CHAPTER - IV

DATA ANALYSIS AND INTERPRETATION

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DATA ANALYSIS AND INTERPRETATION

4.0 Introduction

In this chapter, the statistical techniques used for analyzing the data to determine the results and discussion made have been presented.

The results were discussed in the following Sections:

4.1 Academic Performance of students before and after Introduction of Collaborative Learning

4.2 Retention scores of students before and after introduction of Collaborative Learning

4.3 Academic Gain and Level of Retention of students before and after Collaborative Learning with regard to Grade, Gender and Category of Students

4.4 Interaction in Academic Gain and Level of Retention of students before and after Collaborative Learning with regard to Gender and Grade

4.5 Comparison of relationship between Academic Performance, Level of Retention and Social Skill development

4.1.1. Academic Performance of Students before and after Introduction of Collaborative Learning

4.1.1.1 Academic Performance of all Students before and after Introduction of Collaborative Learning

An Analysis was made to compare the academic performance of students in the whole class using t test. The following table depicts the results.

Table 4.1: Testing-wise Mean, SD and 't' value for Academic Performance of Students

Test	N	Mean	SD	t-value
Pretest	256	64.2	16.2	10.9**
Posttest	256	69.3	15.4	

Significant at 0.01 level

From the above table, it is evident that the 't' value for pre and post mean score is 10.9 which is significant at 0.01 level. It indicates that there is significant difference in the mean scores of students before and after introduction of Collaborative Learning. Hence the null hypothesis stated that ***there is no significant difference in the Academic performance of all students before and after introduction of Collaborative Learning is rejected***. Therefore it is concluded that Collaborative Learning has impact among students and thus enhancing their learning.

4.1.1.2 Academic Performance of Non Disabled Peers before and after Introduction of Collaborative Learning

An Analysis was made to compare the academic performance of non disabled peers using 't' test. The following table depicts the results

Table 4.2: Testing-wise Mean, SD and 't' value for Academic Performance of Non Disabled Peers

Test	N	Mean	SD	t-value
Pretest	196	67.4	15.3	9.00**
Posttest	196	72.2	14.3	

****Significant at 0.01 level***

From the above table, it is evident that the 't' value for pre and post mean score is 9.00 which is significant at 0.01 level. It indicates that there is significant difference between pretest and posttest mean scores of students of Non disabled peers before and after introduction of Collaborative Learning. Hence the ***null hypothesis stated that there is no significant difference in the Academic performance of Non disabled peers before and after introduction of Collaborative Learning is rejected***. Therefore it is concluded that Collaborative Learning has impact among Non disabled peers enhancing their learning.

4.1.1.3 Academic Performance of Students with Special Needs before and after Introduction of Collaborative Learning

An Analysis was made to compare the academic performance of special need students involved in the study. The results are given in the following table.

Table 4.3: Testing-wise Mean, SD and 't' value for Academic Performance of Students with Special Needs

Test	N	Mean	SD	t-value
Pretest	44	58.6	13.9	5.81**
Posttest	44	63.3	12.5	

***Significant at 0.01 level*

From the above table, it is evident that the 't' value for pre and post mean score is 5.81 which is significant at 0.01 level. It indicates that there is significant difference between pretest and posttest mean scores of students with Special Needs before and after introduction of Collaborative Learning. Hence the ***null hypothesis stated that there is no significant difference between in the Academic performance of Students with Special Needs before and after introduction of Collaborative Learning is rejected.*** Therefore it is concluded that Collaborative Learning has impact among Students with Special Needs enhancing their learning.

4.1.1.4 Academic Performance of Students with Cognitive Impaired before and after Introduction of Collaborative Learning

An Analysis was made to compare the academic performance of students with Cognitive Impaired using t test. The following table depicts the results.

Table 4.4: Testing-wise Mean, SD and 't' value for Academic Performance of Students with Cognitive Impaired

Test	N	Mean	SD	t-value
Pretest	16	40.9	9.62	4.3**
Posttest	16	45.6	10.6	

***Significant at 0.01 level*

From the above table, it is evident that the 't' value for pre and post mean score is 4.3 which is significant at 0.01 level. It indicates that there is significant difference between pretest and posttest mean scores of students with Cognitive Impaired before and after introduction of Collaborative Learning. Hence the ***null hypothesis stated that there is no significant difference between in the Academic performance of Students with Cognitive Impaired before and after introduction of Collaborative Learning is rejected***. Hence it is concluded that collaborative learning has impact among Students with Cognitive Impaired enhancing their learning.

