CHAPTER IV

RESULTS AND INTERPRETATION

4.0. Introduction

The methodology followed in conducting the present study has been given in detail in the previous chapter. In this chapter the statistical techniques used for analyzing the data have been presented objective wise. The present chapter is devoted to the presentation of the results and their interpretations. The analysis and interpretation of the findings are discussed under the following sections:

Section I

4.1 Analysis of Test Performance of Experimental Group and Control Group before and after Introduction of PALS

Section II

4.2 Assessment of PALS Techniques such as Partner Reading, Paragraph Shrinking, Quiz Activity and Project Activity before and after introduction of Peer Assisted Learning Strategies

Section III

4.3 Influence of Gender, Medium of Instruction and their Interaction on PALS Techniques such as Partner Reading, Paragraph Shrinking and Quiz Activity

Section I:

4.1. Analysis of Test Performance of Experimental Group and Control Group before and after Introduction of PALS

a. Test Performance of Experimental and Control Group before and after Introduction of PALS

b. Test Performance of Experimental and Control Group before and after Introduction of PALS with respect to Gender and Medium of Instruction.

4.1.1: Test Performance Score before Introduction of PALS: A Comparison of Control and Experimental Group

Test Performance Score before introduction of PALS was analyzed by comparing Control Group and Experimental Group and the results are given in the following Table 4.1.

Table 4.1: Testing-wise Mean, SD and t-value for Test Performance of Control Group and Experimental Group

Group	Test	N	df	Mean	SD	t-value
Experimental	Pretest score	116	115	7.00	1.83	3.60**
Control		72	71	8.43	3.56	

***Significant at 0.01 level*

From the table 4.1, it is evident that the ***t***-value for the Test Performance Score for Science subject obtained before introduction of PALS is 3.60 with df = 186 which is significant at 0.01 level. It indicates that the Performance Score of Experimental and Control Group Students differ significantly. It means that Control Group Students (M = 8.43) secured higher score than the Experimental Group (M = 7.00) in the pretest. In the light of this, the null hypothesis stated that ***"there is no significant difference in Performance Score of Experimental and Control Group Students before introduction of PALS"*** **is rejected. It may therefore be concluded that** the mean difference is only 1.43; therefore the Control Group secured higher score.

4.1.2: Test Performance Score after introduction of PALS: A Comparison of Control and Experimental Group

Test Performance Score after introduction of PALS was analysed by comparing Control Group and Experimental Group and the results are given in the following Table 4.2.

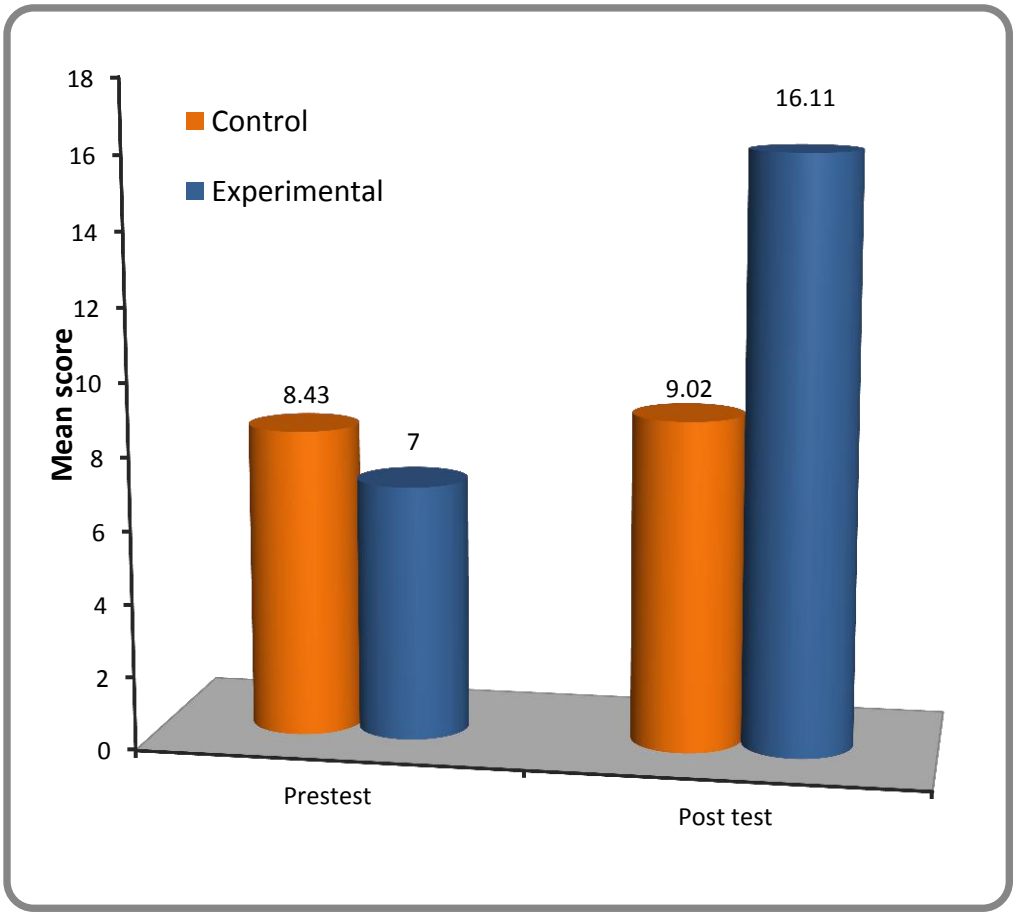
Table 4.2: Testing-wise Mean, SD and t-value for Test Performance of Control and Experimental Group

Group	Test	N	df	Mean	SD	t-value
Experimental	Posttest score	116	115	16.11	3.59	12.84**
Control		72	71	9.03	3.82	

***Significant at 0.01 level*

From the table 4.2, it is evident that the ***t***-value for the Test Performance Score for Science subject obtained after introduction of PALS is 12.84with df = 186 which is significant at 0.01 level. It indicates that the Performance Score of Experimental and Control Group differs significantly. It means that Experimental Group Students (M =16.11) secured higher score than the Control Group (M= 9.03) in the posttest. In the light of this, the null hypothesis stated that ***"there is no significant difference in Test Performance Score of Experimental and Control Group after introduction of PALS"*** **is rejected.** It may therefore be concluded that students in Experimental Group secured higher Test performance score than Control Group Students**.** Therefore it is concluded that PALS had effect on learning Science subject.

Figure 4.1: Pre and Post Test Performance of Control Group and Experimental Group



4.1.3: Test Performance Score of Experimental Group: Pretest and Posttest Comparison

Test Performance Score of Experimental Group was analyzed by comparing pretest score and posttest score and the results are given in the following Table 4.3.

