CHAPTER IV
RESULT OF THE STUDY AND DISCUSSION

This chapter described the obtained data of the students' writing score after and before taught by using cartoon. The presented data consisted of standard mean, standard deviation, standard error, and analysis of hypothesis.

A. Description of The Data

1. The Result of Pre-test Score

a. The Result of Pre-test Score of Experiment Class

The students' pre-test score of experiment class were distributed in the following table (see appendix) in order to analyze the students' knowledge before conducting the treatment. To determine the frequency of score, percent of score, valid percent and cumulative percent calculated using manual calculation as follow:

Table 4.1 Distribution Frequency of Pre-Test Score of Experiment Class

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	52	1	5.0	5.0	5.0
	59	2	10.0	10.0	15.0
	63	1	5.0	5.0	20.0
	66	4	20.0	20.0	40.0
	67	1	5.0	5.0	45.0
	68	1	5.0	5.0	50.0
	69	2	10.0	10.0	60.0
	75	1	5.0	5.0	65.0
	76	2	10.0	10.0	75.0
	79	4	20.0	20.0	95.0
	80	1	5.0	5.0	**100.0**
	Total	**20**	**100.0**	**100.0**	

The next step, the result calculated the scores of mean, standard deviation, and standard error manual calculation as follows:

1) Standard Mean

$$Mx = \frac{\sum FX_i}{n} = \frac{1393}{20} = 69.65$$

2) Standard Deviation

$$S = \sqrt{\frac{\sum fx^2}{N}}$$

$$S = \sqrt{\frac{1212.55}{20}}$$

$$S = \sqrt{60.6275} = 7.786$$

3) Standard Error

$$SE_{md} = \frac{s}{\sqrt{N-1}} = \frac{7.79}{\sqrt{20-1}} = \frac{7.79}{\sqrt{19}} = \frac{7.79}{4.36} = 1.787$$

For the result of manual calculation, it was found that the mean score of pre-test was 69.65, the standard deviation was 7.786 and for the standard error was 1.787.

The distribution of students' pre-test score can also be seen in the following figure.
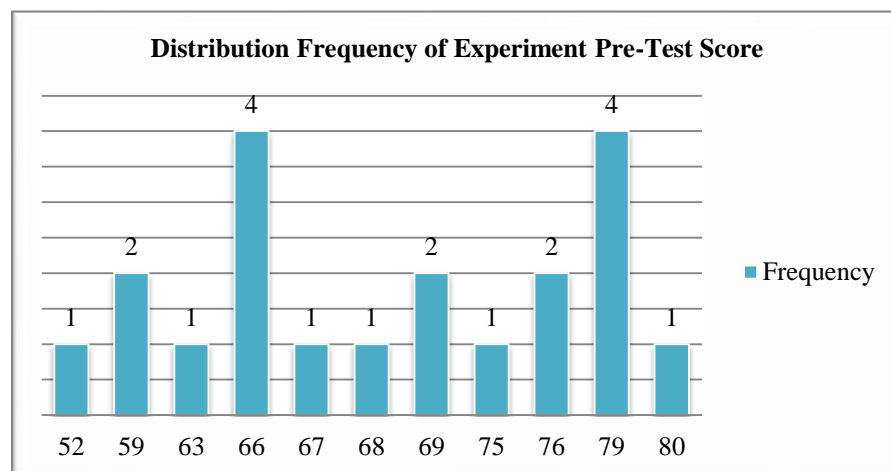
Figure 4.1

Histogram of Distribution Frequency of Experimental Pre-Test Score

It can be seen from the figure above, the students' pretest score in experimental class. There was one students who got score 52. There were two students who got score 59. There was one student who got score 63. There were four students who got score 66. There was one students who got score 67. There was one students who got score 68. There were two students who got score 69. There was one students who got score 75. There were two students who got score 76. There were four students who got score 79. And there was one students who got score 80.

