CHAPTER IV

RESULT OF THE STUDY AND DISCUSSION

In this chapter, the writer presents the data which had been collected from the research in the field of study. The data are the result of pretest of experimental and control group, the result of post test of experimental and control group, result of data analysis, and discussion.

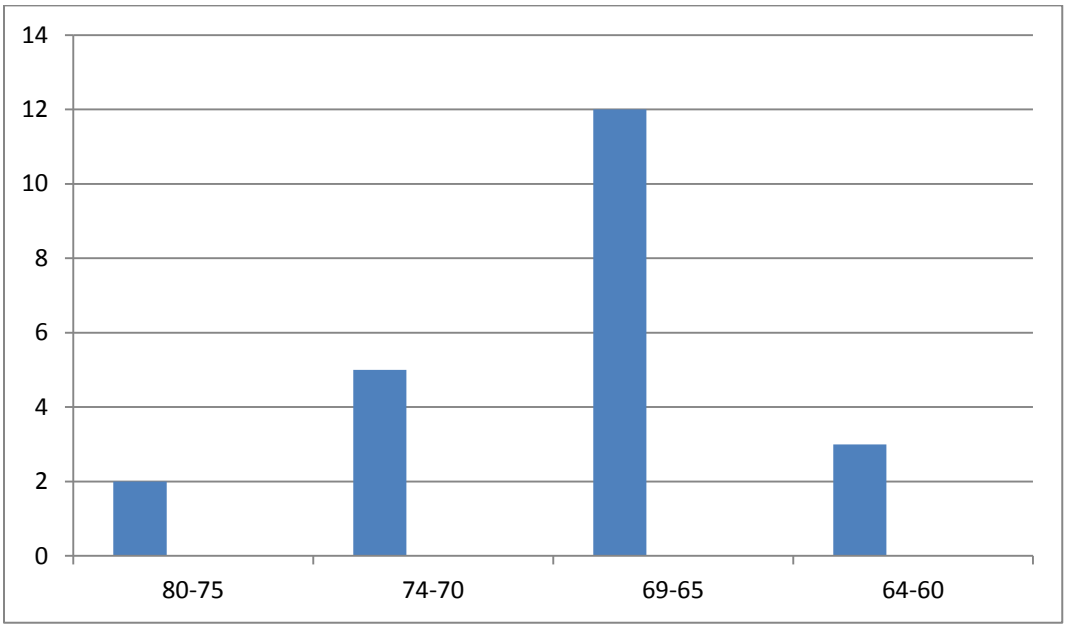
A. Description the Data

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 5) 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 SPSS 21 (see appendix 7).

Figure 4.1
The Distribution of Students' Pre-test Score Can Also be seen in the following



It can be seen from the figure above, the students' pretest score in experimental class. There was a student who got score 65 and 69 there were tweleve students, who got score 70 and 74,there were five students, who got score 75 and 80 there were two students, who got score 60 and 64 there were three students.

The next step, the result calculated the scores of mean, standard deviation, and standard error using SPSS 21 program and manual calculation as follows:

Table 4.1 the Calculation of Mean, SD and SE using SPSS 21

Statistics

pre –test (experiment class)

N	Valid	24
	Missing	0
Mean		75,00
Std. Error of Mean		1,058
Std. Deviation		5,143