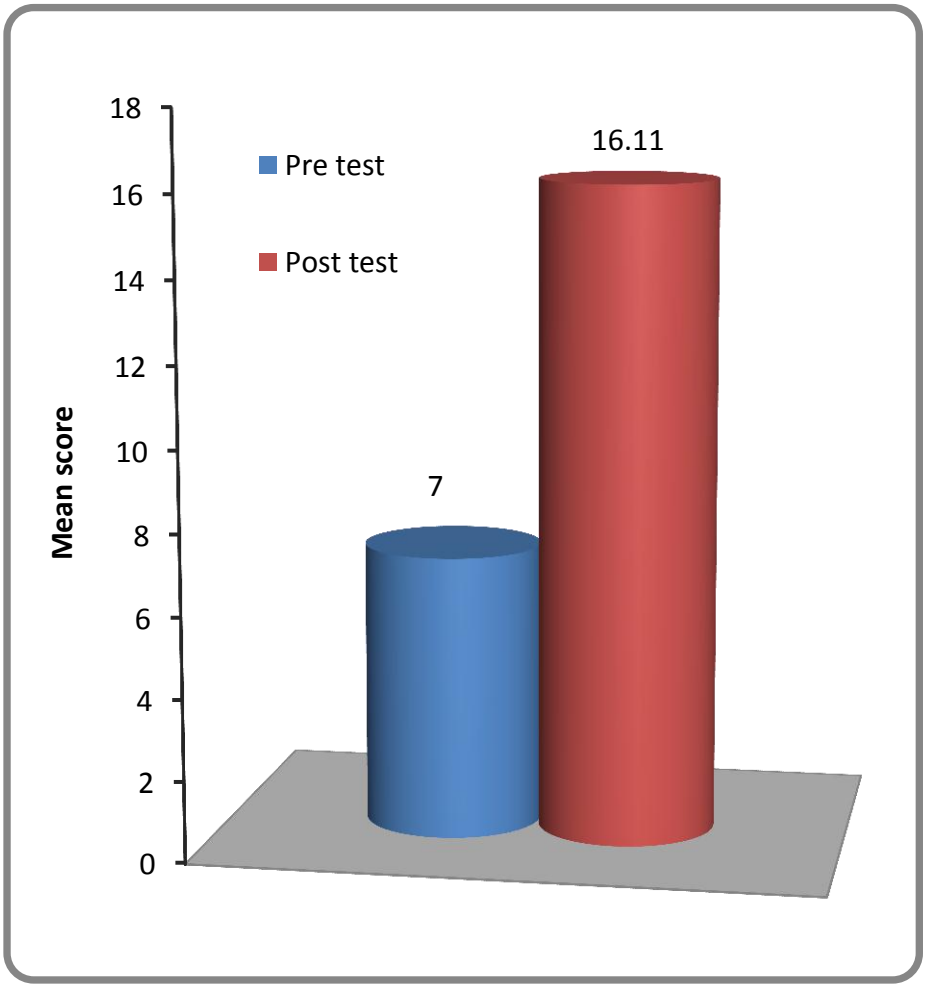
Table 4.3: Testing-wise Mean, SD and t-value for Test Performance of Experimental Group

Group	Test	N	df	Mean	SD	t-value
Experimental	Pretest	116	115	7.00	1.83	39.11**
	Posttest			16.11	3.58	

***Significant at 0.01 level*

From the table 4.3, it is evident that the ***t***-value for the Test Performance Score for Science subject obtained before and after introduction of PALS in experimental group is 39.11with df = 115 which is significant at 0.01 level. It indicates that the Performance Score of pretest and posttest of Experimental Group differs significantly. It means that posttest score (M = 16.11) is higher than the pretest score (M = 9.03) of students in the Experimental Group. In the light of this, the null hypothesis stated that ***"there is no significant difference in Test Performance Score of before and after introduction of PALS to Experimental Group"*** **is rejected.** It may therefore be concluded that Experimental Group students secured higher performance score in the posttest**.** Hence it is concluded that PALS had effect on learning of Science subject.

Figure 4.2 : Pre and Post Test Performance of Experimental Group



4.1.4: Test Performance Score of Control Group: Comparison of Pretest and Posttest

Test Performance Score of Control Group was analysed by comparing pretest score and posttest score and the results are given in the following Table 4.4.

Table 4.4: Testing-wise Mean, SD and t-value for Test Performance of Control Group

Group	Test	N	df	Mean	SD	t-value
Control	Pretest	72	71	8.43	3.56	5.54**
	Posttest			9.03	3.82	

***Significant at 0.01 level*

From the table 4.4, it is evident that the ***t***-value for the Test Performance Score for Science subject obtained before and after introduction of PALS in Control Group is 5.54 with df = 71 which is significant at 0.00 level. It indicates that the Performance Score of Pretest and Posttest in Control Group differs significantly. It means that posttest score (M = 9.03) is higher than the pretest score (M= 8.43) in the Control Group. In the light of this, the null hypothesis stated that ***"there is no significant difference in Test Performance Score of before and after introduction of PALS in Control Group"*** **is rejected.** The Posttest mean difference is only 0.6, but the Posttest score of Experimental Group is 16.11 and its mean difference between Control and Experimental Group is 7.08**.**

4.1.5: Test Performance Score before Introduction of PALS with respect to Gender in Experimental Group

Test Performance Score of Experimental Group before introduction of PALS for Experimental Group with respect to Gender was analysed and the results are given in the following Table 4.5.

Table 4.5: Testing-wise Mean, SD and t-value with respect to Gender in Experimental Group

Group	Gender	Test	N	df	Mean	SD	t-value
Experimental	Boys	Pretest Score	58	57	6.91	1.94	0.56^{NS}
	Girls		58	57	7.10	1.73	

NS – Not Significant

From the table 4.5, it is evident that the ***t***-value for the Test Performance Score of Gender for Science subject obtained before introduction of PALS to Experimental Group is 0.56 with df = 114 which is not significant. It indicates that the Pretest Score of Boys and Girls in Experimental Group does not differ significantly. In the light of this, the null hypothesis stated that ***"there is no significant difference between Boys and Girls in before introduction of PALS in Experimental Group"*** **is not rejected. Therefore it is concluded that both Boys and Girls have secured the score to the same extent.**

4.1.6: Test Performance Score after Introduction of PALS with respect to Gender in Experimental Group

Test Performance Score of Experimental Group after introduction of PALS for Experimental Group with respect to Gender was analyzed and the results are given in the following Table 4.6.

Table 4.6: Testing-wise Mean, SD and t-value with respect to Gender in Experimental Group

Group	Gender	Test	N	df	Mean	SD	t-value
Experimental	Boys	Posttest	58	57	16.12	3.78	0.03^{NS}
	Girls		58	57	16.10	3.42	

NS – Not Significant

From the table 4.6, it is evident that the ***t***-value for the Test Performance Score of Gender for Science subject obtained after introduction of PALS to Experimental Group is 0.03 with df = 114 which is not significant. It indicates that the Posttest Score of Boys and Girls in Experimental Group does not differ significantly. In the light of this, the null hypothesis stated that ***"there is no significant difference between Boys and Girls in after introduction of PALS in Experimental Group"*** **is not rejected. Therefore it is concluded that both Boys and Girls have secured the score to the same extent in the Posttest**.

4.1.7: Test Performance Score before Introduction of PALS with respect to Gender in Control Group

Test Performance Score of Control Group before introduction of PALS for Control Group with respect to Gender was analysed and the results are given in the following Table 4.7.

Table 4.7: Testing-wise Mean, SD and t-value with respect to Gender in Control Group

Group	Gender	Test	N	df	Mean	SD	t-value
Control	Boys	Pretest	42	41	8.55	3.60	0.33
	Girls		30	29	8.27	3.56	

NS – Not Significant

From the table 4.7, it is evident that the ***t***-value for the Test Performance Score of Gender for Science subject obtained before introduction of PALS to control group is 0.33 with df = 70 which is not significant. It indicates that the Pretest Score of Boys and Girls in Control Group does not differ significantly. In the light of this, the null hypothesis stated that ***"there is no significant difference between Boys and Girls in before introduction of PALS in Control Group"*** **is not rejected. Therefore it is concluded that for both Boys and Girls have secured the score to the same extent**.

