CHAPTER IV

RESEARCH FINDINGS AND ANALYSIS

A. Description of Research Findings

Findings of this research described that there were different result between students who were taught using TGT strategy and students who were not taught using TGT strategy in teaching reading comprehension on narrative text at tenth grade students in MAN Gubug Grobogan in academic year 2015/2016.

The research had been conducted since 12nd April to 4thMay 2016 in MAN Gubug Grobogan. This research had been carried through some steps. They were involved try-out test, pre-test, treatment, and post test. The researcher did an analysis of quantitative data. The data was obtained by giving test to the experimental class and control class after giving a different treatment for both classes. The subjects of the research were divided into three classes. They were try-out class (XI IPA1), experimental class (X A), and control class (X B).

Before the test was used an instrument to collect the data, it had been tried out first to the students in tryout class. Try-out was conducted for students in the class XI IPA1 of MAN Gubug Grobogan who were had been got the material of narrative text. The researcher prepared 30 items as the

instrument of the test. From 30 test items of tryout, some items were chosen as the instrument of the test. The choosing of the instrument had been done by considering many categories, like: validity, reliability, degree of test difficulty, and discriminating power. After the data were collected, the researcher analyzed it. The analysis was to get a good instrument for investigation. Then, the researcher did the pre-test to both classes, experimental and control group. It was to know the groups were normal and have same variant.

Before the activities were conducted, the researcher determined the materials and lesson plan of learning. The experimental class taught using TGT strategy, while the control class without using TGT strategy.

After giving different treatment for experimental class and control class, the researcher gave the post-test for both classes. The test was used to gain information of reading comprehension skill for experimental and control class after the different treatment had already given.

B. The Data Analysis and Test of Hypothesis

1. The Data Analysis of Try-out Instrument

This discussion covered validity, reliability, degree of test difficulty, and discriminating power.

a. Validity of instrument

Validity is a condition in which a test can measure what is supposed to be measured. In this study, validity is used to know the index validity of test. The result of this research was consulted to critical score for r-product moment or table. If the obtained coefficient of correlation was higher than critical score for r-product moment, it meant that a test was valid at 5% degree of significant. On the contrary, if $r_{count} < r_{table}$ the item test was invalid.

Table 4.1

Analysis of Item Test Validity

No item	Validity		Criteria	No item	Validity		Criteria
	r_{count}	r_{table}			r_{count}	r_{table}	
1	4,512	0,602	Valid	16	4,23	0,602	Valid
2	4,4838		Valid	17	3,78		Valid
3	2,751		Valid	18	3,458		Valid
4	5,176		Valid	19	4,456		Valid
5	4,23		Valid	20	0,485		Invalid
6	4,012		Valid	21	3,887		Valid
7	0,485		Invalid	22	5,176		Valid
8	4,088		Valid	23	2,896		Valid
9	5,176		Valid	24	4,484		Valid
10	3,196		Valid	25	0,534		Invalid
11	4,048		Valid	26	3,327		Valid
12	2,804		Valid	27	3,536		Valid
13	0,436		Invalid	28	1,759		Valid
14	6,311		Valid	29	2,542		Valid
15	0,4365		Invalid	30	4,3144		Valid

The following is the example of item validity computation for item number 1 and for the other items would use the same formula.

$$r_{pbi} = \frac{M_p - M_t}{SD_t}\sqrt{\frac{p}{q}}$$

N = 13

$\sum X = 9$ $\sum Y^2 = 3654$

$\sum Y = 204$ $\sum XY = 166$

$$M_p = \frac{\sum XY}{\sum X} = \frac{166}{9} = 18{,}44$$

$$M_t = \frac{\sum Y}{N} = \frac{9}{13} = 0{,}692$$

$$p = \frac{\sum X}{N} = \frac{9}{13} = 0{,}692$$

$$q = 1 - p = 1 - 0{,}692 = 0{,}308$$

$$SD_t = \sqrt{\frac{\sum Y^2 \frac{(\sum Y)^2}{N}}{N}}$$

$$= \sqrt{\frac{3654 \frac{(204)^2}{13}}{13}} = 5{,}902$$

$$r_{pbi} = \frac{M_p - M_t}{SD_t}\sqrt{\frac{p}{q}}$$

$$= \frac{18{,}44 - 0{,}692}{5{,}902}\sqrt{\frac{0{,}692}{0{,}308}}$$

= 4,512

From the computation above, the result of computing validity of the item number 1 is 4,512. Because the result of computation (r_{count})was higher than r_{table}, (4,512 > 0,602) the index of of validity of the item number 1 was considered to be valid. The list of validity of each item could be seen in appendix.

It is obtained that from 30 test items as instrument of try-out test: there were 25 test items which were valid, and 5 test items which were invalid. The list of validity of each item could be seen in appendix.