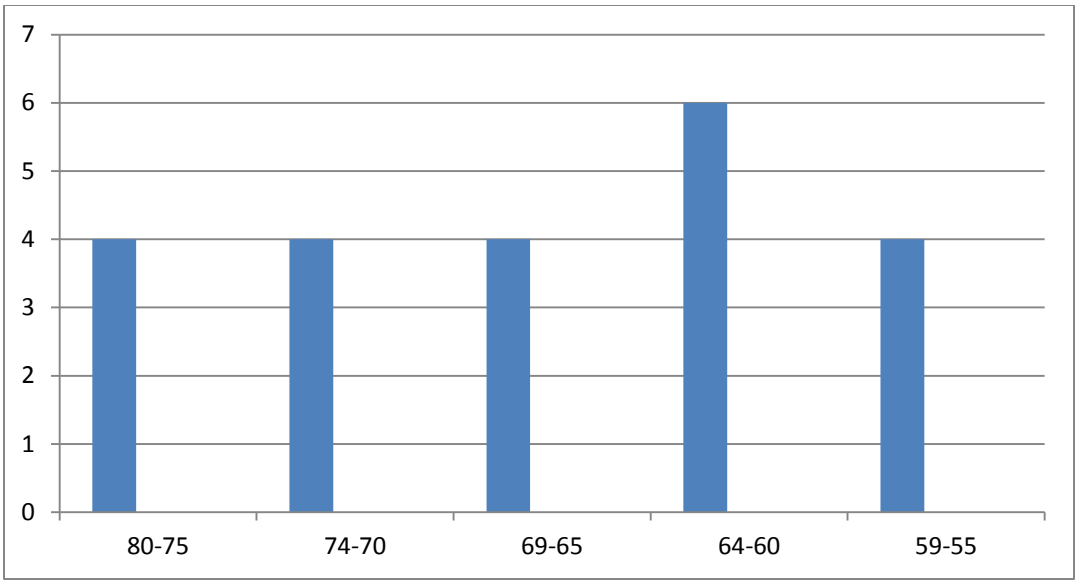
Based on the data above, it was known the highest score was 80 and the lowest score was 60. For the result of manual calculation, it was found that the mean score of pre-test was 75,00, the standard deviation was 5,143 and for the standard error mean was 1,058 (see appendix 6.a)

Then, based on the table above, the result calculation using SPSS 21, it was found that the mean of score pre-test was 75,00, the standard deviation 5,133 and the standard error of mean of the pre-test score was 1,048.

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 5) in order to analyze the students' knowledge before post-test.

Figure 4.2
The distribution of students' pre-test score can also be seen in the following



It can be seen from the figure above, the students' pretest score in control class. There was a student who got score 55 and 59 there were four students, who got score 60 and 64 there were six students, who got score 70 and 74 there were four students, who got score 75 and 80 there were four students.

The next step, the result calculated the scores of mean, standard deviation, and standard error using SPSS 21 program and manual calculation as follows:

Table 4.2
The Calculation of Mean, SD and SE using SPSS 21
Statistics

pre –test (control class)

N	Valid	24
	Missing	0

Mean	71,00
Std. Error of Mean	1,024
Std. Deviation	4,075

Based on the data above, it was known the highest score was 84 and the lowest score was 55. For the result of manual calculation, it was found that the mean score of pre-test was 71,00, the standard deviation was 4,075 and for the standard error mean was 1,024 (see appendix 6.b)

Then, based on the table above, the result calculation using SPSS 21, it was found that the mean of score pre-test was 71,00, the standard deviation 4,075 and the standard error of mean of the pre-test score was 1,024.

c. Testing Normality and Homogenity Using SPSS 16

Testing of Data Normality

It 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 21 to measure the normality of the data.

Table 4.3
Test of Normality Distribution Test on the
Pre-Test Score of the Experiment and Control Group Using SPSS 21

One-Sample Kolmogorov-Smirnov Test

		experiment	Control
N		24	24
Normal Parameters[a]	Mean	67.12	69.75
	Std. Deviation	8.258	7.073
Most Extreme Differences	Absolute	.225	.188
	Positive	.114	.080
	Negative	-.225	-.188
Kolmogorov-Smirnov Z		1.104	.920
Asymp. Sig. (2-tailed)		.175	.366

a. Test distribution is Normal.

If respondent > 50 used Kolmogorov-Sminornov

If respondent < 50 used Saphiro-Wilk

The criteria of the normality test pre-test was 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 21 above, the value of (probably value/critical value) from pre-test of the experiment and control class in Kolmogorov-Smirnov table was higher than level of significance alpha used or r = 0,176 > 0,05 (Experiment) and r = 0,366 > 0,05 (Control). So, the distributions were normal. It meant the students' score of pre-test had normal distribution.

