hand, Gay & Airasian (2000) stated that validity is concerned with the appropriateness of the interpretations made from tests score. Furthermore, Brwon (2003) also mentioned that there are five types of validity, they are content-related evidence, criterion-related evidence, construct-related evidence, consequential validity and face validity. Among all kinds of

validity, the content validity was the most appropriate to measure the instrument used in this research.

In term of content validity, Brown (2003) stated that it refers to the content of the test provide samples about the subject matter are being measured. It means that we have to design the tests based on the material that they had learned, thus, the writer concluded that this research belonged to the content validity in consideration of the tests reflected to what the students had learned the content of the curriculum.

In other words, the tests were given based on the material that they had learned and concerned with five components as follows:

1. The students are able to identify the orientation of narrative text.

2. The students are able to identify the complication of narrative text.

3. The students are able to identify the social function of narrative text.

4. The students are able to identify the meaning of narrative text.

5. The students are able to identify the generic structure of narrative text.

Before the tests were given to the samples, the tests were tried out in order to obtain validity and reliability of the tests. It was determined by finding the difficulty level of each item. The item of difficulty was determined as the proportion of correct responses. The formula for item of difficulty can be seen as follows (Arikunto, 2009, p. 209):

$$P = \frac{B}{JS}$$

Where:

P   = Index of difficulty or facility value

B   = The number of correct answers

JS   = The number of examinees or students taking the test

The formula above was used to find out easy or difficult test items that writer gives to the respondents. As mentioned by Arikunto (2009) that the standard value of the proportion of corrects can be seen in the table below:

Table III.5
Index Difficulty Level of Instruments

Proportion correct (p)	Item category
P > 0.70	Easy
$0.30 \leq P \leq 0.70$	Mean
P < 0.30	Difficult

P = The proportion of the students making correct answers divided by the total number of the students

Q = The proportion of the students making incorrect answers divided by the total number of the students.

The standard level of the difficulty used was >0.30 and <0.70, thus, the items were accepted if the level of difficulty between 0.30 – 0.70 and it was rejected if the level of difficulty below 0.30

(difficult) and over 0.70 (easy). The calculation of the items difficulty can be seen as in the following tables:

Table III.6
Students' Reading Comprehension of Identifying
Social Function in Narrative Text

Variable	Identifying Social Function										N
Item no.	1	6	11	16	21	26	31	36	41	46	
Correct	23	10	25	20	7	24	25	22	30	25	36
P	**0.64**	0.28	**0.69**	**0.56**	0.19	**0.67**	**0.69**	**0.61**	0.83	**0.69**	
Q	0.36	0.72	0.31	0.44	0.81	0.33	0.31	0.39	0.17	0.31	

Based on the Table III.8 above, the proportion of correct answer for item number 1 shows the proportion of correct 0.64, item number 6 shows the proportion of correct 0.28, item number 11 shows the proportion of correct 0.69, item number 16 shows the proportion of correct 0.56, item number 21 shows the proportion of correct 0.19, item number 26 shows the proportion of correct 0.67, item number 31 shows the proportion of correct 0.69, item number 36 shows the proportion of correct 0.61, item number 41 shows the proportion of correct 0.83,and item number 46 shows the proportion of correct 0.69. Based on the standard level of difficulty "P" <0.30 and >0.70, it is pointed out that item difficulties in average of each item number for identifying the social function of text was accepted which was 7 items; item number 1, 11, 16, 26, 31, 36, and 46, and there were 3 items rejected; item number 6, 21, and 41.

Table III.7
Students' Reading Comprehension of Identifying
Orientation in Narrative Text

Variable	Identifying Orientation										N
Item no.	2	7	12	17	22	27	32	37	42	47	
Correct	25	10	25	23	3	18	20	16	7	25	36
P	**0.69**	0.28	**0.69**	**0.64**	0.08	**0.50**	**0.56**	**0.44**	0.19	**0.69**	
Q	0.31	0.72	0.31	0.36	0.92	0.50	0.44	0.56	0.81	0.31	

Based on the Table III.9 presented above, the proportion of correct answer for item number 2 shows the proportion of correct 0.69, item number 7 shows the proportion of correct 0.28, item number 12 shows the proportion of correct 0.69, item number 17 shows the proportion of correct 0.64, item number 22 shows the proportion of correct 0.08, item number 27 shows the proportion of correct 0.50, item number 32 shows the proportion of correct 0.56, item number 37 shows the proportion of correct 0.44, item number 42 shows the proportion of correct 0.19,and item number 47 shows the proportion of correct 0.69. Based on the standard level of difficulty "P" <0.30 and >0.70, it is pointed out that item difficulties in average of each item number for identifying the orientation of text was accepted which was 7 items; item number 2, 12, 17, 27, 32, 37, and 47, and there were 3 items rejected; item number 7, 22, and 42.