4.1.8: Test Performance Score after Introduction of PALS with respect to Gender in Control Group

Test Performance Score of Control Group after introduction of PALS for Control Group with respect to Gender with respect to Gender was analysed and the results are given in the following Table 4.8.

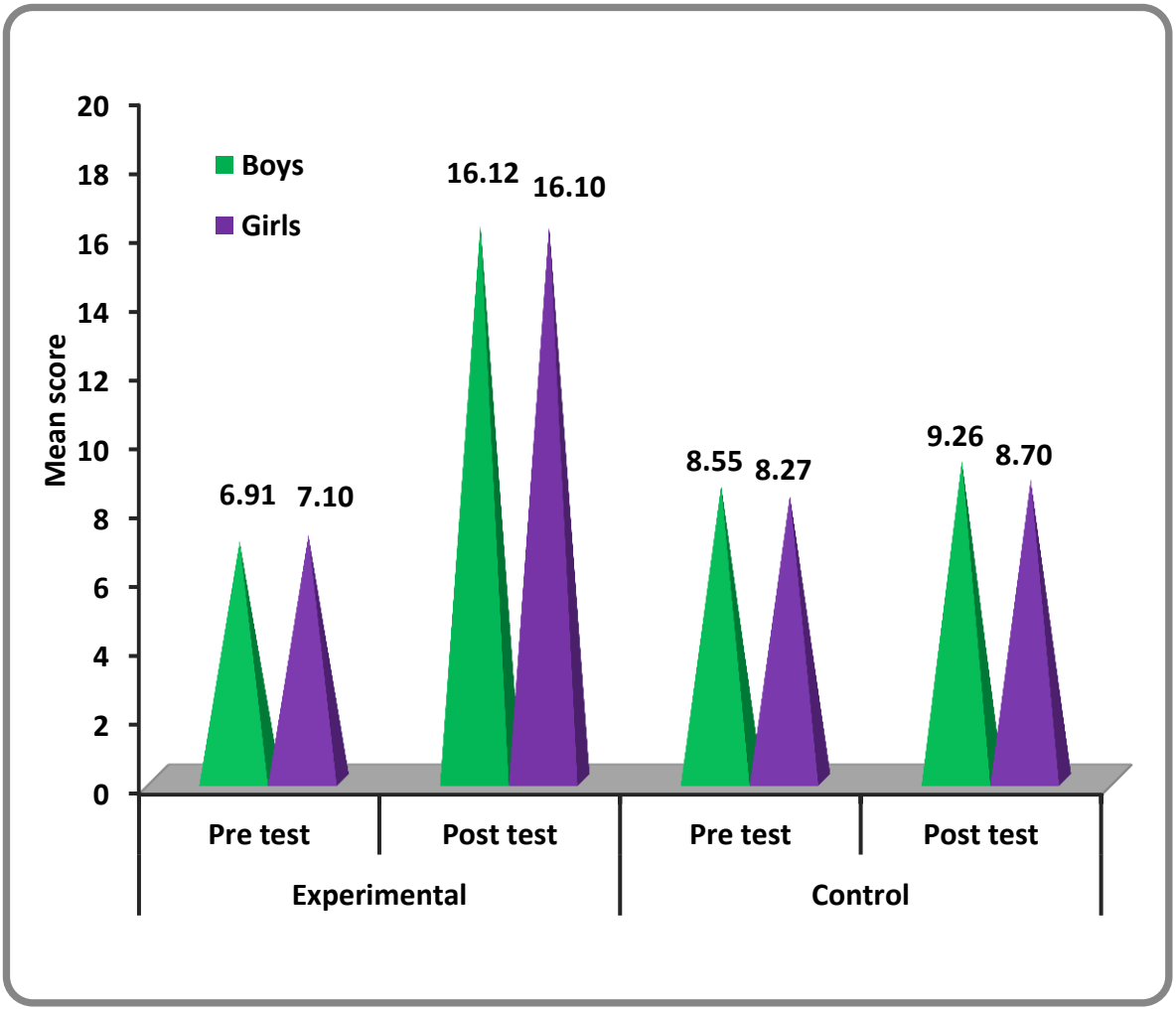
Table 4.8: Testing-wise Mean, SD and t-value with respect to Gender in Control Group

Group	Gender	Test	N	df	Mean	SD	t-Value
Control	Boys	Posttest score	42	41	9.26	3.95	0.61^{NS}
	Girls		30	29	8.70	3.66	

NS – Not Significant

From the table 4.8, it is evident that the ***t***-value for Test Performance Score of Gender for Science subject obtained after introduction of PALS to Control Group is 0.61 with df = 70 which is not significant. It indicates that the Posttest Score of Boys and Girls in Control Group does not differ significantly. In the light of this, the null hypothesis stated that ***"there is no significant difference between Boys and Girls in after introduction of PALS in Control Group"*** **is not rejected. Therefore it is concluded that both Boys and Girls have secured the score to the same extent in the Posttest**.

Figure 4.3 : Test Performance Score before and after Introduction of PALS with respect to Gender in Control and Experimental Group



4.1.9: Test Performance Score before Introduction of PALS with respect to Medium of Instruction in Experimental Group

Test Performance Score of Experimental Group before introduction of PALS for Experimental Group with respect to Medium of instruction was analysed and the results are given in the following Table 4.9.

Table 4.9: Testing-wise Mean, SD and t-value with respect to Medium of Instruction in Experimental Group

Group	Medium	Test	N	df	Mean	SD	t-value
Experimental	English	Pretest	60	59	7.47	1.77	2.87*
	Tamil		56	55	6.52	1.79	

** **Significant at 0.05 level***

From the table 4.9, it is evident that the t-value for test Performance Score for Science subject obtained before introduction of PALS in English and Tamil Medium is 2.87 with df = 114 which is significant at 0.05 level. It indicates that the Performance Score of English and Tamil Medium students in Experimental Group differ significantly. It means that Experimental Group in English Medium students (M = 7.47) secured higher score than the Experimental Group in Tamil Medium students (M = 6.52) in the pretest. In the light of this, the null hypothesis stated that "There is no significant difference in Performance Score of English and Tamil Medium Students before introduction of PALS" is rejected. It may therefore be concluded that English medium Students secured higher performance score than Tamil Medium Students.

4.1.10: Test Performance Score after Introduction of PALS with respect to Medium of Instruction in Experimental Group

Test Performance Score of Experimental Group after introduction of PALS for Experimental Group with respect to Medium of instruction was analysed and the results are given in the following Table 4.10.

Table 4.10: Testing-wise Mean, SD and t-value with respect to Medium of Instruction in Experimental Group

Group	Medium	Test	N	df	Mean	SD	t-value
Experimental	English	Posttest	60	59	16.55	3.77	1.37^{NS}
	Tamil		56	55	15.64	3.36	

NS – Not Significant

From the table 4.10, it is evident that the ***t***-value for the Test Performance Score of Medium of instruction for Science subject obtained after introduction of PALS to experimental group is 1.37 with df = 114 which is not significant. It indicates that the Posttest Score of English and Tamil Medium student in Experimental Group does not differ significantly. In the light of this, the null hypothesis stated that ***"there is no significant difference between English and Tamil medium Students after introduction of PALS in Experimental Group"*** **is not rejected. Therefore it is concluded that both English and Tamil Medium students have secured the score to the same extent in the Posttest**.