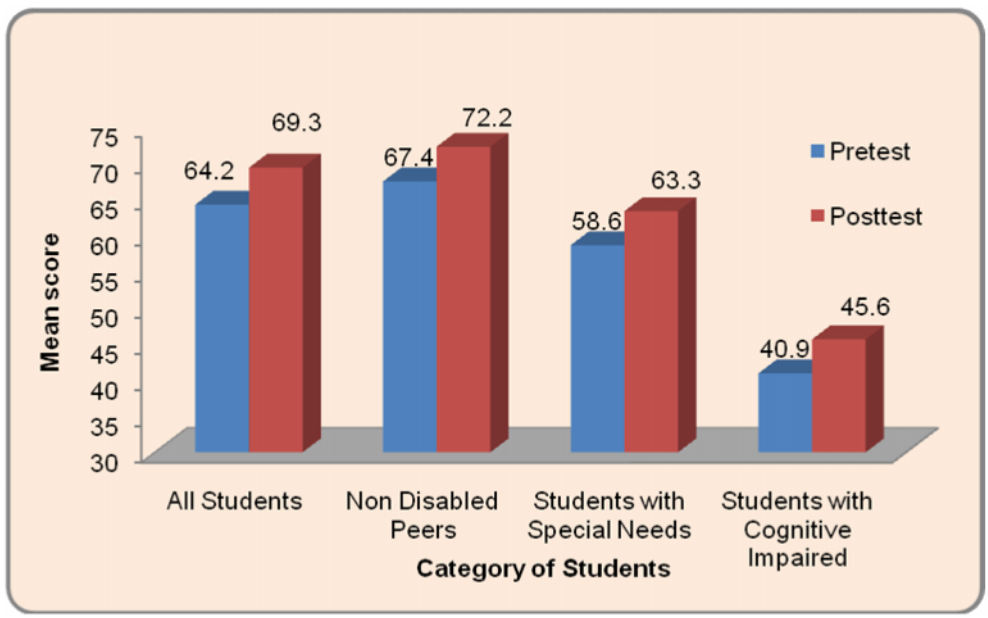

Figure 4.1: Pretest & Posttest with respect to Category of Students

4.1.2 Academic Performance of Students with regard to Grade before and after introduction of Collaborative Learning

4.1.2.1 Grade-wise Analysis of Academic Performance of all Students

Comparison of Pre and Post scores of all students in each Grade separately.

Table 4.5: Testing-wise Mean, SD and 't' value for Pre and Posttest scores of all Students in the whole class

Testing	Test	N	Mean	SD	t-value
Grade VI	Pretest	118	63.45	16.5	9.23**
	Posttest	118	69.03	15.6	
Grade VIII	Pretest	138	64.8	16.1	6.42**
	Posttest	138	69.5	14.5	

Significant at 0.01 level

From the above table, it is evident that the't' value for pre and post mean score for Grade VI is 9.23 which is significant at 0.05 level. It indicates that there is significant difference between pretest and posttest mean scores of all students in Grade VI before and after introduction of Collaborative Learning. Hence the ***null hypothesis stated that there is no significant difference between pre and posttest scores in the Academic performance of all Students before and after introduction of Collaborative Learning is rejected***. Therefore it is concluded that Grade influence the academic performance of all students.

Similarly pre and posttest scores for Grade VIII is 6.42 which is also significant. It indicates that there is significant difference between pretest and posttest mean scores of all students in Grade VIII before and after introduction of Collaborative Learning. Hence the ***null hypothesis stated that there is no significant difference between pre and posttest scores in the Academic performance of all Students before and after introduction of Collaborative Learning is rejected***. Therefore it is concluded that Grade influence the academic performance of all students.

4.1.2.2 Grade-wise Analysis of academic performance of Non Disabled Peers

An Analysis was made to compare the Academic Performance of Non Disabled Peers with respect to Grade using t test. The following table depicts the results.