The next step, the result calculated the scores of mean, standard deviation, and standard error using SPSS 16 program as follows:

Table 4.2 The Calculation of Mean, SD and SE Using SPSS 16

N	**Valid**	20
	Missing	0
Mean		69.23
Std. Error of Mean		1.788

Std. Deviation	7.997
Minimum	52
Maximum	80

Based on the data above, it was known the highest score was 80 and the lowest score was 52. For the result of manual calculation, it was found that the mean score of pre-test was 69.23, the standard deviation was 7.997 and for the standard error was 1.788.

b. The Result of Pre-test Score of Control Class

The students' pre-test score of control class were distributed in the following table (see appendix) in order to analyze the students' knowledge before post-test. To determine the frequency of score, percent of score, valid percent and cumulative percent calculated using manual calculation as follow:

Table 4.3 Distribution Frequency of Pre-Test Score of Control Class

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	52	1	7.7	7.7	7.7
	63	1	7.7	7.7	15.4
	66	2	15.4	15.4	30.8
	68	1	7.7	7.7	38.5
	69	1	7.7	7.7	46.2
	75	1	7.7	7.7	53.8
	76	4	30.8	30.8	84.6
	77	1	7.7	7.7	92.3
	80	1	7.7	7.7	**100.0**
	Total	**13**	**100.0**	**100.0**	

The next step, the result calculated the scores of mean, standard deviation, and standard error manual calculation as follows:

1) Standard Mean

$$Mx = \frac{\sum FX_i}{n} = \frac{920}{13} = 70.769$$

2) Standard Deviation

$$S = \sqrt{\frac{\sum fx^2}{N}}$$

$$S = \sqrt{\frac{642.8402}{13}}$$

$$S = \sqrt{49.44925} = 7.032$$

3) Standard Error

$$SE_{md} = \frac{s}{\sqrt{N-1}} = \frac{7.032}{\sqrt{13-1}} = \frac{7.032}{\sqrt{12}} = \frac{7.032}{3.46} = 2.032$$

For the result of manual calculation, it was found that the mean score of pre-test was 70.769, the standard deviation was 7.032 and for the standard error was 2.032.

The distribution of students' pre-test score can also be seen in the following figure.
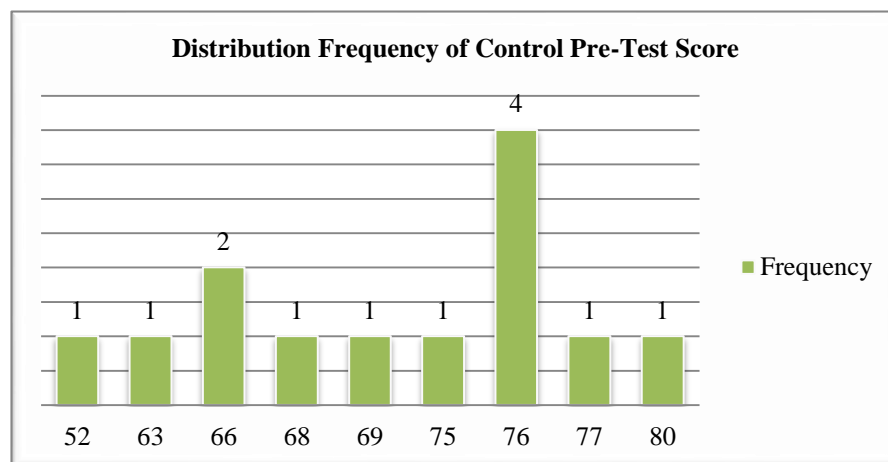
Distribution Frequency of Control Pre-Test Score

Figure 4.3

Histogram Distribution Frequency of Control Pre-Test Score

It can be seen from the figure above, the students' pre-test score in control class. There was one student who got score 52. There was one student who got score 63. There were two students who got score 66. There was one students who got score 68. There was one students who got score 69. There was one students who got score 75. There were four students who got score 76. There was one students who got score 77. And there was one students who got score 80.