4.1.11: Test Performance Score before Introduction of PALS with respect to Medium of Instruction in Control Group

Test Performance Score of Control Group before introduction of PALS for Control Group with respect to Medium of instruction was analysed and the results are given in the following Table 4.11.

Table 4.11: Testing-wise Mean, SD and t-value with respect to Medium of Instruction in Control Group

Group	Medium	Test	N	df	Mean	SD	t-value
Control	English	Pretest score	36	35	8.86	4.04	**1.03^{NS}**
	Tamil		36	35	8.00	3.01	

NS – Not Significant

From the table 4.11, it is evident that the ***t***-value for the Test Performance Score of Medium of instruction for Science subject obtained before introduction of PALS to Control Group is 1.03 with df = 70 which is not significant. It indicates that the Pretest Score of English and Tamil Medium students in Control Group do not differ significantly. In the light of this, the null hypothesis stated that ***"there is no significant difference between English and Tamil medium Students before introduction of PALS in control Group"*** **is not rejected. Therefore it is concluded that both English and Tamil Medium students have secured the score to the same extent**.

4.1.12: Test Performance Score after Introduction of PALS with respect to Medium of Instruction in Control Group

Test Performance Score of Control Group after introduction of PALS for Control Group with respect to Medium of instruction was analysed and the results are given in the following Table 4.12.

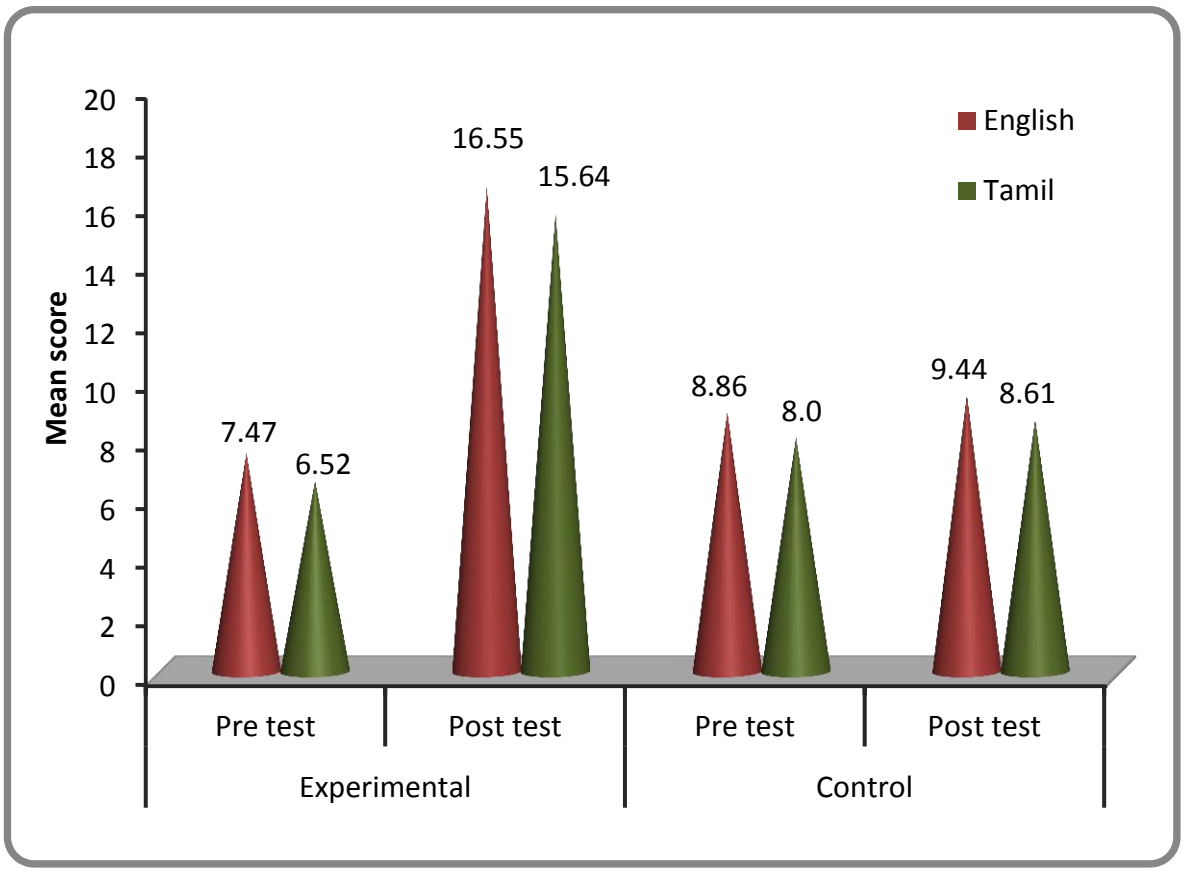
Table 4.12: Testing-wise Mean, SD and t-value with respect to Medium of Instruction in Control Group

Group	Medium	Test	N	df	Mean	SD	t-value
Control	English	Posttest	36	35	9.44	4.43	0.93^{NS}
	Tamil		36	35	8.61	3.09	

NS – Not Significant

From the table 4.12, it is evident that the ***t***-value for the Test Performance Score of Medium of instruction for Science subject obtained after introduction of PALS to control group is 0.93 with df = 70 which is not significant. It indicates that the Posttest Score of English and Tamil Medium students in Control Group does not differ significantly. In the light of this, the null hypothesis stated that ***"there is no significant difference between English and Tamil medium Students after introduction of PALS in control Group"*** **is not rejected. Therefore it is concluded that both English and Tamil Medium students have secured the score to the same extent in the Posttest**.

Figure 4.4 : Test Performance Score before and after Introduction of PALS with respect to Medium of Instruction in Control and Experimental Group



Section II:

4.2. Assessment of PALS Techniques such as Partner Reading, Paragraph Shrinking, Quiz Activity and Project Activity before and after Introduction of Peer Assisted Learning Strategies

Effectiveness of PALS Techniques such as Partner Reading, Paragraph Shrinking, Quiz Activity and Project Activity with respect to Gender and Medium of Instruction was analyzed. The results are interpreted and discussed.

4.2.1: Effectiveness of Partner Reading before and after Introduction of PALS

Effectiveness of Partner Reading Technique before and after Introduction of PALS was analysed by comparing pre and post score and the results are given in the following Table 4.13.