Table 4.6: Testing-wise Mean, SD and 't' value for Pre and Posttest scores of Non disabled peers

Testing	Test	N	Mean	SD	t-value
Grade VI	Pretest	88	66.2	16.3	7.5**
	Posttest	88	72.0	14.8	
Grade VIII	Pretest	108	68.3	14.4	5.42**
	Posttest	108	72.3	13.9	

Significant at 0.01 level

From the above table, it is evident that the 't' value for pre and post mean score for Grade VI is 7.5 which is significant at 0.01 level. It indicates that there is significant difference between pretest and posttest mean scores of Non disabled students in Grade VI before and after introduction of Collaborative Learning. Hence the ***null hypothesis stated that there is no significant difference between pre and posttest scores in the Academic performance of Non disabled Students before and after introduction of Collaborative Learning is rejected***. Hence it is concluded that Grade influence the Academic performance of non disabled peers before and after collaborative learning.

Similarly pre and posttest scores for Grade VIII is 5.42 which is also significant. It indicates that there is significant difference between pretest and posttest mean scores of Non disabled students in Grade VIII before and after introduction of Collaborative Learning. Hence the ***null hypothesis stated that there is no significant difference between pre and posttest scores in the Academic performance of Non disabled Students before***

and after introduction of Collaborative Learning is rejected. Hence it is concluded that Grade influence the Academic performance of non disabled peers before and after collaborative learning.

4.1.2.3 Grade-wise Comparison of Academic Performance of Special Need Students

An Analysis was made to compare the academic performance of Special Need Students with respect to Grade using t test. The following table depicts the results

Table 4.7: Testing-wise Mean, SD and 't' value for Pre and Posttest scores of Students with Special Needs

Testing	Test	N	Mean	SD	t-value
Grade VI	Pretest	21	61.1	12.3	5.17**
	Posttest	21	66.2	11.4	
Grade VIII	Pretest	22	56.1	15.3	2.8^{Ns}
	Posttest	22	63.9	9.9	

*****Significant at 0.01 level Ns-Not Significant***

From the above table, it is evident that the't' value for pre and post mean score for students with special needs with respect to Grade VI is 5.17 which is significant at 0.01 level. It indicates that there is significant difference between pretest and posttest mean scores of all students in Grade VI before and after introduction of Collaborative Learning. Hence the ***null hypothesis stated that there is no significant difference between pre and posttest scores in the Academic performance of Special Need Students in Grade VI before and after introduction of Collaborative Learning is rejected***. Hence it is concluded that Grade influence the academic performance of Students with special needs.

Similarly pre and posttest scores for Grade VIII is 2.8 which is not significant. It indicates that there is significant difference between pretest

and posttest mean scores of special need students in Grade VIII before and after introduction of Collaborative Learning. Hence the ***null hypothesis stated that there is no significant difference between pre and posttest scores in the Academic performance of Special Need Students in Grade VIII before and after introduction of Collaborative Learning is not rejected***. Therefore it may be concluded that Grade VIII did not influence academic performance of special need students when compared the pre and post scores separately.