The next step, the result calculated the scores of mean, standard deviation, and standard error using SPSS 16 program as follows:

Table 4.4 The Calculation of Mean, SD and SE Using SPSS 16

N	Valid	13
	Missing	0
Mean		70.31
Std. Error of Mean		2.157
Std. Deviation		7.777
Minimum		52
Maximum		80

Based on the table above, the result calculation using SPSS 16, it was found that the mean of score pre-test was 70.31, the standard deviation 7.777 and the standard error of the mean of the pre-test score was 2.157.

2. **The Result of Post-test Score**

    a. **The Result of Post-test of Experiment Class**

    The students' post-test score of experiment class were distributed in the following table (see appendix) in order to analyze the students' knowledge after conducting the treatment. To determine the frequency of score, percent of score, valid percent and cumulative percent calculated using manual calculation as follows:

Table 4.5 Distribution Frequency of Post-Test Score of Experiment Class

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	60	1	5.0	5.0	5.0
	66	1	5.0	5.0	10.0
	75	1	5.0	5.0	15.0
	76	2	10.0	10.0	25.0
	78	3	15.0	15.0	40.0
	79	8	40.0	40.0	80.0
	80	4	20.0	20.0	**100.0**
	Total	**20**	**100.0**	**100.0**	

The next step, the result calculated the scores of mean, standard deviation, and standard error manual calculation as follows:

1) Standard Mean

$$Mx = \frac{\sum FX_i}{n} = \frac{1539}{20} = 76.95$$

2) Standard Deviation

$$S = \sqrt{\frac{\Sigma f x^2}{N}}$$

$$S = \sqrt{\frac{486.95}{20}}$$

$$S = \sqrt{24.3475} = 4.93$$

3) Standard Error

$$SE_{md} = \frac{s}{\sqrt{N-1}} = \frac{4.93}{\sqrt{20-1}} = \frac{4.93}{\sqrt{19}} = \frac{4.93}{4.36} = 1.131$$

For the result of manual calculation, it was found that the mean score of post-test was 76.95, the standard deviation was 4.93 and for the standard error was 1.131.

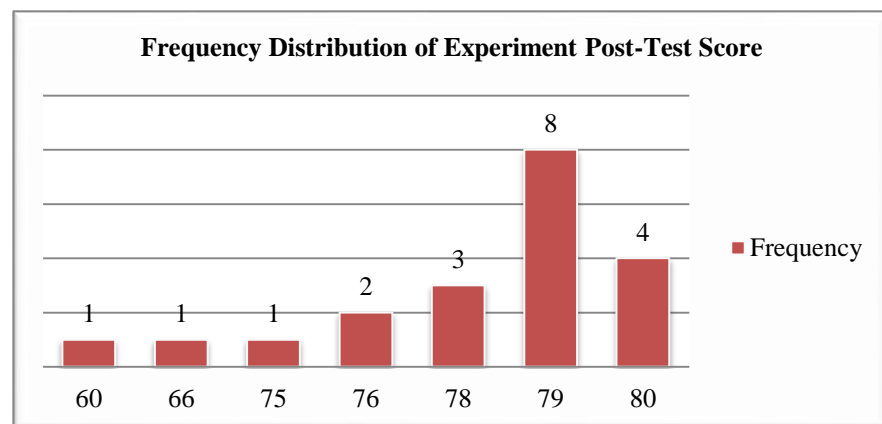The distribution of students' post-test score can also be seen in the following figure.

Frequency Distribution of Experiment Post-Test Score

Figure 4.5 Histogram of Frequency Distribution of Experimental Post-Test Score

It can be seen from the figure above, the students' post-test score in experimental class. There was one students who got score 60. There was one students who got score 66. There was one students who got score 75.

There were two students who got score 76. There were three students who got score 78. There were eight students who got score 79. And there were four students who got score 80.

