

CHAPTER III

PRESENTATION AND ANALYSIS OF THE DATA

III.1 Presentation of the Data

Thirty-six respondents participated in this study. They are selected through sampling qualifications and divided into two groups, the pre-reading group and the non pre-reading group. The number of respondents on both groups are equal, 18 respondents for each.

The outcomes of the data collection are the respondents' scores of a given reading task. The pre-reading data are collected from the pre-reading group, in which the intended treatment of pre-reading activities is applied. In contrast, the non pre-reading data is resulted by the non pre-reading group without such treatment. This data collection process is repeated up to three sessions.

As a result, the writer has three pairs of data. Each pair contains two versions of data, the pre-reading data and the non pre-reading data. To sum up, the presentation of the data collection in this study is:

- Session 1:
 - pre-reading group : Table III.1.a Pair 1-a, pre-reading data
 - non pre-reading group : Table III.1.b Pair 1-b, non pre-reading data
- Session 2:
 - pre-reading group : Table III.2.a Pair 2-a, pre-reading data
 - non pre-reading group : Table III.2.b Pair 2-b, non pre-reading data
- Session 3:
 - pre-reading group : Table III.3.a Pair 3-a, pre-reading data
 - non pre-reading group : Table III.3.b Pair 3-b, non pre-reading data

Table III.1.a Pair 1-a, the pre-reading data

No.	respondents	Std. No.	Sex/Age	Score
1	AD	03	f/14	8
2	AWN	04	f/13	9
3	APS	06	f/13	7.5
4	AR	07	f/12	8.5
5	AW	08	f/13	9
6	CAN	09	f/12	2
7	DFWU	10	f/13	8
8	AW	26	m/14	7
9	AI	28	m/13	5
10	AS	29	m/13	8.5
11	AD	30	m/12	9.5
12	DS	32	m/13	6
13	EAP	33	m/14	6.5
14	JS	34	m/13	6
15	NW	36	m/14	8
16	P	37	m/14	7.5
17	TA	42	m/12	6
18	WP	44	m/13	8.5

Table III.1.b Pair 1-b, the non pre-reading data

No.	respondents	Std. No.	Sex/Age	Score
1	ABW	01	f/13	9
2	CHH	02	f/13	7
3	DRCH	03	f/13	8
4	DK	04	f/12	8
5	DN	05	f/13	7.5
6	DOI	06	f/14	8
7	FNS	09	f/13	4
8	FN	12	f/14	7.5
9	HRS	15	f/13	8.5
10	NTS	18	f/12	5
11	P	20	f/15	2
12	ES	34	m/15	8
13	JP	37	m/14	7
14	KH	38	f/13	7
15	MT	39	m/12	7.5
16	SK	40	f/13	7.5
17	WEP	42	m/13	7.5
18	YAWT	44	m/14	3

Table III.2.a Pair 2-a, the pre-reading data

No.	respondents	Std. No.	Sex/Age	Score
1	AD	03	f/14	11
2	AWN	04	f/13	16
3	APS	06	f/13	18
4	AR	07	f/12	19
5	AW	08	f/13	14
6	CAN	09	f/12	16
7	DFWU	10	f/13	15
8	AW	26	m/14	10
9	AI	28	m/13	6
10	AS	29	m/13	16
11	AD	30	m/12	14
12	DS	32	m/13	15
13	EAP	33	m/14	8
14	JS	34	m/13	5
15	NW	36	m/14	14
16	P	37	m/14	11
17	TA	42	m/12	8
18	WP	44	m/13	18

Table III.2.b Pair 2-b, the non pre-reading data

No.	respondents	Std. No.	Sex/Age	Score
1	ABW	01	f/13	16
2	CHH	02	f/13	9
3	DRCH	03	f/13	9
4	DK	04	f/12	8
5	DN	05	f/13	11
6	DOI	06	f/14	16
7	FNS	09	f/13	7
8	FN	12	f/14	12
9	HRS	15	f/13	6
10	NTS	18	f/12	7
11	P	20	f/15	4
12	ES	34	m/15	6
13	JP	37	m/14	12
14	KH	38	f/13	13
15	MT	39	m/12	16
16	SK	40	f/13	14
17	WEP	42	m/13	7
18	YAWT	44	m/14	6