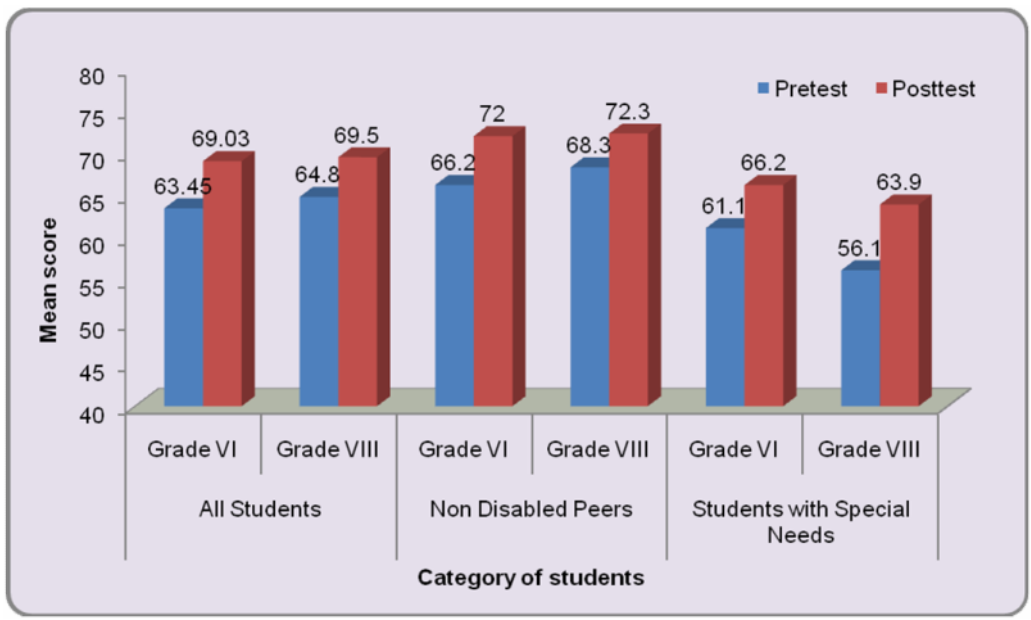

Figure 4.2: Academic Performance of Students with respect to Grade

4.1.3. Academic Performance of Students with regard to Gender before and after introduction of Collaborative Learning

4.1.3.1 Gender-wise analysis of Academic Performance of all Students

Comparison of Pre and Post scores of Boys and Girls separately. The following table depicts the results.

Table 4.8: Testing-wise Mean, SD and 't' value for Students with respect to Gender in Grade VI

Gender	Test	N	Mean	SD	t-value
Boys	Pretest	47	60.23	16.9	7.7**
	Posttest	47	66.74	16.3	
Girls	Pretest	71	65.6	16.9	6.0**
	Posttest	71	70.6	15.1	

Significant at 0.01level

From the above table, it is evident that the 't' value for pre and post mean score for Boys in Grade VI is 7.7 which is significant at 0.01 level. It indicates that there is significant difference between pretest and posttest mean scores of all students with respect to Boys before and after introduction of Collaborative Learning. Hence the ***null hypothesis stated that there is no significant difference between pre and posttest scores in the Academic performance of all Students before and after introduction of Collaborative Learning is rejected***. Therefore it may be concluded that Gender in Grade VI influence academic performance when compared the pre and post scores separately.

Similarly pre and posttest scores for Girls in Grade VI is 6.0 which is also significant. It indicates that there is significant difference between pretest and posttest mean scores of all students with respect to Girls before and after introduction of Collaborative Learning. Hence the ***null hypothesis stated that there is no significant difference between pre and posttest***

scores in the Academic performance of all Students before and after introduction of Collaborative Learning is rejected. Therefore it may be concluded that Gender in Grade VI influence academic performance when compared the pre and post scores separately.

4.1.3.2 Gender-wise analysis of Academic Performance of Non Disabled Peers

An Analysis was made to compare the academic performance of Non disabled peers with respect to Boys and Girls separately. The following table depicts the results.

Table 4.9: Testing-wise Mean, SD and 't' value of Non Disabled Peers with respect to Gender in Grade VI

Gender	Test	N	Mean	SD	t-value
Boys	Pretest	34	63.2	17.0	5.9**
	Posttest	34	69.8	15.5	
Girls	Pretest	54	68.0	15.6	5.1**
	Posttest	54	73.4	14.4	

*****Significant at 0.01level***

From the above table, it is evident that the 't' value for pre and post mean score for Boys in Grade VI is 5.9 which is significant at 0.01 level. It indicates that there is significant difference between pretest and posttest mean scores of Non Disabled Peers with respect to Boys before and after introduction of Collaborative Learning. Hence the ***null hypothesis stated that there is no significant difference between pre and posttest scores in the Academic performance of Non disabled Peers before and after introduction of Collaborative Learning is rejected***. Therefore it may be concluded that Gender in Grade VI influence academic performance when compared the pre and post scores separately.

Similarly pre and posttest scores for Girls in Grade VI is 5.1 which is also significant. It indicates that there is significant difference between pretest and posttest mean scores of Non Disabled Peers with respect to Girls before and after introduction of Collaborative Learning. Hence the ***null hypothesis stated that there is no significant difference between pre and posttest scores in the Academic performance of Non disabled Peers before and after introduction of Collaborative Learning is rejected***. Therefore it may be concluded that Gender in Grade VI influence academic performance when compared the pre and post scores separately.

4.1.3.3 Gender-wise analysis of Academic Performance of all Students in Grade VIII

An Analysis was made to compare the academic performance of all students with respect to Boys and Girls separately. The following table depicts the results.