Table III.8
Students' Reading Comprehension of Identifying
Complication in Narrative Text

Variable	Identifying Complication										N
Item no.	3	8	13	18	23	28	33	38	43	48	
Correct	21	5	19	20	3	20	13	22	10	20	36
P	**0.58**	0.14	**0.53**	**0.56**	0.08	**0.56**	0.36	**0.61**	0.28	**0.56**	
Q	0.42	0.86	0.47	0.44	0.92	0.44	0.64	0.39	0.72	0.44	

From the Table III.10 above, the proportion of correct answer for item number 3 shows the proportion of correct 0.58, item number 8 shows the proportion of correct 0.14, item number 13 shows the proportion of correct 0.53, item number 18 shows the proportion of correct 0.56, item number 23 shows the proportion of correct 0.08, item number 28 shows the proportion of correct 0.56, item number 33 shows the proportion of correct 0.36, item number 38 shows the proportion of correct 0.61, item number 43 shows the proportion of correct 0.28,and item number 48 shows the proportion of correct 0.56. Based on the standard level of difficulty "P" <0.30 and >0.70, it is pointed out that item difficulties in average of each item number for identifying the complication of text was accepted which was 7 items; item number 3, 13, 18, 28, 33, 38, and 48, and there were 3 items rejected; item number 8, 23, and 43.

Table III.9
Students' Reading Comprehension of Identifying
the Meaning of Word in Narrative Text

Variable	Identifying The Meaning of Word										N
Item no.	4	9	14	19	24	29	34	39	44	49	
Correct	22	3	17	18	9	16	19	20	5	23	36
P	**0.61**	0.08	**0.47**	**0.50**	0.25	**0.44**	**0.53**	**0.56**	0.14	**0.64**	
Q	0.39	0.92	0.53	0.50	0.75	0.56	0.47	0.44	0.86	0.36	

Based on the Table III.11, the proportion of correct answer for item number 4 shows the proportion of correct 0.61, item number 9 shows the proportion of correct 0.08, item number 14 shows the proportion of correct 0.47, item number 19 shows the proportion of correct 0.50, item number 24 shows the proportion of correct 0.25, item number 29 shows the proportion

of correct 0.44, item number 34 shows the proportion of correct 0.53, item number 39 shows the proportion of correct 0.56, item number 44 shows the proportion of correct 0.14, and item number 49 shows the proportion of correct 0.64. Based on the standard level of difficulty "P" <0.30 and >0.70, it is pointed out that item difficulties in average of each item number for identifying the meaning of word of text was accepted which was 7 items; item number 4, 14, 19, 29, 34, 39, and 49, and there were 3 items rejected; item number 9, 24, and 44.

Table III.10
Students' Reading Comprehension of Identifying
Generic Structure in Narrative Text

Variable	Identifying Generic Structure										N
Item no.	5	10	15	20	25	30	35	40	45	50	
Correct	17	7	23	25	10	21	22	25	27	25	36
P	**0.47**	0.19	**0.64**	**0.69**	0.28	**0.58**	**0.61**	**0.69**	0.75	**0.69**	
Q	0.53	0.81	0.36	0.31	0.72	0.42	0.39	0.31	0.25	0.31	

Based on the Table III.12 presented above, the proportion of correct answer for item number 5 shows the proportion of correct 0.47, item number 10 shows the proportion of correct 0.19, item number 15 shows the proportion of correct 0.64, item number 20 shows the proportion of correct 0.69, item number 25 shows the proportion of correct 0.28, item number 30 shows the proportion of correct 0.58, item number 35 shows the proportion of correct 0.61, item number 40 shows the proportion of correct 0.69, item number 45 shows the proportion of correct 0.75, and item number 50 shows the proportion of correct 0.69. Based on the standard level of difficulty "P" <0.30 and >0.70, it is pointed out that item difficulties in average of each

item number for identifying the generic structure of text was accepted which was 7 items; item number 5, 15, 20, 30, 35, 40, and 50, and there were 3 items rejected; item number 10, 25, and 45.