The next step, the result calculated the scores of mean, standard deviation, and standard error using SPSS 16 program as follows:

Table 4.6 The Calculation of Mean, SD and SE Using SPSS 16

N	Valid	20
	Missing	0
Mean		76.55
Std. Error of Mean		1.135
Std. Deviation		5.078
Minimum		60
Maximum		80

Based on the table above, the result calculation using SPSS 16, it was found that the mean of score post-test of the experiment class was 76.55, the standard deviation 5.078 and the standard error of the mean of the post-test score was 1.135.

b. The result of Post-test Score of Control Class

The students' post-test score of control class were distributed in the following table (see appendix) in order to analyze the students' knowledge after pre-test. To determine the frequency of score, percent of score, valid percent and cumulative percent calculated using manual calculation as follow:

Table 4.7 Distribution Frequency of Post-Test Score of

Control Class

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	56	1	7.7	7.7	7.7
	63	1	7.7	7.7	15.4
	68	1	7.7	7.7	23.1
	69	1	7.7	7.7	30.8
	74	2	15.4	15.4	46.2
	75	2	15.4	15.4	61.5
	76	3	23.1	23.1	84.6
	77	1	7.7	7.7	92.3
	80	1	7.7	7.7	**100.0**
	Total	**13**	**100.0**	**100.0**	

The next step, the result calculated the scores of mean, standard deviation, and standard error manual calculation as follows:

1) Standard Mean

$$\text{Mx} = \frac{\sum FX_i}{n} = \frac{939}{13} = 72.23$$

2) Standard Deviation

$$S = \sqrt{\frac{\sum fx^2}{N}}$$

$$S = \sqrt{\frac{524.3077}{13}}$$

$$S = \sqrt{40.33136} = 6.35$$

3) Standard Error

$$\text{SE}_{md} = \frac{s}{\sqrt{N-1}} = \frac{6.35}{\sqrt{13-1}} = \frac{6.35}{\sqrt{12}} = \frac{6.35}{3.46} = 1.835$$

For the result of manual calculation, it was found that the mean score of pre-test was 72.23, the standard deviation was 6.35 and for the standard error was 1.835.

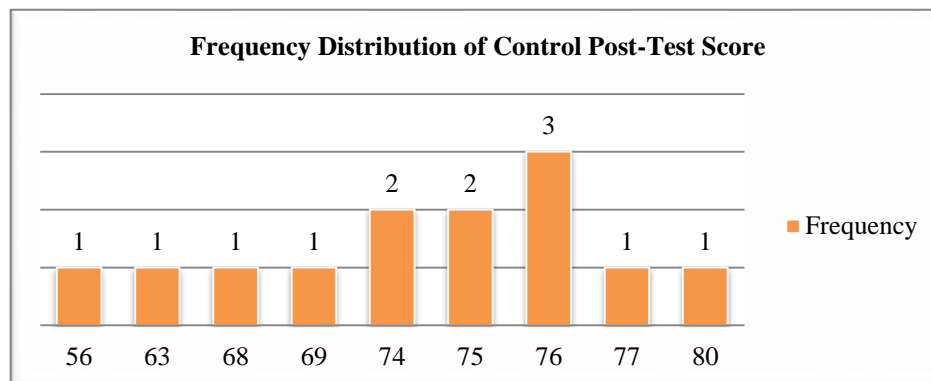The distribution of students' post-test score can also be seen in the following figure.

Figure 4.7

Histogram of Frequency Distribution of Control Post-Test Score

It can be seen from the figure above, the students' post-test score in control class. There was one student who got score 56. There was one students who got score 63. There was one students who got score 68. There was one students who got score 69. There were two students who got score 74. There were two students who got score 74. There were two students who got score 75. There were three students who got score 76. There was one students who got score 77. There was one students who got score 80.