Table 4.10: Testing-wise Mean, SD and 't' value for Gender in Grade VIII

Gender	Test	N	Mean	SD	t-value
Boys	Pretest	59	58.8	12.9	5.7**
	Posttest	59	64.0	12.4	
Girls	Pretest	79	69.3	16.8	4.0**
	Posttest	79	73.7	14.8	

Significant at 0.01level

From the above table, it is evident that the 't' value for pre and post mean score for Boys in Grade VIII is 5.7 which is significant at 0.01 level. It indicates that there is significant difference between pretest and posttest mean scores of all students with respect to Boys before and after introduction of Collaborative Learning. Hence the ***null hypothesis stated that there is no significant difference between pre and posttest scores in the Academic performance of all students before and after introduction of Collaborative Learning is rejected***. Therefore it may be concluded that Boys in Grade VIII influence academic performance when compared the pre and post scores separately.

Similarly pre and posttest scores for Girls in Grade VIII is 4.0 which is also significant. It indicates that there is significant difference between pretest and posttest mean scores of all students with respect to Girls before and after introduction of Collaborative Learning. Hence the ***null hypothesis stated that there is no significant difference between pre and posttest scores in the Academic performance of all students before and after introduction of Collaborative Learning is rejected***. Therefore it may be

concluded that Girls in Grade VIII influence academic performance when compared the pre and post scores separately.

4.1.3.4 Gender-wise analysis of Academic Performance of Non disabled Peers in Grade VIII

An Analysis was made to compare the academic performance of Non disabled peers with respect to Boys and Girls separately. The following table depicts the results

Table 4.11: Testing-wise Mean, SD and 't' value with respect to Gender of Non Disabled Peers

Gender	Test	N	Mean	S.D.	t-value
Boys	Pretest	43	62.0	11.1	5.0**
	Posttest	43	66.6	12.0	
Girls	Pretest	65	72.5	14.9	3.4**
	Posttest	65	76.1	13.9	

****Significant at 0.01level**

From the above table, it is evident that the 't' value for pre and post mean score of Boys in Grade VIII is 5.0 which is significant at 0.01 level. It indicates that there is significant difference between pretest and posttest mean scores of Non Disabled Peers with respect to Boys before and after introduction of Collaborative Learning. Hence the ***null hypothesis stated that there is no significant difference between pre and posttest scores in the Academic performance of Non disabled Peers before and after introduction of Collaborative Learning is rejected***. Therefore it may be concluded that Boys in Grade VIII influence academic performance when compared the pre and post scores separately.

Similarly pre and posttest scores for Girls in Grade VIII is 3.4 which is also significant. It indicates that there is significant difference between pretest and posttest mean scores of Non Disabled Peers with respect to

Girls before and after introduction of Collaborative Learning. Hence the ***null hypothesis stated that there is no significant difference between pre and posttest scores in the Academic performance of Non disabled Peers before and after introduction of Collaborative Learning is rejected***. Therefore it may be concluded that Girls in Grade VIII influence academic performance when compared the pre and post scores separately.

4.1.4 Comparison of Academic Performance of students with respect to Grade and Gender

4.1.4.1 Comparison of Academic Performance of Non Disabled Students with respect to Grade

An Analysis was made to compare the academic performance of Non disabled peers with respect to Grade using t test. Pre and Posttest scores were analysed separately. The results are presented below.

Table 4.12: Testing-wise Mean, SD and 't' value of Non Disabled peers

Testing	Grade	N(196)	Mean	S.D.	t-value
Pretest	Grade VI	88	66.2	16.3	0.97^{Ns}
	Grade VIII	108	68.3	14.4	
Posttest	Grade VI	88	72.0	14.9	0.160^{Ns}
	Grade VIII	108	72.3	13.9	

Ns- Not Significant

From the above table, it is evident that the 't' value for Grade VI and VIII for Non Disabled peers in the pretest is 0.97 which is not significant. Similarly the posttest scores for the same Grade is 0.160 which is also not significant. This indicates that there is no significant difference between Grades both in pretest and posttest analysed separately. Hence *the null hypothesis stated that there is no significant difference between the Grades in pre and post mean scores separately is not rejected*. Therefore it may be concluded that Grade did not influence academic gain when compared the pre and post scores separately.

4.1.4.2 Comparison of Academic Performance of Student with Special Needs with respect to Grade

An Analysis was made to compare the academic performance of Students with Special Needs with respect to Grade using t test. Pre and Posttest scores were analysed separately. The results are presented below.