Table 4.2

Validity of Each Item

Criteria	r_{table}	Number of questions	Total
Valid	0,602	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 14, 16, 17, 18 19, 21, 22, 23, 24, 26, 27, 28, 29, 30	25
Invalid		7, 13, 15, 20, 25	5

b. Reliability of instrument

A good test must be valid and reliable. Besides the index of validity, reliability refers to the consistency of the test scores. Besides having high validity, a good test should have high reliability too. The researcher calculated the reliability of the test using K- R 20 formula:

$$r_{11} = \left(\frac{n}{n-1}\right)\left(\frac{S^2-\sum pq}{S^2}\right)$$

k= 30

$\sum pq = pq_1 + pq_2 + pq_3 + \cdots + pq_{30}$

= 0,213 + 0,213 + 0,249 + … + 0,213

= 5,172

$$S^2 = \frac{\sum Y^2 \frac{(\sum Y)^2}{N}}{N} = \frac{3654 \frac{(204)^2}{13}}{13} = 34{,}83$$

From formula above, we can analyze:

$$r_{11} = \left(\frac{n}{n-1}\right)\left(\frac{S^2-\sum pq}{S^2}\right)$$

$$r_{11} = \left(\frac{30}{30-1}\right)\left(\frac{34{,}83-5{,}172}{34{,}83}\right)$$

= 0,881

From the computation above, it was found out that r_{11} (the total of reliability test) was 0,881, whereas the number of subjects was 30 and the critical value for r table with significance level

5% was 0,7. Thus value resulted from the computation was higher than its critical value. It could be concluded that the test was reliable.

c. Degree of test difficulty

The following was computation of the degree of test difficulty for item number 1 and for the other items would use the formula.

$B = 9$

$JS = 13$

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

$$= \frac{9}{13}$$

$= 0,692$

P = 0,00 - 0,30 difficult

P = 0,30 - 0,70 medium

P = 0,70 - 1,00 easy.

It is proper to say that index difficulty of item number 1 above can be said as the medium category, because the calculation result of the item number 1 was in the interval 0,30 – 0,70.

After computing 30 items of the try-out test, there were 4 items were considered to be easy, 20 items were medium, and 6 items were difficult.

The whole computation result of degree of test difficulty could be seen in appendix.

Table 4.3

Degree of Test Difficulty of Each Item

Criteria	Number of questions	Total
Easy	4, 9, 14, 22	4
Medium	1, 2, 3, 5, 6, 8, 10, 11, 12, 16, 17, 18, 19, 21, 23, 24, 26, 27, 29, 30	20
Difficult	7, 13, 15, 20, 25, 28	6

d. Discriminating Power

The discriminating power is a measure of the effectiveness of a whole test. It measures how well the test items arranged to identify the differences in the students' competence. To do this analysis, the number of try-out subjects was divided into two groups, upper and lower groups.

D = 0,00- 0,20 poor

D = 0,20- 0,40 satisfactory

D = 0,40- 0,70 good

D = 0,70- 1,00 excellent

Table 4.4

The Table of Discriminating Power of Item Number 1

Upper group			Lower group		
No	Code	Score	No	Code	Score
1	UC- 7	1	8	UC- 12	1
2	UC- 4	1	9	UC- 1	0
3	UC- 9	1	10	UC- 8	0
4	UC- 2	1	11	UC- 13	1
5	UC- 3	1	12	UC- 5	0
6	UC- 6	1	13	UC- 10	0
7	UC- 11	1			
Sum		7	Sum		2

The following was computation of discriminating power number 1 and for the other items would use the formula.

BA = 7 BB = 2

JA = 7 JB = 6

$$D = \frac{B_A}{J_A} - \frac{B_B}{J_B} = P_A - P_B$$

$$D = \frac{7}{7} - \frac{2}{6}$$

= 1- 0,333

= 0,667

According to the criteria, the ite number 1 was good, because the calculation result of the item number 1 was on the 0,40 – 0,70. After computating 30 items of try-out test, there were 6 items were considered to be poor, 11 items were satisfactory, 10 items were good, and 3 items were excellent. The result of discriminating power of each item could be seen in appendix.

Table 4.5

Discriminating Power of Each Item

Criteria	Number of questions	Total
Poor	7, 8, 13, 15, 20, 25	6
Satisfactory	3, 5, 10, 12, 14, 16, 18, 26, 28, 29, 30	11
Good	1, 2, 4, 9, 17, 19, 21, 22, 24, 27	10
Excellent	6, 11, 23	3

Based on the analysis on validity, reliability, degree of test difficulty, and discriminating power, finally 25 items were accepted. They were number 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 14, 16, 17, 18 19, 21, 22, 23, 24, 26, 27, 28, 29, 30.