Table III.3.a Pair 3-a, the pre-reading data

No.	respondents	Std. No.	Sex/Age	Score
1	AD	03	f/14	10
2	AWN	04	f/13	12
3	APS	06	f/13	13
4	AR	07	f/12	20
5	AW	08	f/13	11
6	CAN	09	f/12	12
7	DFWU	10	f/13	19
8	AW	26	m/14	4
9	AI	28	m/13	7
10	AS	29	m/13	12
11	AD	30	m/12	10
12	DS	32	m/13	14
13	EAP	33	m/14	12
14	JS	34	m/13	12
15	NW	36	m/14	11
16	P	37	m/14	8
17	TA	42	m/12	10
18	WP	44	m/13	20

Table III.3.b Pair 3-b, the non pre-reading data

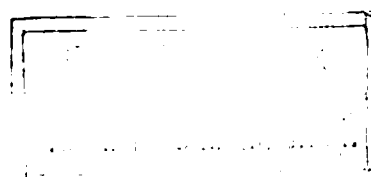
No.	respondents	Std. No.	Sex/Age	Score
1	ABW	01	f/13	10
2	CHH	02	f/13	12
3	DRCH	03	f/13	8
4	DK	04	f/12	5
5	DN	05	f/13	8
6	DOI	06	f/14	14
7	FNS	09	f/13	9
8	FN	12	f/14	9
9	HRS	15	f/13	5
10	NTS	18	f/12	10
11	P	20	f/15	5
12	ES	34	m/15	8
13	JP	37	m/14	10
14	KH	38	f/13	6
15	MT	39	m/12	16
16	SK	40	f/13	9
17	WEP	42	m/13	19
18	YAWT	44	m/14	5

III.2 Analysis of the Data

The basic idea of the analysis of the data is to test the hypotheses proposed in this study, the H_0 and the H_1 . the null hypothesis (H_0) states that there is no difference of the use of pre-reading activity in reading comprehension, while the alternative hypothesis (H_1) states reversely. In turn, the writer is able to draw a conclusion related to the statement of the problem of the study.

Therefore, the writer uses paired t -test (t -test) as proposed by Battacharyya and Johnson (1977) to compare two different versions of data. The underlying assumption of two versions of data is that pre-reading and non pre-reading data are independent to each other. In other words, the measurements under one treatment are unrelated to the measurements under the other treatment. The objective of setting up this test is to draw comparison between the mean values of two variables that represent the two groups of respondents (i.e., the pre-reading group and the non pre-reading group). It computes the differences between values of the two variables for each case or session.

Corresponding to the theory used, the writer takes the application of computer software of statistical analysis, SPSS 10.0 for Windows, with the operating system Microsoft Windows '98. Whereas the data collection of this study falls into three pairs, each pair of data is analyzed independently with the same statistic procedure of Paired t -test.



THE STATISTIC TEST (PAIRED *t*-TEST)

Briefly, the Paired *t*-test procedure produces:

- Paired Samples Statistics;
- Paired Samples Correlations; and,
- Paired Samples Test ($\alpha = 1 - 95\%$ or 0.05 value of significance)
- Hypothesis Testing

➤ The Paired Samples Statistics

Table III.4 Paired samples statistic outcomes of the data (SPSS 10.0)

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	S1 ^A	7.2500	18	1.80888	.42636
	S1 ^B	6.7778	18	1.94953	.45951
Pair 2	S2 ^A	12.9444	18	4.33145	1.02093
	S2 ^B	9.6111	18	3.46646	.81705
Pair 3	S3 ^A	11.9444	18	3.99223	.94098
	S3 ^B	10.6667	18	4.44575	1.04787

Where:

N = number of respondents

S = session of reading test/data collection

A = pre-reading treatment.