Table 4.13: Testing-wise Mean, SD, and t-value for Partner Reading

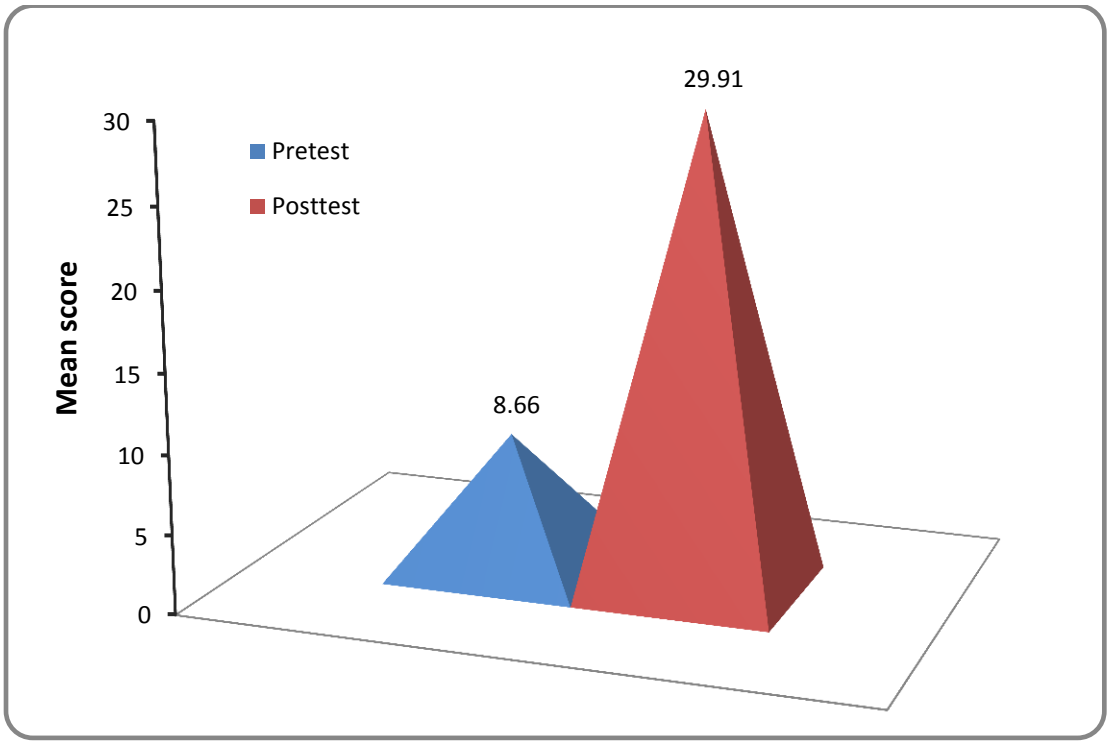
Test	N	df	Mean	SD	t-value
Pretest	58	57	8.66	3.35	11.54**
Posttest			29.91	16.19	

Significant at 0.01 level

From the table 4.13, it is evident that the ***t***-value for Partner Reading is 11.54 with df = 57 which is significant at 0.00 level. It indicates that the Partner Reading score of pretest and posttest differs significantly. It means that Posttest score (M = 29.91) is higher than the Pretest score (M = 8.66). In the light of this, the null hypothesis stated that ***"There is no significant difference in the Partner Reading score before and after introduction of PALS"*** **is rejected.** It may therefore be concluded that Students secured higher score in Partner Reading after introduction of PALS. Therefore it is concluded that PALS had effect on Reading Skill among Partners.

Figure 4.5

Effectiveness of Partner Reading before and after Introduction of PALS



4.2.2: Effectiveness of Partner Reading before Introduction of PALS with respect to Gender

Pretest Performance Score with respect to gender was analysed and the results are given in the following Table 4.14.

Table 4.14: Testing -wise Mean, SD, and t-value for Pretest Score with respect to Gender

Gender	Test	N	df	Mean	SD	t-value
Boys	Pretest Score	27	56	7.33	2.81	3.00^{NS}
Girls		31		9.81	3.39	

NS – Not Significant

From the table 4.14, it is evident that the ***t***-value for Partner Reading with respect to Gender is 2.99with df = 56 which is not significant. It indicates that the Pretest score in Reading of Boys and Girls does not differ significantly. In the light of this, the null hypothesis stated that ***"There is no significant difference between Boys and Girls in the Partner Reading Score in the pretest"*** **is not rejected. Therefore it is concluded that both Boys and Girls were found to be performed to the same extent in the Partner Reading.**

4.2.3: Effectiveness of Partner Reading with respect to Gender after Introduction of PALS

Posttest Performance Score with respect to gender was analysed and the results are given in the following Table 4.15.

Table 4.15: Testing -wise Mean, SD, and t-value for Posttest Score with respect to Gender

Gender	Test	N	df	Mean	SD	t-value
Boys	Posttest Score	27	56	25.85	15.01	1.82^{NS}
Girls		31		33.45	16.59	

NS – Not Significant

From the table 4.15, it is evident that the ***t***-value for Partner Reading with respect to Gender is 1.82 with df = 56 which is not significant. It indicates that the Posttest score in Partner Reading of Boys and Girls does not differ significantly. In the light of this, the null hypothesis stated that ***"There is no significant difference between Boys and Girls in the Partner Reading Score in the Posttest"*** **is not rejected.**

Therefore it is concluded that both Boys and Girls were found to be performed to the same extent in Partner Reading.

4.2.4: Effectiveness of Partner Reading with respect to Medium of Instruction before Introduction of PALS

Pretest Performance Score with respect to medium of instruction was analysed and the results are given in the following Table 4.16.

Table 4.16: Testing -wise Mean, SD, and t-value for Pretest Score with respect to Medium of Instruction

Medium	Test	N	df	Mean	Std. Deviation	t-value
English	Pretest Score	30	56	8.80	2.71	0.34^{NS}
Tamil		28		8.50	3.97	

NS – Not Significant

From the table 4.16, it is evident that the ***t***-value for Partner Reading with respect to Medium is 0.34 with df = 56 which is not significant. It indicates that the Pretest score in Partner Reading of English and Tamil Medium Students does not differ significantly. In the light of this, the null hypothesis stated that ***"There is no significant difference between English and Tamil Medium Students in the Partner Reading Score in the Pretest"*** **is not rejected. Therefore it is concluded that both English and Tamil Medium Students were found to be performed to the same extent in the Partner Reading.**

4.2.5: Effectiveness of Partner Reading with respect to Medium of Instruction after Introduction of PALS

Posttest Performance Score with respect to medium of instruction was analysed and the results are given in the following Table 4.17.

Table 4.17: Testing -wise Mean, SD, and t-value for Posttest Score with respect to Medium of Instruction

Medium	Test	N	df	Mean	Std. Deviation	t-value
English	Posttest Score	30	56	28.73	11.89	0.57^{NS}
Tamil		28		31.18	19.96	

NS – Not Significant

From the table 4.17, it is evident that the ***t***-value for Partner Reading with respect to Medium is 0.57 with df = 56 which is not significant. It indicates that the Posttest score in Partner Reading of English and Tamil Medium Students does not differ significantly. In the light of this, the null hypothesis stated that ***"There is no significant difference between English and Tamil Medium Students in the Partner Reading Score in the Posttest"*** **is not rejected. Therefore it is concluded that both English and Tamil Medium Students were found to be performed to the same extent in the Partner Reading.**

4.2.6: Effectiveness of Paragraph Shrinking before and after introduction of PALS

Effectiveness of Paragraph Shrinking Technique before and after Introduction of PALS was analysed by comparing pre and post score and the results are given in the following Table 4.18.