Next step, the result calculated the scores of mean, standard deviation, and standard error using SPSS 18 program as follows:

Table 4.8 The Calculation of Mean, SD and SE Using SPSS 16

N	Valid	13
	Missing	0
Mean		71.85
Std. Error of Mean		1.847

Std. Deviation	6.660
Minimum	56
Maximum	80

Based on the data above, it was known the lowest score was 56 and the highest score was 80. For the result of manual calculation, it was found that the mean score of post-test was 71.85, the standard deviation was 6.660 and for the standard error was 1.847.

c. Testing Normality and Homogeneity Using SPSS 16

   1) Testing of Data Normality

It was used to know the normality of the data that was going to be analyzed whether both groups have normal distribution or not. Because of that, the normality test used SPSS 16 to measure the normality of the data as follow:

Table 4.9 Test of Normality distribution test of

Post-Test score of The Experiment and Control Class SPSS 16

One-Sample Kolmogorov-Smirnov Test

		Experiment	Control
N		20	13
Normal Parameters [,b]	**Mean**	76.55	71.85
	Std. Deviation	5.078	6.660
Most Extreme Differences	**Absolute**	.324	.319
	Positive	.248	.165
	Negative	-.324	-.319
Kolmogorov-Smirnov Z		1.450	1.151
Asymp. Sig. (2-tailed)		.030	.142

The criteria of the normality test post-test were if the value of (probability value/critical value) was higher than or equal to the level

of significance alpha defined (r > a), it meant that the distribution was normal. Based on the calculation using SPSS 16 above, the value of (probably value/critical value) from post-test of the experiment and control class in Kolmogorov-Smirnov Z table was higher than level of significance alpha used or r = 1.450 > 0.05 (Experiment) and r = 1.151 > 0.05 (Control). So, the distributions were normal. It meant that the students' score of post-test had a normal distribution.

2) **Testing of Data Homogeneity**

Table 4.10 Homogeneity Test

Test of Homogeneity of Variances

Post-Test

Levene Statistic	df1	df2	Sig.
1.946	2	7	.213

The criteria of the homogeneity post-test were if the value of (probability value/critical value) was higher than or equal to the level significance alpha defined (r > a), it meant that the distribution was homogeneity. Based on the calculation using SPSS 16 program above, the value of (probably value/critical value) from post-test of experiment and control class on the homogeneity of variance in sig column was known that p-value was 0.213. The data in this study fulfilled homogeneity since the p-value was higher or r = 0.213 > 0.05.

B. Result of Data Analysis

1. Testing Hypothesis using t_{test} Manual Calculation

The level of significance used 5%. It meant that the level of significance of the refusal null hypothesis in 5%. The level of significance decided at 5% due to the hypothesis type stated on non-directional (two-tailed test). It meant that the hypothesis cannot directly the prediction of the alternative hypothesis. To test the hypothesis of the study used t-test statistical calculation. First, it calculated the standard deviation and the standard error of Y1 and Y2. It was found the standard deviation and the standard error of post-test of Y1 and Y2 at the previous data presentation. It could be seen in this following table:

Table 4.11 The Standard Deviation and The Standard Error of Y1 and Y2

Variable	The Standard Deviation	The Standard Error
Y1	4.93	1.131
Y2	6.35	1.835

Where:

Y1: Experiment

Y2: Control

The table showed the result of the standard deviation calculation of Y1 was 4.93 and the result of the standard error was 1.131. The result of the standard deviation calculation of Y2 was 6.35 and the result of the standard error was 1.835.

