CHAPTER IV

PRESENTATION OF RESULTS AND THEIR INTERPRETATION

After the scores had been gathered by the process mentioned in Chapter III, basic data for calculation were then computed by desk calculator, the results of which are presented in Table V.

Table V

Basic Data from Which Further Calculations

Were Made

Group	Subjects	Test	r	S_d	$\bar{d}$	$\sigma_{\bar{d}}$	$t_{\bar{d}}$	df	X	X^2	Y	Y^2	XY	$\bar{X}$	SD
I	35	L ⟶ R	.48	2.6	4.09	.44	9.32	34	396	4738	539	8479	6202		
II	35	R							566	9685				16.2	3.89
III	35	R ⟶ L	.65	2.1	2.37	.36	5.54	34	572	9492	489	7101	8120		
IV	35	L							429	5393				12.3	1.96
Total	140														

The author then analyzed the data, taking the following steps:

I Calculating for the Correlation Between the Tests.

The two sets of scores obtained from Group I and the other two sets obtained from Group III were computed by using the Peason Product - Moment Coefficients of Correlation.

The formula for the Pearson Product - Moment Correlation Coefficient utilized in this calculation is:[1]

$$r_{xy} = \frac{N\Sigma XY - \Sigma X \Sigma Y}{\sqrt{[N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2]}}$$

Where:

N = number of subjects

ΣXY = sum of XY

ΣX = sum of X

ΣY = sum of Y

(For the actual calculation, refer to Appendix A)

Table VI

Correlation of Group I and Group III

Group	Test	ΣX	ΣY	ΣX^2	ΣY^2	XY	r	Interpretation
I	L ⟶ R	396	539	4738	8479	6202	.48	Significant
III	R ⟶ L	572	489	9492	7101	8120	.65	Significant

(See Appendix A)

[1] L. Saiyote, Educational Statistics, (Bangkok: Wattana Panitch, 1970), p. 168.

The correlation coefficient between the scores on the listening test and the reading test in Group I was .48 and the correlation coefficient between the scores on the reading test and the listening test in Group III was .65. Both are significant at $p < .01$. The results of these calculations show that the scores on the listening test correlated fairly highly with the scores on the reading test. This implies that the subjects who got high scores in listening, would also get high scores in reading. Likewise, if the subjects got low scores in listening, they would also get low scores in reading. However, there were some subjects that did not perform the tests under these conditions.

On the whole, it can be concluded that there was a transfer between listening and reading comprehension, especially from reading comprehension to listening comprehension. These calculations show that the first hypothesis of this study was a correct one.

II Calculating for Mean Difference.

There is one way to prove if the ordering of two tests affect the subjects' scores. That is to find out if the means of the two tests (listening and reading) differ significantly. So to check the above finding, the difference of the means was calculated by t - tests.

The two sets of scores obtained from Group I and the other two sets of scores obtained from Group III were computed. The T - Difference Method utilized in this calculation was:[2]

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[2]Henry E. Garrett, Statistics in Psychology and Education, (London: Longmans, 1964), pp. 145 - 146.

$$t_{\bar{d}} = \frac{\bar{d}}{\sigma_{\bar{d}}}$$

$$\bar{d} = \frac{d}{n}$$

$$\sigma_{\bar{d}} = \frac{S_d}{n-1}$$

Where:

$\bar{d}$ = mean of the difference

ξd = sum of the difference

n = number of subjects

$\sigma_{\bar{d}}$ = S.D. difference of population

S_d = standard deviation difference of samples

(See Appendix A)

Table VII

Mean Differences of Group I and Group III

Group	Test	$(F-I)_d$	d^2	$\bar{d}$	$\sigma_{\bar{d}}$	t_d
	(I—F)					
I (N = 35)	L→R	143	813	4.09	.44	9.32
III (N = 35)	R→L	-83	353	2.37	.36	5.54

The difference was significant at $p < .01$.

The difference between the scores of the listening test and the reading test in Group I was 9.32 and the difference between the

scores of the reading test and the listening test in Group III was 5.54. The results of the calculation show that the t_d of 9.32 and 5.54 were far above the .01 level so the differences were obviously very significant or there were significant differences between listening and reading comprehension in both groups. From the sum of the difference ($\sum d$) Group III that had the reading test before the listening test got a result of -83 which shows that reading was more significant in difference than listening was. From this we can imply that most of the students had more ability in reading comprehension than in listening comprehension.

III Calculating for the T - Tests.

The scores in reading obtained from Group I were compared with the scores in reading obtained from Group II, and the scores in listening obtained from Group III were compared with those of Group IV as well, including the scores on Type I (Reading before Listening) compared with those of Type II (Listening before Reading). The t - tests utilized in these calculations are:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$$

Where:

$\bar{X}_1$ = the mean of the first group

$\bar{X}_2$ = the mean of the second group

s_1^2 and s_2^2 = the variances of samples group one and two

n_1 and n_2 = number of samples

(For actual calculations, refer to Appendix A)

Table VIII

Differences between the Scores on the Listening and Reading Tests

No.	Test	N	$\bar{X}$	SD	df	t
1)	Listening → Reading[1]	35	15.4	2.26	68	-1.04 *
	Reading[2]	35	16.2	3.89		
2)	Reading → Listening[1]	35	13.9	2.77	68	2.95 **
	Listening[2]	35	12.3	1.96		
3)	Reading → Listening[1]	35	30.3	4.42	68	3.44 **
	Listening → Reading[2]	35	26.7	4.28		

* Retain H_o when $t < 2.66$ (no difference)

** Reject H_o when $t > 2.66$ (significant difference)

The difference was significant at $p < .01$

It was therefore determined that for Number One, there was no significant difference between the Reading Test Group I (the subjects had the Listening Test before the Reading Test) and the

Reading Test Group II (the subjects had the Reading Test only) (at $p < .01$ and $t = -1.04$). This also means that the author could make use of either technique when aiming at Reading Comprehension. It would not matter whether the author gave instruction in Listening Comprehension first or not. This also indicates that the scores obtained in Group I do not differ from the scores that the subjects got in Group II.

For Number Two, it was found that there was significant difference (at $p < .01$ and $t = 2.95$) between the two techniques: one was to have the Reading Comprehension before the Listening Comprehension. The result indicates that the first technique is different from the second one. It can be concluded that the subjects could score significantly higher in the first technique than they could on performing the Listening Comprehension Test only. The main reason might have been in the understanding of the subjects who tried the Reading Comprehension Test first, and then performed better on the Listening Comprehension Test. In other words, there was a transfer from Reading Comprehension to Listening Comprehension in the same content.

For Number Three, it was found that there was a difference in both techniques. (To test the Listening Comprehension before the Reading Comprehension, or to test the Reading Comprehension before the Listening Comprehension). (Significant at $p < .01$ and $t = 3.44$). Therefore the two techniques could be used differently depending on the objectives of the instructor. Thus these results

indicate that only a part of the third hypothesis (the teaching of Listening before Reading and the teaching of Reading only does not have any effect on the scores of the subjects) has been retained, whereas parts of the third hypothesis have been rejected.