2. Reliability

A test must first be reliable as measuring instrument. According to Brown (2004), a reliable test is consistent and dependable. Reliability has to do with accuracy of measurement. The kind of accuracy is reflected in obtaining similar results when measurement was repeated on different occasions or with different instruments or by different persons. It can be concluded that the test is reliable when an examiner's results are consistent on repeated measurement. In obtaining the reliability of the test, the means and standard deviation of the test should be obtained. Generally, reliability refers to appropriateness of a given test of its component part as measure of what it was purposed to measure. It means that the test is valid to the extent that is measured what it is supposed to measure. According to Arikunto (2009), the reliability for good classroom achievement tests are expected to exceed 0.0 and closed 1.00. He stated that reliability of test is considered as follows:

1. 0.0 – 0.20   = Reliability is poor
2. 0.21 – 0.40   = Reliability is satisfactory
3. 0.41 – 0.70   = Reliability is good
4. 0.71 – 1.0   = Reliability is excellent

Table III.11
Case Processing Summary

		N	%
Cases	Valid	32	100.0
	Excluded[a]	0	.0
	Total	32	100.0

Table III.12
Reliability Statistic

Cronbach's Alpha	N of Item
.870	2

Based on the table above, it can be seen that the value of Cronbach's Alpha is 0.870. Based on the level stated by Arikunto above, it can be said that reliability was accepted which was 0.71<0.870<1.0 or higher than 0.71 and lower than 1.0. It also can be stated that reliability is excellent level.

3. Homogeneity

Homogeneity test is a test to identify whether the objects of the research (three or more samples) have the same variance. The strategy used in homogeneity test is the biggest variant which is compared to smallest variance. Homogeneity of variances is also called as equal variances.

In this research, the writer used SPSS 23 version to assess the homogeneity of the data. The result of assessing the homogeneity can be seen as follows:

Table III.13
Test of Homogeneity

Levene Statistic	df1	df2	Sig.
1.700	6	21	.170

From the table, it is known that the value of significance (sig.) was 0.170. Data are homogenous or variant when the value Sig. is higher than 0.05. Based on the table, it is clear that Sig. was higher than 0.05 which indicates the homogeneity of the data. The comparison can be stated as $0.170 > 0.05$.

4. Normality

Assessing normality of data is used to describe a symmetrical, bell shaped curve, which has the greatest frequency of score in the middle, with smaller frequency towards the extremes. In this research, the writer assessed the normality of data by using kolmogorov smirnov test from SPSS 23 version. The result of the test can be seen as follows:

Table III.14
Test of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Post-test experiment	.144	32	.089	.963	32	.330
Post-test control	.131	32	.176	.979	32	.756

a. Lilliefors Significance Correction

Based on the table above, it is obtained that the significant (Sig.) of Post-test in Experimental group was 0.089. Then, the significance (Sig.) of post-test in Control group was 0.176. The data of this research were normal. It was measured by using Kolmogorov Smirnov table. It

explains that the data called normal if > 0.05. So, the data gotten from this research were normal.

F. Technique of Analysis Data

In order to find out whether there is a significant difference on students' reading comprehension taught without using DARTs (Directed Activities Related to Texts) Strategy and students' reading comprehension taught by using DARTs (Directed Activities Related to Texts) Strategy. The data were analyzed statistically. In investigating the difference between students' reading comprehension taught by using DARTs (Directed Activities Related to Texts) Strategy and by using conventional strategy, the writer compared the scores of post-test of the experimental group and control group of this research. The different means were analyzed by using T-test formula through using SPSS 23 version.

Also, to determine effect size of the result, the writer adopted Eta squared formula. According to Pallant (2010, p. 247), the formula of eta square is presented below:

$$Eta\ Squared = \frac{t^2}{t^2 + (N_1 + N_2 - 2)}$$

Note:

t = The t-value

N_1 = The number of group one (the experimental class)

N_2 = The number of group two (the control class)

Additionally, Pallant (2010, p. 210) also informed that the guidelines for interpreting this value are:

0.01 = small effect

0.06 = medium effect

0.14 = large effect.

Then to find out whether H_a or H_o is rejected or accepted, the hypotheses are statistically formulated as follows:

Ha = to > t-table

Ho = to < t-table

H_a : 1. H_a is accepted if $t_0 >$ t-table or there is a significant difference in the students' reading comprehension taught without using DARTs strategy and taught by using DARTs strategy.

2. H_a is accepted if $t_0 >$ t-table or there is a significant effect of using DARTs strategy on students' reading comprehension in narrative text at State Senior High School 1 Kampar Kiri Tengah.

H_0 : 1. H_0 is accepted if $t_0 <$ t-table or there is no significant difference in the students' reading comprehension taught without using DARTs strategy and taught by using DARTs strategy.

2. H_0 is accepted if $t_0 <$ t-table or there is no significant effect of using DARTs strategy on students' reading comprehension in

narrative text at State Senior High School 1 Kampar Kiri
Tengah.