The next step, the result calculated the standard error of the differences mean between Y1 and Y2 as follows:

Standard error of mean of score between Variable I and Variable II

$$SE_{M1} - SE_{M2} = \sqrt{(SEm1)^2 + (SEm2)^2}$$

$$SE_{M1} - SE_{M2} = \sqrt{(1.131)^2 + (1.835)^2}$$

$$SE_{M1} - SE_{M2} = \sqrt{1.2792 + 3.3672}$$

$$SE_{M1} - SE_{M2} = \sqrt{4.6464}$$

$$SE_{M1} - SE_{M2} = 2.15555097$$

$$SE_{M1} - SE_{M2} = 2.156$$

The calculation above showed the standard error of the difference mean between Y1 and Y2 was 2.156. Then, it inserted to the formula to get the value of $t_{observed}$ as follows:

$$T_o = \frac{M1 - M2}{SEm1 - SEm2}$$

$$T_o = \frac{76.95 - 72.23}{2.156}$$

$$T_o = \frac{4.72}{2.156}$$

$$T_o = 2.189$$

$$T_o = 2.19$$

Which the criteria:

If t-test (t-observed) $\geq$ t-table, H_a was accepted and H_0 was rejected

If t-test (t-observed) $\leq$ t-table, H_a was rejected and H_0 was accepted

Then, the degree of freedom (df) accounted with the formula:

$$\mathbf{Df} = (N1 + N2 - 2)$$

$$= (20+13) - 2$$

$$= 31$$

The significant levels choose at 5%, it meant the significant level of the refusal of null hypothesis at 5%. The significance level decided at 5% to the hypothesis stated on non-directional (two-tailed test). It meant that the hypothesis cannot direct the prediction of the alternative hypothesis. The calculation above showed the result of t_{test} calculation as in the table follows:

Table 4.12 The Result of t_{test} Manual Calculation

Variable	$T_{observed}$	T_{table}		Df/db
		5%	1%	
Y1-Y2	2.19	2.04	2.75	31

Where:

Y1   : Experiment Class

Y2   : Control Class

$T_{observed}$: The Calculated Value

T_{table} : The Distribution of t Value

Df/db   : Degree of Freedom

Based on the result of hypothesis test calculation, it was found that the value of $t_{observed}$ was greater than the value of t_{table} at the level significance in 5% or $t_{observed} > t_{table}$ (2.19 > 2.02). It meant H_a was accepted and H_0 was rejected.

It could be interpreted based on the result of calculation that H_a stating that there was significant effect of using cartoon story in writing toward

students' skill in writing narrative text at the tenth grade of SMA Nusantara Palangka Raya was accepted and H_0 stating that there was no significant effect of using cartoon story maker in writing toward students' skill in writing narrative text at the tenth grade of SMA Nusantara Palangka Raya was rejected. It meant that teaching writing using questioning strategy gave significant effect toward students' writing skill.

2. Testing Hypothesis Using SPSS 16 Program

The result of the t-test using SPSS 16 program was used to support the manual calculation of the t-test. It could be seen as follows:

Table 4.13 The Standard Deviation and The Standard Error of Y1 and Y2 Using SPSS 16

Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Score	1	20	76.55	5.078	1.135
	2	13	71.85	6.660	1.847

The table showed the result of the standard deviation calculation of Y1 was 5.078 and the result of the standard error of mean calculation was 1.135. The result of the standard deviation calculation Y2 was 6.660 and the result of the standard error of the mean was 1.847.

Table 4.14 The Calculation of t_{test} Using SPSS 16

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means					
	F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference

									Lower	Upper
Score	Equal variances assumed	2.041	.163	2.299	31	.028	4.704	2.046	.532	8.876
	Equal variances not assumed			2.170	20.899	.042	4.704	2.168	.194	9.214

The table showed the result of t-test calculation using SPSS 16 program. Since the result of post-test between experiment and control group had difference score Levene's test for equality of variance, the value of sig was greater than 0.05. So, both of group were homogeny. It meant the t-test calculation used at the equal variance assumed. It found that the value of sig (two-tailed) was 0.028 and the result of $t_{observed}$ was 2.299. The result of the mean difference between experimental and control class was 4.704 and the standard error difference between experimental and control class was 2.046.