Table 4.18: Testing-wise Mean, SD, and t-value for Paragraph Shrinking

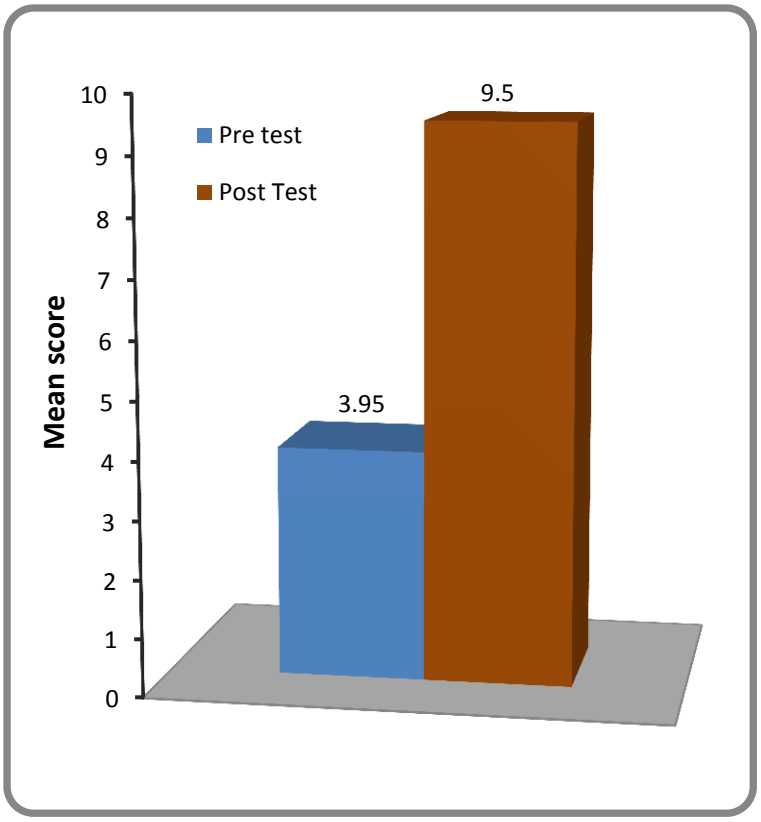
Test	N	df	Mean	SD	t-value
Pretest	58	57	3.95	2.32	16.77**
Posttest			9.50	3.82	

Significant at 0.01 level

From the table 4.18, it is evident that the ***t***-value for Paragraph Shrinking compared is 16.77 with df = 57 which is significant at 0.00 level. It indicates that the Paragraph Shrinking score of pretest and posttest differs significantly. It means that Posttest score (M = 9.50) is higher than the Pretest score (M = 3.95). In the light of this, the null hypothesis stated that ***"There is no significant difference in the Paragraph Shrinking score before and after introduction of PALS"*** **is rejected.** It may therefore be concluded that students secured higher score in Paragraph Shrinking after introduction of PALS. Therefore it is concluded that PALS had effect on Paragraph Shrinking.

Figure 4.6

Effectiveness of Paragraph Shrinking before and after introduction of PALS



4.2.7: Effectiveness of Paragraph Shrinking with respect to Gender before Introduction of PALS

Pretest Performance Score with respect to gender was analysed and the results are given in the following Table 4.19.

Table 4.19: Testing -wise Mean, SD, and t-value for Pretest Score with respect to Gender

Gender	Test	N	df	Mean	SD	t-value
Boys	Pretest Score	27	56	3.44	2.26	1.56^{NS}
Girls		31		4.39	2.32	

NS – Not Significant

From the table 4.19, it is evident that the ***t***-value for Paragraph Shrinking with respect to Gender is 1.56 with df = 56 which is not significant. It indicates that the pretest score in Paragraph Shrinking of Boys and Girls does not differ significantly. In the light of this, the null hypothesis stated that ***"There is no significant difference between Boys and Girls in the Paragraph Shrinking Score in the pretest"*** **is not rejected. Therefore it is concluded that both Boys and Girls were found to be performed to the same extent in the Paragraph Shrinking.**

4.2.8: Effectiveness of Paragraph Shrinking with respect to Gender after Introduction of PALS

Posttest Performance Score with respect to gender was analysed and the results are given in the following Table 4.20.

Table 4.20: Testing -wise Mean, SD, and t-value for Posttest Score with respect to Gender

Gender	Test	N	df	Mean	SD	t-value
Boys	Posttest Score	27	56	8.48	4.11	1.94^{NS}
Girls		31		10.39	3.37	

NS – Not Significant

From the table 4.20, it is evident that the ***t***-value for Paragraph Shrinking with respect to Gender is 1.94 with df = 56 which is not significant. It indicates that the Posttest Score in Paragraph Shrinking of Boys and Girls does not differ significantly. In the light of this, the null hypothesis stated that ***"There is no significant difference between Boys and Girls in the Paragraph Shrinking Score in the posttest"*** **is not rejected. Therefore it is concluded that both Boys and Girls were found to be performed to the same extent in the Paragraph Shrinking.**

4.2.9: Effectiveness of Paragraph Shrinking with respect to Medium of Instruction before Introduction of PALS

Pretest Performance Score with respect to medium of instruction was analysed and the results are given in the following Table 4.21.

Table 4.21: Testing -wise Mean, SD, and t-value for Pretest Score with respect to Medium of Instruction

Medium	Test	N	df	Mean	SD	t-value
English	Pretest Score	30	56	3.87	1.87	0.28^{NS}
Tamil		28		4.04	2.76	

NS – Not Significant

From the table 4.21, it is evident that the ***t***-value for Paragraph Shrinking with respect to Medium of Instruction is 0.28 with df = 56 which is not significant. It indicates that the Pretest score in Paragraph Shrinking of English and Tamil Medium Students does not differ significantly. In the light of this, the null hypothesis stated that ***"There is no significant difference between English and Tamil Medium Students in the Paragraph Shrinking Score in the Pretest"*** **is not rejected. Therefore it is concluded that both English and Tamil Medium Students were found to be performed to the same extent in the Paragraph Shrinking.**

4.2.10: Effectiveness of Paragraph Shrinking with respect to Medium of Instruction after Introduction of PALS

Posttest Performance Score with respect to medium of instruction was analysed and the results are given in the following Table 4.22.

Table 4.22: Testing -wise Mean, SD, and t-value for Posttest Score with respect to Medium of Instruction

Medium	Test	N	df	Mean	SD	t-value
English	Posttest Score	30	56	10.23	3.24	1.53^{NS}
Tamil		28		8.71	4.28	

NS – Not Significant

From the table 4.22, it is evident that the ***t***-value for Paragraph Shrinking with respect to Medium of Instruction is 1.53 with df = 56 which is not significant. It indicates that the Posttest score in Paragraph Shrinking of English and Tamil Medium Students does not differ significantly. In the light of this, the null hypothesis stated that ***"There is no significant difference between English and Tamil Medium Students in the Paragraph Shrinking Score in the Posttest"*** **is not rejected. Therefore it is concluded that both English and Tamil Medium Students were found to be performed to the same extent in the Paragraph Shrinking.**

4.2.11: Effectiveness of Quiz Technique before and after introduction of PALS

Effectiveness of Quiz Technique before and after Introduction of PALS was analysed by comparing pre and post score and the results are given in the following Table 4.23.