1. Testing of Data Homogeneity

Table 4.4

Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
1.838	4	13	.0.48

The criteria of the homogeneity pre-test was if the value of (probability value/critical value) was higher than or equal to the level significance alpha defined (r > a), it meant the distribution was homogeneity. Based on the calculation using SPSS 16 program above, the value of (probably value/critical value) from pre-test of experiment and control class on homogeneity of variance in sig column was known that p-value was 0,046. The data in this study fulfilled homogeneity since the p-value was higher or r = 0,048 > 0,05.

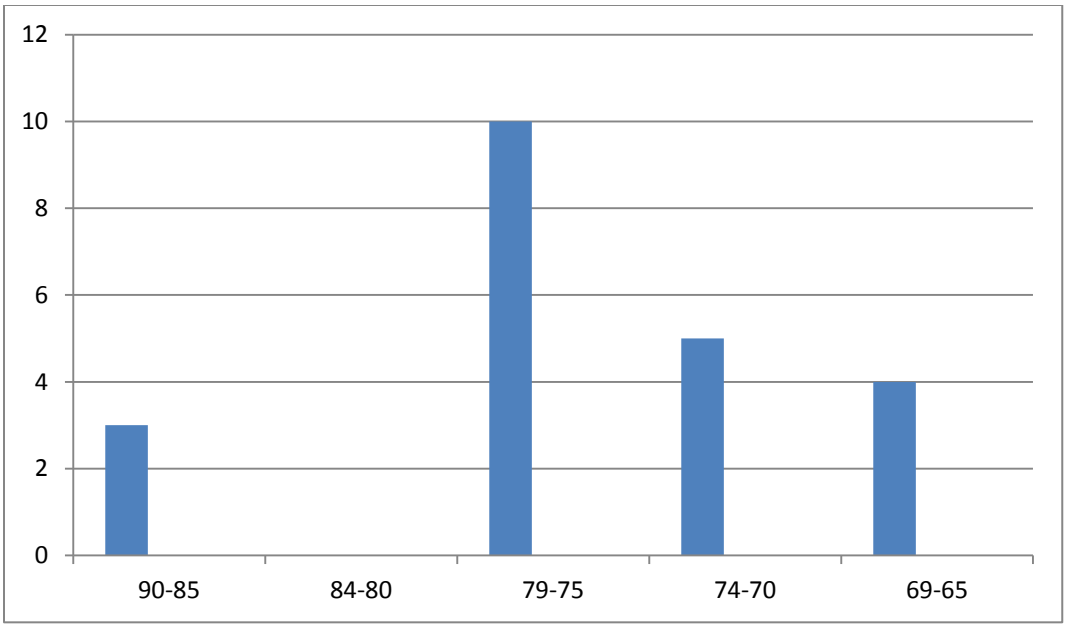
2. The Result of Post-test Score

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 5.a) 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 SPSS 21 (see appendix 6.a)