B = non pre-reading treatment

Table III.4 displays the mean value, sample size, standard deviation, and standard error for the three pairs of variables. The *mean* column displays the average difference between treatment A and treatment B in the three pairs. The *std. deviation* column displays the standard deviation of the average difference score. The *std. error mean* column provides an index of the variability.

The mean values shown in Table III.4 differs 0.47252, 3.3333, and 1.1778 points in pair 1, 2, and 3 respectively. This indicates a significant statistic difference between treatment A and treatment B in the three sessions, which suggest that treatment A has certain influence towards the respondents. Yet, the above calculated outcomes are only the initial measurements and cannot reflect a satisfying conclusion to the hypotheses proposed.

➤ **The paired Samples Correlation**

Table III.5 *Paired samples correlation outcomes of the data (SPSS 10.0)*

		N	Correlation	Sig.
Pair 1	S1 ^A & S1 ^B	18	.926	.000
Pair 2	S2 ^A & S2 ^B	18	.939	.000
Pair 3	S3 ^A & S3 ^B	18	.940	.000

The objective of this calculation is to find out the further statistical difference estimation between the two versions of data in each pair relating to the intended treatment—pre-reading activity, shown by the correlation coefficient value. Table III.5 displays the value of the correlation coefficient and the significance value for each pair of variables used in the paired samples *t*-test procedure. It is stated that since the two variables in each pair represent the same group at different times or two related groups, the correlation value should be fairly high and the significance value low (typically less than 0.05).

The correlation values shown in Table III.5 are significantly high for all three pairs of data (Pair 1: 0.926; Pair 2: 0.939; and pair 3: 0.940) and the significance values (*sig.*) are low, 0.000 for all pairs. This indicates that there is a difference between the two groups of respondents relating to the intended treatment.

➤ **The Paired Samples Test ($\alpha = 1 - 95\%$ or 0.05)**

Table III.6 Paired samples test outcomes of the data (SPSS 10.0)

	Paired Differences					<i>t</i>	<i>df</i>	Sig. (2-tail)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 S1 ^A – S1 ^B	.4722	.73709	.17373	.1057	.8388	2.718	17	.015
Pair 1 S2 ^A – S2 ^B	3.3333	1.60880	.37920	2.5333	4.1334	3.790	17	.000
Pair 1 S3 ^A – S3 ^B	1.1778	1.52646	.35979	.5187	2.0369	3.551	17	.002

The paired samples test table (Table III.6) displays the results for paired differences, *t*-value (*t*), degree of freedom (*df*), a two-tailed significance level value (*sig. (2-tailed)*). The results for paired differences include the mean, standard deviation, standard error mean, and the 95% confidence interval of the difference (lower and upper).

The 95% confidence interval of the difference column provides an estimate of the boundaries between which the true mean difference lies in 95% of all possible samples participating in this study. If the confidence interval for the mean difference does not contain zero (0), this indicates that there is a significant difference between the two compared variables.

In this study, all three pairs of data does not contain zero in their confidence interval. Pair 1 at the confidence interval between 0.1057 and 0.8388; Pair 2, at 0.5333 and 4.1334; and pair 3, at 0.5187 and 2.0369. these results of confidence interval for mean difference indicate that there is a significant difference between the two variables in each pair of data. In other words, there is a significant difference between treatment A (pre-reading) and treatment B (non pre-reading).

The t column displays the t statistic, which are obtained by dividing the mean difference by its standard error. The sig. (2-tailed) column displays the probabilities of obtaining t statistic. The degree of freedom column displays values associated with a test statistic that is used in determining the observed significance level. These outcomes, in turn, contribute the hypothesis testing.