2. The Data Analysis of Pre-Test

a. Normality Test of Pre-test

The normality test is used to know whether the data of control and experimental class which had been collected from the research came from normal distribution or not. To find out the distribution data is used normality test with Chi-square.

Hypothesis:

H_o : the distribution list was normal

H_a : the distribution list was normal

With the criteria H_o accepted if $x^2_{count} < x^2_{table.}$

Table 4.6

The Normality Result of Pre-Test

Class	N	Average	Variants	x^2_{count}	x^2_{table}	Criteria
Experimental	40	71,4	215,4256	10,386	11,070	Normal
Control	30	70,9	259,2368	7,556		Normal

Based on analysis above, it can be seen that x^2_{count} both of class were lower than x^2_{table} ($x^2_{count} < x^2_{table}$), so H_o is accepted. It can be concluded that the distribution data of experimental and control class were normal.

b. Homogeneity Test of Pre-Test

Homogeneity test is used to find out the whether the group is homogeneous or not.

Hypothesis:

H_o: $\sigma_1^2 = \sigma_2^2$

H_a: $\sigma_1^2 \neq \sigma_2^2$

Formula:

$$F = \frac{Vb}{Vk}$$

Table 4.7

The Homogeneity Result of Pre-Test

Class	N	Average	Variants	F_{count}	F_{table}	Criteria
Experimental	40	71,4	215,4256	1,20337	1, 809	Homogeneous
Control	30	70,9	259,2368			

According to the formula above, it is obtained that:

$$F = \frac{Vb}{Vk} = \frac{Biggestvariant}{Smallestvariant}$$

$$= \frac{259,2368}{215,4256} = 1,20337$$

For $\propto$ = 5% with:

dk = nb – 1 = 40 – 1 = 39

dk= nk – 1 = 30 – 1 = 29

$F_{(0.025)(29:39)}$ = 1, 809

Since F $_{count}$< F $_{table}$, the experimental and control group had the same variant.With α = 5% and dk = (40-1=39) : (30-1=29), it is obtained that F_{table} =1, 809. Because F_{count} was lower than F_{table} (1,20337 ≤1, 809). So, Ho was accepted and the two groups had the same variant/ homogeneous**.**

c. The Average Similarity Test of Pre-Test

Hypothesis:

Ho : μ1 = μ2

Ha : μ1 ≠ μ2

Formula:

$$s = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$$

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

Table 4.8

The Average Similarity Test of Pre-Test

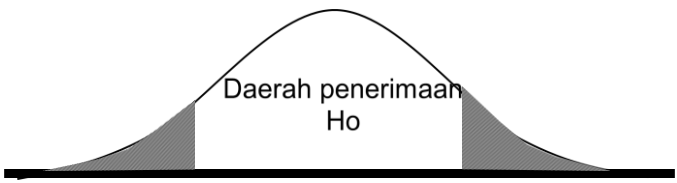
Variation Source	Experimental	Control	Criteria
Total	2856	2128	Ho accepted
N	40	30	
$\bar{X}$	71,4	70,933	
Variants (s^2)	215,4256	259,2368	
Standard deviation (s)	14,77439	16,10083	

According to the formula above, it is obtained that:

$$s = \sqrt{\frac{(40-1)215{,}43 + (30-1)259{,}24}{40+30-2}} = 15{,}30$$

$$t = \frac{71{,}40 - 70{,}93}{15{,}30\sqrt{\frac{1}{40}+\frac{1}{30}}} = 0{,}126$$

For α = 5% and dk = 40 + 30 - 2 = 68, $t_{(0.95)(68)} = 2{,}00$.



-2,00 0,126 2,00

With α = 5% and dk = 40 + 30 – 2 = 68, obtained t_{table} = 2,00. Thus we found out that

$-t_{table} = -2,00 \leq t_{count} = 0,126 \leq t_{table} = 2,00$. Because t_{count} was in the Ho accepted area, so, Ho was accepted and there was no difference of the pre-test average value from both groups.

3. The Data Analysis of Post-Test

After carrying the experiment, the researcher calculated the post test score for each group. This score was used to examine the hypothesis of this research. The final analysis contains of normality test, homogeneity test,and hypothesis test.

a. Normality Test of Post-Test

Hypothesis:

H_o : the distribution list was normal

H_a : the distribution list was normal

With the criteria H_o accepted if $x^2_{count} < x^2_{table.}$

Table 4.9

The Normality Result of Post-Test

Class	N	Average	Variants	x^2_{count}	x^2_{table}	Criteria
Experimental	40	80,45	67,587	10,390		Normal
Control	30	65,07	121,306	8,904	11,070	Normal

Based on analysis above, it can be seen that x^2_{count} both of class were lower than x^2_{table} ($x^2_{count} < x^2_{table}$), so H_o is accepted. It can be concluded that the

distribution data of experimental and control class were normal.

b. Homogeneity Test of Post-Test

Homogeneity test is used to find out the whether the group is homogeneous or not.