Figure: 4.3

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



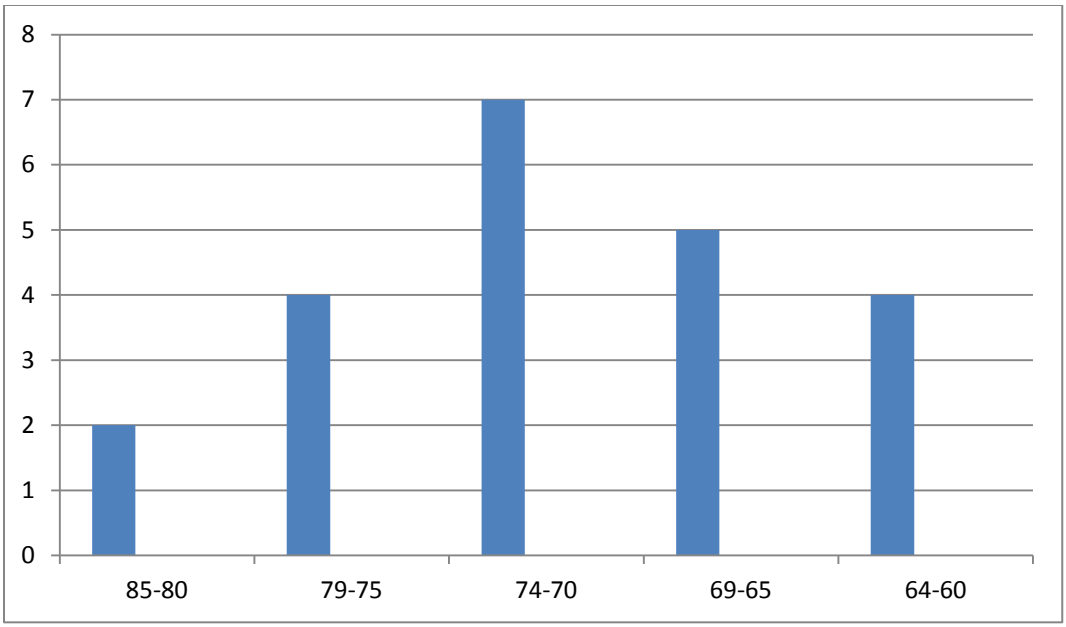
It can be seen from the figure above, the students' post test score in experimental class. There was a student who got score 65 and 69 there were four students, who got score 70 and 74 there were five students, who got score 75 and 79 there were ten students, who got score 85 and 90 there were three students.

b. The Result of Post-test of Control Class

The students' post-test score of control class were distributed in the following table (see appendix 5.b) 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 SPSS 21 (see appendix 6.b)

Figure: 4.4

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



It can be seen from the figure above, the students' post test score in control class. There was a student who got score 60 and 64 there were four students, who got score 65 and 69 there were five students, who got score 70 and 74 there were seven students, who got score 75 and 79 there were four students, who got score 80 and 85 there were two students.

The next step, the result calculated the scores of mean, standard deviation, and standard error using SPSS 21 program and manual calculation as follows:

Table 4.5
the Calculation of Mean, SD and SE using SPSS 21
Statistics

post –test experiment

N	Valid	24
	Missing	0
Mean		74,58

Std. Error of Mean	1,060
Std. Deviation	5,153

Based on the data above, it was known the lowest score was 65 and the highest score was 90. Then, 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 74,58, the standard deviation 5,153 and the standard error of mean of the post-test score was 1,060

c. The Comparison Result of Pre-test and Post-test of Experimental and Control Group

Table 4.11 The Comparison Result of Pre-test and Post-test of Experimental and Control Group

Experimental	Control

No	Code	Pre Test	Post Test	Improvement	Code	Pre Test	Post Test	Improvement
1	E01	65	79	14	C01	60	70	10
2	E02	65	75	10	C02	55	65	10
3	E03	60	65	5	C03	65	70	5
4	E04	69	73	4	C04	55	85	25
5	E05	80	85	5	C05	57	61	4
6	E06	65	65	0	C06	75	61	-14
7	E07	70	75	5	C07	62	65	3
8	E08	65	70	5	C08	70	75	5
9	E09	70	75	5	C09	70	85	15
10	E10	60	70	10	C10	80	72	-8
11	E11	64	75	11	C11	61	70	9
12	E12	70	85	15	C12	55	60	5
13	E13	72	90	18	C13	60	61	1
14	E14	75	75	0	C14	75	65	-10
15	E15	70	75	5	C15	65	70	5
16	E16	65	70	5	C16	70	77	7
17	E17	66	65	4	C17	70	75	5
18	E18	69	75	6	C18	80	74	6
19	E19	65	69	4	C19	69	76	7
20	E20	67	70	3	C20	65	70	5
21	E21	65	79	19	C21	60	65	5
22	E22	65	76	11	C22	61	69	8
	Total	**1482**	**1636**	**164**	**Total**	**1440**	**1541**	**108**
	Highest	**80**	**90**			**80**	**85**	
	Lowest	**60**	**65**			**55**	**60**	

d. Testing Normality and Homogeneity using SPSS 21

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 21 to measure the normality of the data.