THE HYPOTHESIS TESTING

The null and alternative hypotheses required for this test:

$$H_0 : \mu_1 = \mu_2$$

$$H_1 : \mu_1 < \mu_2 \quad \text{with} \quad t < -t_\alpha \quad \text{level of rejection}$$

$$H_1 : \mu_1 > \mu_2 \quad \text{with} \quad t > t_\alpha \quad \text{level of rejection}$$

μ_1 : the mean for group A (pre-reading treatment)

μ_2 : the mean for group B (non pre-reading treatment)

t_α : t table for defined α

α : $1 - 95\% = 0.05$ level of significance

➤ **Session 1**

a) $\mu_1 = 7.25$

$$\mu_2 = 6.7778$$

$$\mu_1 > \mu_2 = 7.25 > 6.7778$$

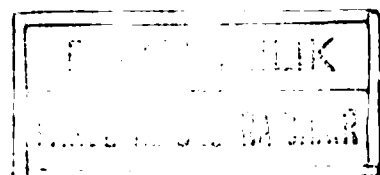
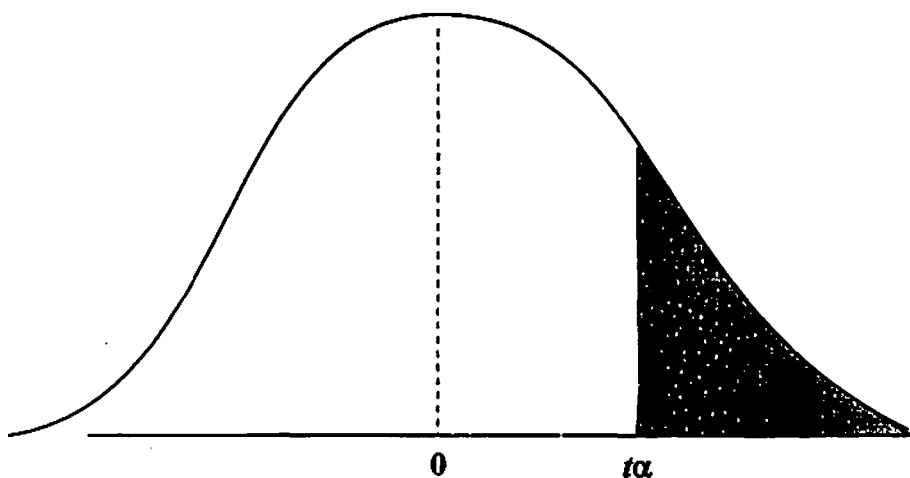
b) $t = 2.718$

$$t_{\alpha} \text{ at } df 17 = 1.740 \text{ (referring to table } t \text{ value)}$$

$$t > t_{\alpha} = 2.718 > 1.740$$

This result equals to **H1**: $\mu_1 > \mu_2$ with $t > t_{\alpha}$ level of rejection, which indicates that H1 is accepted and H0 is rejected. According to this, the statement that there is a difference of the use of pre-reading activity in reading comprehension (H1) is proved to be true.