3. **Interpretation**

To examine the truth of the false of null hypothesis stating that the students taught writing ability by cartoon story maker, the result of sig (two-tailed) was lower than 0.05 or 0.028 < 0.05, so H_a was accepted and H_0 was rejected. The result of t_{test} was interpreted on the result of degree freedom to get the t_{table}. The result of the degree of freedom (df) was 31, it found from a total number of the students in both group minus 2. The following table was the result of $t_{observed}$ and t_{table} from df at 5% level.

Table 4.15 The Result t$_{test}$ Using SPSS 16

Variable	T$_{observed}$	T$_{table}$		Df/db
		5%	1%	
Y1-Y2	2.299	2.04	2.75	31

The result of the t$_{test}$ used SPSS 16 program. It was found the t observed was greater than the t table at 5% significance level or 2.299 > 2.04. It meant that H$_a$ was accepted and H$_0$ was rejected. The value of the mean of the experiment class (print out group descriptive) was 76.55 higher than the value of the mean of the control class 71.85. So, a score of the experiment was greater than a score of the control class.

It could be interpreted based on the result of calculation that H$_a$ there was significant effect of cartoon toward the students' skill in writing narrative text at SMA Nusantara Palangka Raya and H$_0$ stating that there was no significant effect of cartoon toward the students' skill in writing narrative text at SMA Nusantara Palangka Raya was rejected.

C. Discussion

To collecting the data, this study taught experiment class and control class using different treatment. Experiment class taught by cartoon, here this class taught using Cartoon Story Maker. Both of taught experiment class and control class asked t make paragraf based on the topic that have chosen by the teacher. And they make paragrap used some stage. They are:

1. Prewriting stage

2. Drafting stage

3. Refising stage

4. Editing stage

For experimental class, they asked to make a story in the form of paragraph based on the story in the Cartoon Story Maker. Then, they elaborated the story tobe a paragraph.

After got the data, this study analyze the data. The result of the data analysis showed that the cartoon gave significance effect on the students' writing skill for the tenth grade students at SMA Nusantara Palangka Raya. The students who were taught using cartoon got a higher score than students who were taught without using cartoon. It was proved by the mean score of the students who were taught using cartoon was 76.55 and the students who were taught without using cartoon was 71.85. Based on the result of hypothesis test calculation, it was found that the value of $T_{observed}$ was greater than the value of T_{table} at 5% significance level or 2.299 > 2.04. It meant H_a was accepted and H_o was rejected.

Furthermore, the result of t_{test} calculation using SPSS 16 found that the cartoon gives significance effect on the students' English score. It proved the value df $T_{observed}$ was greater than T_{table} at 5% significance level or 2.299 > 2.04. The result of t-test by using SPSS and manual calculation showed that there was the effect of cartoon on writing skill, it meant cartoon effective to use in the class.

The finding of the study interprets that the alternative hypothesis stating that cartoon increases the students' English score for the tenth grade students at SMA Nusantara Palangka Raya was accepted and the null hypothesis stating that cartoon does not increase the students' English scores for the tenth grade students at SMA Nusantara Palangka Raya was rejected.

Based on the results finding of the study, it is shown that cartoon gave contribution in the students' writing skill during the instructional process. Cartoon implemented in this study consists of some steps. Those are; The first meeting, explaining Narrative Text. The second meeting, the writer gave an explaining cartoon. Last, the writer with students practicing cartoon story maker together to deepen the mastery of cartoon story maker.

There are some possible reasons why cartoon is effective in teaching writing to the students of SMA Nusantara Palangka Raya. The first reason is when the writer taught English using cartoon gave the students' interest and curiosity concerning a story. The second reason is when the writer taught English using cartoon make the students easier to create dialogues with their own text or voice recordings to demonstrate proficiency. The third reason was when the writer taught English using cartoon gave their development an active approach to learning.

Cartoon story maker used the pictures as a visual media in order to facilitate students to understand and to attract the attention of students and facilitate students in issuing his ideas in writing.