Hypothesis:

$H_o : \sigma_1^2 = \sigma_2^2$

$H_a : \sigma_1^2 \neq \sigma_2^2$

Formula:

$$F = \frac{Vb}{Vk}$$

Table 4.10

The Homogeneity Result of Post-Test

Class	N	Average	Variants	F_{count}	F_{table}	Criteria
Experimental	40	80,45	67,587	1,795	1,809	Homogeneous
Control	30	65,07	121,3057			

According to the formula above, it is obtained that:

$$F = \frac{Vb}{Vk} = \frac{biggest\ variant}{smallest\ variant}$$

$$= \frac{121{,}3057}{67{,}587} = 1{,}795$$

For $\propto$ = 5% with:

dk = nb – 1 = 40 – 1 = 39

dk= nk – 1 = 30 – 1 = 29

$F_{(0.025)(29:39)}$ = 1, 809

Since F count < F table, the experimental and control group had the same variance.With α = 5% and dk = (40-1=39) : (30-1=29), it is obtained that F_{table} =1,809. Because F_{count} was lower than F_{table} (1,795 < 1,809). So, Ho was accepted and the two groups had the same variant/ **homogeneous.**

c. The Hypothesis Test

Hypothesis:

Ho : $\mu_1 \leq \mu_2$

Ha : $\mu_1 > \mu_2$

Formula:

$$s = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$$

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

Table 4.11

The Hypothesis Test

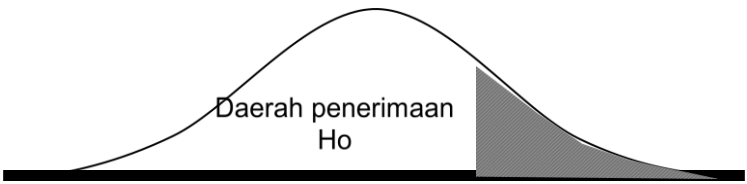
Variation Source	Experimental	Control	Criteria
Total	3218	1952	Ha accepted
N	40	30	
$\bar{X}$	80,45	65,067	
Variants (s^2)	67,587	121,3057	
Standard deviation (s)	8,2211	11,01389	

According to the formula above, it is obtained that:

$$s = \sqrt{\frac{(40-1)67{,}59 + (30-1)121{,}31}{40 + 30 - 2}} = 9{,}51$$

$$t = \frac{780{,}45 - 65{,}07}{9{,}51\sqrt{\frac{1}{40} + \frac{1}{30}}} = 6{,}695$$

For α = 5% and dk = 40 + 30 - 2 = 68, $t_{(0.975)\,(68)}$ = 1,67



1,67 6,695

Since $t_{count} > t_{table}$ means that there was a significant difference between experimental and control class on the test the experimental is higher than the control one. From the computation above, by 5% alpha level of significance and dk = 40+30-2= 68. It was Obtained t_{table} was 1,67 while t_{count} was 6,695. So, it can be concluded Ho was rejected, Ha was accepted, because t_{count} was higher than the critical value on the t_{table} (6,695>1,67).

From the result, the hypothesis in this research can be concluded that there was a significant difference in teaching reading narrative text achievement score between students of experimental class who were taught by using TGT strategy and control class who were taught without using TGT strategy.

C. Discussion of The Research Finding

1. The score of initial ability (Pre-test)

Based on the calculations of normality and homogeneity test from class X A as the experimental class and class X B as the control class is normal distribution and homogeneous.

The average score of experimental class was 71,4, and the average score of control class was 70,9.

2. The score of final ability (Post-test)

The result of this research is obtained the average score of experimental class was 80,45 which were higher than the result of control class 65,067. Teaching narrative text in experimental class by using TGT strategy can encourage the students to be more active, motivated, and competitive in learning activities. TGT strategy can create situation in teaching reading of narrative text interesting, fun and makes the students easier to understand the material. While teaching reading comprehension of narrative text at control class by using conventional method made the students feel bored with the material that is being presented because the method is too monotonous. So, the material can't be well-transferred to the students optimally. It can be seen on average score of experimental class which had better result than control class.

Based on the result of calculation t-test was obtained t_{count}: 6,695 and t_{table}: 1,67. This shows that $t_{count} > t_{table}$ (t_{count} was higher than t_{table}). So it means that there was a significant difference between reading comprehension of narrative text's achievement score of students which was taught by using TGT strategy and without TGT strategy.