Table 4.23: Testing-wise Mean, SD, and t-value for Quiz

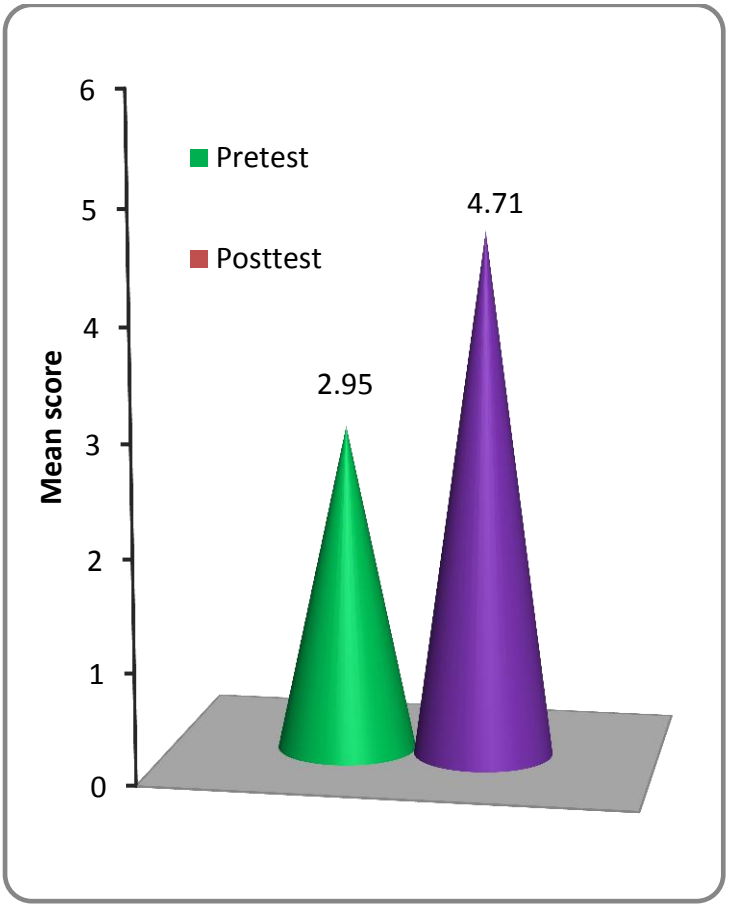
Test	N	df	Mean	SD	t-value
Pretest	58	57	2.95	1.52	13.94**
Posttest			4.71	2.17	

Significant at 0.00 level

From the table 4.23, it is evident that the ***t***-value for Quiz is 13.94with df = 57 which is significant at 0.00 level. It indicates that the Quiz score of pretest and posttest differ significantly. It means that Posttest score (M = 4.71) is higher than the Pretest score (M= 2.95). In the light of this, the null hypothesis stated that ***"There is no significant difference in the Quiz before and after introduction of PALS"*** **is rejected.** It may therefore be concluded that students secured higher score in Quiz after introduction of PALS. Therefore it is concluded that PALS had effect on Quiz.

Figure 4.7 :

Effectiveness of Quiz Technique before and after introduction of PALS



4.2.12: Effectiveness of Quiz Technique with respect to Gender before Introduction of PALS

Pretest Performance Score with respect to gender was analysed and the results are given in the following Table 4.24.

Table 4.24: Testing -wise Mean, SD, and t-value for Pretest Score with respect to Gender

Gender	Test	N	df	Mean	SD	t-value
Boys	Pretest Score	27	56	2.70	1.59	1.15^{NS}
Girls		31		3.16	1.44	

NS – Not Significant

From the table 4.24, it is evident that the ***t***-value for Quiz compared with respect to Gender is 1.15 with df = 56 which is not significant. It indicates that the Pretest score in Quiz of Boys and Girls does not differ significantly. In the light of this, the null hypothesis stated that ***"There is no significant difference between Boys and Girls in Quiz score in the Pretest"*** **is not rejected. Therefore it is concluded that both Boys and Girls were found to be performed to the same extent in the Quiz.**

4.2.13: Effectiveness of Quiz Technique with respect to Gender after introduction of PALS

Posttest Performance Score with respect to gender was analysed and the results are given in the following Table 4.25.

Table 4.25: Testing -wise Mean, SD, and t-value for Posttest Score with respect to Gender

Gender	Test	N	df	Mean	SD	t-value
Boys	Posttest Score	27	56	4.22	2.17	1.61^{NS}
Girls		31		5.13	2.11	

NS – Not Significant

From the table 4.25, it is evident that the ***t***-value for Quiz with respect to Gender is 1.61 with df = 56 which is not significant. It indicates that the Posttest Score in Quiz of Boys and Girls does not differ significantly. In the light of this, the null hypothesis stated that ***"There is no significant difference between Boys and Girls in Quiz Score in the Posttest"*** **is not rejected. Therefore it is concluded that both Boys and Girls were found to be performed to the same extent in the Quiz.**

4.2.14: Effectiveness of Quiz Technique with respect to Medium of Instruction before Introduction of PALS

Pretest Performance Score with respect to gender was analysed and the results are given in the following Table 4.26.

Table 4.26: Testing-wise Mean, SD, and t-value for Pretest Score with respect to Medium of Instruction

Medium	Test	N	df	Mean	SD	t-value
English	Pretest Score	30	56	2.97	1.40	0.095^{NS}
Tamil		28		2.93	1.65	

NS – Not Significant

From the table 4.26, it is evident that the ***t***-value for Quiz with respect to Medium of Instruction is 0.095with df = 56 which is not significant. It indicates that the pretest score in Quiz for English and Tamil Medium Students does not differ significantly. In the light of this, the null hypothesis stated that ***"There is no significant difference between English and Tamil Medium Students in the Quiz Score in the Pretest"*** **is not rejected. Therefore it is concluded that both English and Tamil Medium Students were found to be performed to the same extent in the Quiz.**

4.2.15: Effectiveness of Quiz Technique with respect to Medium of Instruction after Introduction of PALS

Posttest Performance Score with respect to gender was analysed and the results are given in the following Table 4.27.

Table 4.27: Testing -wise Mean, SD, and t-value for Posttest Score with respect to Medium of Instruction

Medium	Test	N	df	Mean	SD	t-value
English	Posttest Score	30	56	4.8667	2.09652	0.58^{NS}
Tamil		28		4.5357	2.26866	

NS – Not Significant

From the table 4.27, it is evident that the ***t***-value for Quiz with respect to Medium of Instruction is 0.58 with df = 56 which is not significant. It indicates that the Posttest Score in Quiz for English and Tamil Medium Students does not differ significantly. In the light of this, the null hypothesis stated that ***"There is no significant difference between English and Tamil Medium Students in the Quiz Score in the Posttest"*** **is not rejected. Therefore it is concluded that both English and Tamil Medium Students were found to be performed to the same extent in the Quiz.**

4.2.16: Effectiveness of Partner Project Activity while involved in PALS

Effectiveness of Partner Project Activity of students was analysed using non parametric method (Percentage) and the results are given in the following Table 4.28.