Table 4.6 Test of Normality distribution test of Post-Test score of the Experiment and Control group using SPSS 21

One-Sample Kolmogorov-Smirnov Test

		Experiment	Control
N		24	24
Normal Parameters[a]	Mean	78.88	77.62
	Std. Deviation	5.059	5.739
Most Extreme Differences	Absolute	.127	.117
	Positive	.127	.111
	Negative	-.126	-.117
Kolmogorov-Smirnov Z		.623	.574
Asymp. Sig. (2-tailed)		.832	.897

a. Test distribution is Normal.

The criteria of the normality test post-test was 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 21 above, the value of (probably value/critical value) from post-test of the experiment and control class in Kolmogorov-Smirnov table was higher than level of significance alpha used or r = 0,832 > 0,05 (Experiment) and r = 0,839 > 0,05 (Control). So, the distributions were normal. It meant that the students' score of post-test had normal distribution

1) Testing of Data Homogeneity

Table 4.7 Homogeneity Test

Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
4.885	6	12	0.48

The criteria of the homogeneity post-test was 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 21 program above, the value of (probably value/critical value) from post-test of experiment and control class on homogeneity of variance in sig column was known that p-value was 0,048. The data in this study fulfilled homogeneity since the p-value was higher or r = 0,048 > 0, 05.

B. The Result of Data Analysis

a. Calculate T-test using Manual Calculation

The writer chose the significance level on 5%, it means the significance level of refusal of null hypothesis on 5%. The writer decided the significance level at 5% due to the hypothesis type stated on non-directional (two-tailed test). It means that the hypothesis could not direct the prediction of alternative Hypothesis. Alternative Hypothesis symbolized by "Ha". This symbol could direct the answer of hypothesis, "Ha" can be (>) or (<). The answer of hypothesis could not be predicted whether on more than or less than.

To test the hypothesis of the study, the writer used t-test statistical calculation. Firstly, the writer calculated the standard deviation and the error of X_1 and X_2 at the previous data presentation. In could be seen on this following table:

Table 4.8
the Standard Deviation and Standard Error of X_1 and X_2

Variable	The Standard Deviation	The Standard Error
X_1	5,133	1.55
X_2	1,048	1 .25

X_1 = Experimental Class

X_2 = Control Class

The table showed the result of the standard deviation calculation of X_1 was 18.478. and the result of the standard error mean calculation was 2.547. The result of the standard deviation calculation of X_2 was 16.111 and the result of the standard error mean calculation was 2.921

The next step, the writer calculated the standard error of the differences mean between X_1 and X_2 as follows:

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

$$SE_{M1} - SE_{M2} = \sqrt{SE_{M1}^2 + SE_{M2}^2}$$

$$= \sqrt{1{,}55^2 + 1{,}25^2}$$

$$= \sqrt{2,4025 + 2{,}1904}$$

$$= \sqrt{4,5929} = 2{,}143 = 2{,}14$$

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

$$t_o = \frac{74,55-68,52}{6,03}$$

$$= \frac{603}{2,14}$$

$$= 2,81$$

Which the criteria:

If t-test (t-observed) ≥ t-table, Ha is accepted and Ho is rejected

If t-test (t-observed) < t-table, Ha is rejected and Ho is accepted

Then, the writer interpreted the result of t-test; previously, the writer accounted the degree of freedom (df) with the formula:

$Df = (N_1+N_2) - 2$

$= 22+ 20 – 2$

$= 40$

5%	**T tes**	**1%**
2,02	2,81	2,71

The calculation above showed the result of t-test calculation as in the table follow:

Table 4.9
Calculation the Result of T-Test

Variable	**T test**	**T table**		**Df/db**
		5%	1%	
X_1-X_2	2,81	2,02	2,71	40

Where:

X_1 = Experimental Class

X_2 = Control Class

T observe = 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 $to_{bserved}$ was greater than the value of t_{able} at 1% and 5% significance level or 2,02< 2,81>2,71. It means H_a was accepted and $H_{o\ was}$ rejected. It could be interpreted based on the result of calculation that H_a stating that anagram give influences toward student's scores in increasing English vocabulary size was accepted and H_o stating that anagram does not give influences toward student's scores in increasing English vocabulary size was rejected. It means that teaching vocabulary using anagram gave significant effect on the students' vocabulary score of the eigth grade students at MTS Islamiyah Palangka Raya.

C. Discussion

The result of data analysis showed that the students taught vocabulary using Anagram have better vocabulary size than those taught using non Anagram at the eighth grade of MTs Islamiyah Palangka Raya. It can be seen from the means score between pre-test and post test. The mean score of post test reached higher score than the mean score of Pre-test (X= 61.00< Y=57.85). It indicated that the students' score increased after conducting treatment. In other words, the students taught vocabulary

using Anagram have better vocabulary size than those taught using non Anagram at the eighth grade of MTs Islamiyah Palangka Raya.

In addition, after the data was calculated using the t_{test} formula using SPSS 21.00 program showed that the $t_{observed}$ was 2.81. In addition, After the students have been taught using Anagram, the vocabulary size were higher than before implementing it. This finding indicated that Anagram was effective and supported the previous research done by Roy B. Weinstock, Maimunah and Sartika Manurung that also stated teaching vocabulary by using Anagram was effective.

In teaching learning process, taught vocabulary using Anagram technique was a tool used by the writer to teach the students. It could be seen from the score of students how the used of Anagram technique gave positive effects for students vocabulary size. It means that it has important role in teaching learning process. It was answered the problem of the study is "Do the students taught vocabulary using Anagram have better vocabulary size than those taught using non Anagram at the eighth grade of MTs Islamiyah Palangka Raya?".

Anagram as means for language learning, effectively enhanced the vocabulary size at eighth grade of MTs Islamiyah Palangka Raya. The students vocabulary size was enhanced after the treatment when they were given opportunities to use Anagram in the learning process. They made new word or new vocabulary using Anagram in the treatment and the vocabulary size was enhanced within post-test.

The results supported theory by Collins and Richard in Chaper II page 28, stated that Anagram technique is type of word play, rearrangement the letter of

word, name, phrase, sentence, title, or to produce new word. The students gave their attention to the material because the writer used different technique than usual. Using Anagram as a technique in vocabulary size encourages collaborrative environment, increases motivation and the students participation.

Next results supported theory by Barus in Chapter II page 29, stated that Anagram is a good technique in teaching vocabulary, there are many ways in applying anagram to the students, such as: the students form other word from the key word given, the students rearrange the letters in bracket after that fill in each blank with the appropriate anagram to complete the sentence, the students omit one or some letters of the key word and transpose rest, the students transpose the letters of the word and form another word by using those letters exactly once based on the definition, the students match the scramble word on the left to its arrangement on the right. In line with it, the writer gave the students the assignment of vocabulary size and asked them to found new word or vocabulary with meaning not only vocabulary so that the students had antusiasm on produce new vocabulary.

The result of t-test using SPSS 21.0 program, it was found the t test was greater than the t table at 1% and 5% significance level or 2,81< 2,02>2,71. It means that H_a was accepted and $H_o$was rejected. It could be interpreted based on the result of calculation that H_a stating that Anagram technique was effective for teaching vocabulary size at the eighth grade of MTs Islamiyah Palangka Raya was accepted and H_o stating that Anagram Technique was not effective for teaching vocabulary size at the eighth grade of MTs Islamiyah Palangka Raya was rejected.

It meant that teaching vocabulary size with anagram technique was effective for teaching vocabulary size at the eighth grade of MTs Islamiyah Palangka Raya.