c) The curve of Critical Region



➤ **Session 2**

a) $\mu_1 = 12.9444$

$$\mu_2 = 9.6111$$

$$\mu_1 > \mu_2 = 12.9444 > 9.6111$$

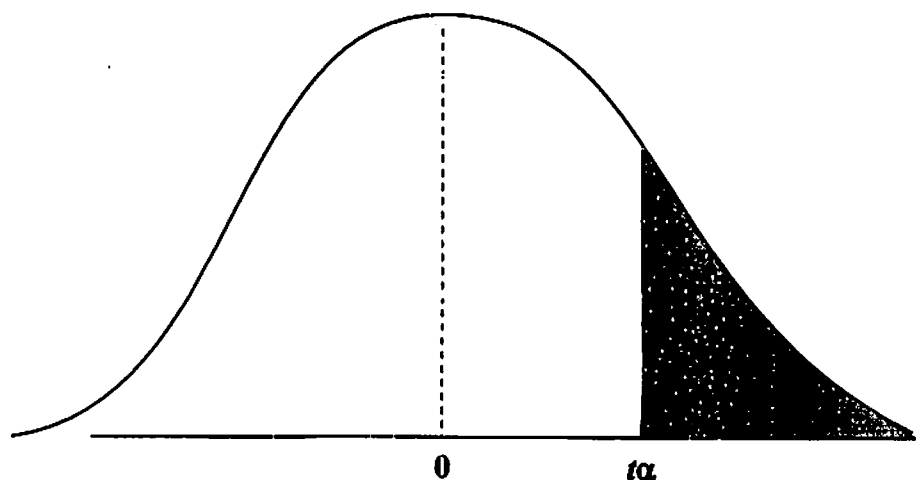
b) $t = 8.790$

$$t_{\alpha} \text{ at } df \ 17 = 1.740 \text{ (referring to table } t \text{ value)}$$

$$t > t_{\alpha} = 8.790 > 1.740$$

This result equals to **H1: $\mu_1 > \mu_2$** with $t > t_{\alpha}$ level of rejection, which indicates that H1 is accepted and H0 is rejected. Therefore, the statement that there is a difference of the use of pre-reading activity in reading comprehension (H1) is proved to be true.

c) **The curve of Critical Region**



➤ **Session 3**

a) $\mu_1 = 11.9444$

$$\mu_2 = 10.6667$$

$$\mu_1 > \mu_2 = 11.9444 > 10.6667$$

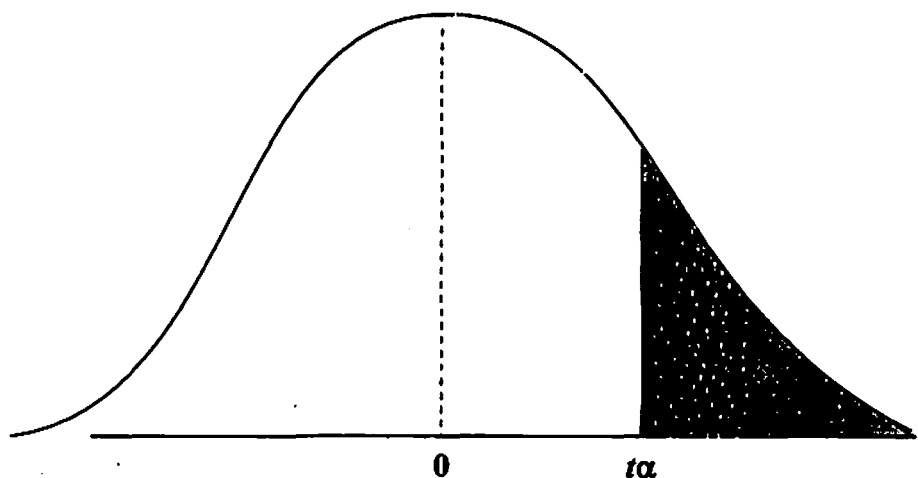
b) $t = 3.551$

$t\alpha$ at df 17 = 1.740 (referring to table t value)

$$t > t\alpha = 3.551 > 1.740$$

This result equals to **H1**: $\mu_1 > \mu_2$ with $t > t\alpha$ level of rejection, which indicates that H1 is accepted and H0 is rejected. According to this, the statement that there is a difference of the use of pre-reading activity in reading comprehension (H1) is proved to be true.

c) The curve of Critical Region



The statistic test using the Paired *t*-test and the hypothesis testing finally reveal the objective of the study, which is to discover whether there is a difference of the use of pre-reading activity in reading comprehension. In this study, the writer repeated the procedure of data collection up to three times or sessions. This is due to the writer's intention to have a better validity of the result of this study.

Consequently, the results of Paired *t*-test calculation of the three pairs of data indicate that a set of pre-reading activities has a significant influence on the related group of respondents (the pre-reading group), thus, differ from the unrelated group (the non pre-reading group) in comprehending a reading passage.

CHAPTER IV

CONCLUSION