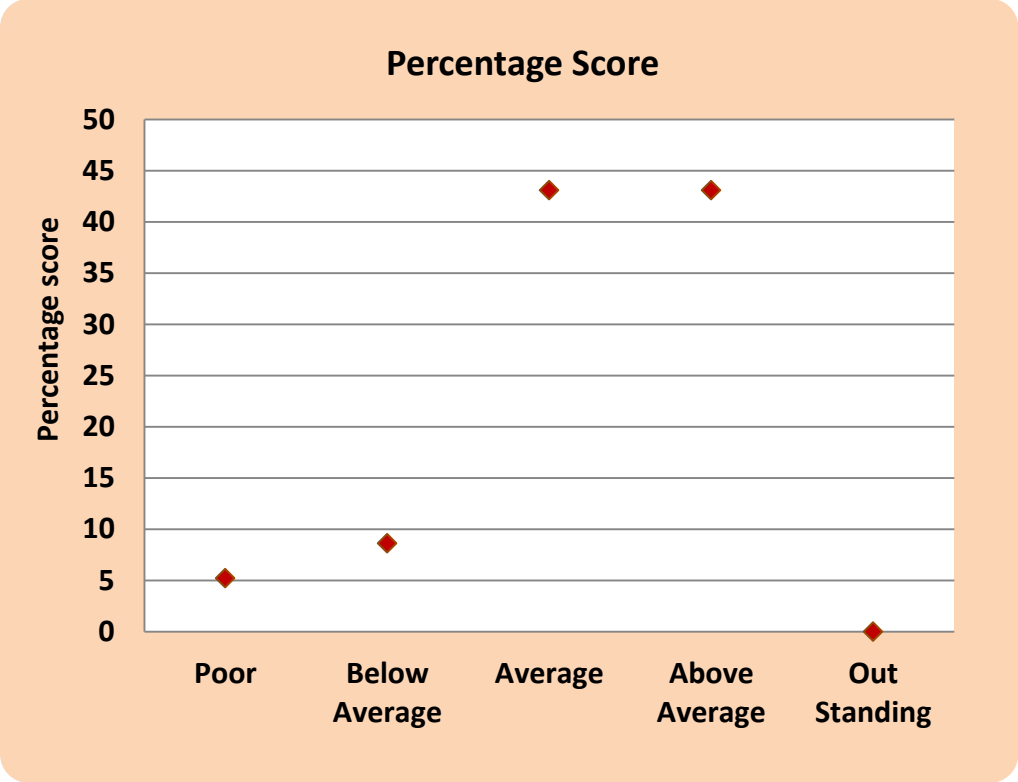
Table 4.28: Rating of Partner Project activity

Grade	No. for each Category	Percentage Score
Poor	3	5.2
Below Average	5	8.6
Average	25	43.1
Above Average	25	43.1
Out Standing	0	0

Considering the student performance in the project activity, it was observed that the 43.1% of the students were in the category of Above Average, the Average category consisted of 43.1%, Below Average students were 8.6 % and students in the category of Poor comprised of 5.2 %.

Figure 4.8

Rating of Partner Project activity



Section III

4.3. Influence of Gender, Medium of Instruction and their Interaction on PALS Techniques such as Partner Reading, Paragraph Shrinking and Quiz Activity by Analysis of Covariate (ANCOVA)

Influence of Gender, Medium of Instruction and their Interaction on Partner Reading, Paragraph Shrinking and Quiz Activity when considering the Pre score as Covariate (ANCOVA) was analyzed. The data were analyzed with the help of 2x2 Factorial Design Analysis of Covariance. The results are given in the following tables 4.29 to 4.31.

4.3.1: Influence of Gender, Medium of Instruction and their Interaction on Partner Reading when considering pre score as Covariate (ANCOVA)

The data were analyzed with the help of 2x2 Factorial design Analysis of Covariance. The results are given in the Table 4.29.

Table 4.29: Summary of 2x2 **Factorial Design ANCOVA for Partner Reading by Considering Pre Partner Reading Score as Covariate**

Source of Variance	df	Sum of Squares	Mean Square	Fyx
Gender	1	0.08	0.08	0.00
Medium of Instruction	1	150.11	150.11	1.10
Gender * Medium of Instruction	1	88.84	88.84	0.65 NS
Error	53	7247.09	136.74	
Total	58	66845.00		

NS – Not Significant

From the table 4.29 it is evident that the adjusted F value for Gender is 0. It indicates that the mean scores of Partner Reading between Boys and Girls seemed to be at the same level when considering pre Reading score as Covariate. The adjusted F value for Medium of Instruction with is 1.1 which is not significant. Therefore it may be concluded the Medium of Instruction did not have influence on Partner Reading Activity.

The adjusted F value between Gender and Medium of Instruction on Reading performance is 0.65 which is not significant when considering pre Reading score as covariate. In this context the null hypothesis stated as **"*there is no significant influence of Gender and Medium of Instruction and their interaction on Partner Reading when considering Pre Reading score as Covariate" is not rejected***. It may therefore be concluded that performance in Partner Reading was found to be independent of interaction between Gender and Medium of Instruction.

4.3.2: Influence of Gender, Medium of Instruction and their Interaction on Paragraph Shrinking Technique when considering pre score as Covariate (ANCOVA)

The data were analyzed with the help of 2x2 Factorial Design Analysis of Covariance. The results are given in the Table 4.30.

Table 4.30: Summary of 2x2 Factorial Design ANCOVA for Paragraph Shrinking by Considering Pre Paragraph Shrinking Score as Covariate

Source of Variance	df	Sum of Squares	Mean Square	Fyx
Gender	1	4.15	4.15	0.76
Medium of Instruction	1	40.21	40.21	7.37
Gender * Medium of Instruction	1	4.61	4.61	0.85 ^{NS}
Error	53	289.16	5.46	
Total	58	6067.00		

NS – Not Significant

From the table 4.30 it is evident that the adjusted F for Gender is 0.76 is not significant. It indicates that the mean scores of Paragraph Shrinking between Boys and Girls seemed to be at the same level when considering pre Paragraph Shrinking score as Covariate. The adjusted F value for Medium of Instruction with is 7.37 which is not significant. Therefore it may be concluded the Medium of Instruction did not have influence on Paragraph Shrinking Activity.

The adjusted F value between Gender and Medium of Instruction on Paragraph Shrinking performance is 0.85 which is not significant when considering pre Paragraph Shrinking score as covariate. In this context the null hypothesis stated as ***"there is no significant influence of Gender and Medium of Instruction Paragraph Shrinking when considering pre Paragraph Shrinking score as covariate" is not rejected***. It may therefore be concluded that performance in Paragraph Shrinking was found to be independent of interaction between Gender and Medium of Instruction.

4.3.3: Influence of Gender, Medium of Instruction and their Interaction on Quiz Technique when considering pre score as Covariate (ANCOVA)

The data were analyzed with the help of 2x2 Factorial Design Analysis of Covariance. The results are given in the Table 4.31.

Table 4.31: Summary of 2x2 Factorial Design ANCOVA for Quiz by Considering Pre Quiz Score as Covariate

Source of Variance	df	Sum of Squares	Mean Square	Fyx
Gender	1	1.05	1.05	1.52
Medium of Instruction	1	0.85	0.85	1.23
Gender * Medium of Instruction	1	0.01	0.01	0.01
Error	53	36.77	0.69	
Total	58	1553.00		

From the table 4.31 it is evident that the adjusted F value Gender is 1.52 is not significant. It indicates that the mean scores of Quiz between Boys and Girls seemed to be at the same level when considering pre Quiz score as Covariate. The adjusted F value for Medium of Instruction with is 1.23 which is not significant. Therefore it may be concluded the Medium of Instruction did not have influence on Quiz Activity.

The adjusted F value between Gender and Medium of Instruction on Quiz performance is 0.01 which is significant when considering pre Quiz score as covariate. In this context the null hypothesis stated as ***"there is no significant influence of Gender and Medium of Instruction and their interaction on Quiz when considering pre Quiz score as Covariate"*** **is rejected**. It may therefore be concluded that performance in Quiz was found to be interacted with Gender and Medium of Instruction. The Mean Score of Girls is (M= 3.16) as against the Mean Score of Boys (M= 2.7). The Mean Score of English Medium students are 4.5. Hence the scores of English Medium has interacted with scores of Girls.