Table 4.13: Testing-wise Mean, SD and 't' value of Students with Special Needs

Testing	Grade	N(44)	Mean	S.D.	t-value
Pretest	Grade VI	22	61.0	12.1	1.1^{Ns}
	Grade VIII	22	56.1	15.4	
Posttest	Grade VI	22	66.2	11.1	1.57^{Ns}
	Grade VIII	22	60.3	13.4	

Ns- Not Significant

From the above table, it is evident that the 't' value for Grade VI and VIII for students with special needs is 1.1 which is not significant. Similarly the posttest scores for the same Grade is 1.57 which is also not significant. This indicates that there is no significant difference between Grades both in pretest and posttest analysed separately. Hence ***the null hypothesis stated that there is no significant difference between the Grades in pre and post mean scores separately is not rejected***. Therefore it may be concluded that Grade did not influence academic gain when compared the pre and post scores separately.

4.1.4.3 Gender-wise analysis of Academic Performance of Non disabled peers separately

An Analysis was made to compare the academic performance of Non disabled peers with respect to Boys and Girls using 't' test. The results are presented below:

Table 4.14: Testing-wise Mean, SD and 't' value of Non Disabled peers

Testing	Gender	N(256)	Mean	S.D.	t-value
Pretest	Boy	119	70.5	15.4	3.64*
	Girl	77	62.6	13.9	
Posttest	Boy	119	74.9	14.1	3.36*
	Girl	77	68.0	13.7	

Significant at 0.05 level

From the above table, it is evident that the 't' value for Gender of Non Disabled peers is 3.64 which is significant. Similarly the posttest scores for the same Gender is 3.36 which is also significant. This indicates that there is significant difference between Gender both in pretest and posttest analysed separately. Hence ***the null hypothesis stated that there is no significant difference between the Gender in pre and post mean scores separately is rejected***. Therefore it may be concluded that Gender influence academic gain when compared the pre and post scores separately.

4.1.4.4 Gender-wise analysis of Academic Performance of Students with Special Need students separately

An Analysis was made to compare the academic performance of **Students with Special Need students** with respect to Boys and Girls using 't' test. The results are presented below.

Table 4.15: Testing-wise Mean, SD and 't' value for pre and posttest scores of Students with Special Needs

Testing	Gender	N	Mean	S.D.	't' value
Pretest	Boy	28	59.3	13.7	0.46 ^{Ns}
	Girl	16	57.3	14.5	
Posttest	Boy	28	63.0	12.1	0.15^{Ns}
	Girl	16	63.6	13.7	

Ns- Not Significant

From the above table, it is evident that the 't' value for Gender of students with Special Needs is 0.46 which is not significant. Similarly the posttest scores for the same Gender is 0.15 which is also not significant. This indicates that there is no significant difference between Gender both in pretest and posttest analysed separately. Hence ***the null hypothesis stated that there is no significant difference between the Gender in pre and post mean scores separately is not rejected***. Therefore it may be concluded that Gender did not influence academic gain when compared the pre and post scores separately

4.2 Retention scores of students before and after introduction of Collaborative Learning

4.2.1 Retention after introduction of Collaborative Learning

In order to identify the retention of students after Collaborative Learning method, an analysis was made with the help of Posttest score and retention score employing 't' test. The result is presented below:

Table 4.16: Testing-wise Mean, SD and 't' value for Retention level of all students

Test	N	Mean	SD	t-value
Posttest	256	69.0	15.4	11.5**
Retention	256	67.2	15.6	

Significant at 0.01 level

From the above table, it is evident that the 't' value for posttest and retention score is 11.5 which is significant at 0.01 level. It indicates that there is significant difference in the mean scores of students after introduction of Collaborative Learning. Hence the null hypothesis stated that ***there is no significant difference in the Academic performance of students after introduction of Collaborative Learning is rejected***. Hence it is concluded that collaborative learning does not have influence in their retention level among students enhancing their learning.

On considering the retention of students, the retention score is lower while testing after the gap of forty days than the posttest.

4.2.2 Retention score of Non disabled peers after introduction of Collaborative Learning

Table 4.17: Testing-wise Mean, SD and 't' value for Non disabled peers

Test	N	Mean	SD	t-value
Posttest	196	72.2	14.33	1.23^{Ns}
Retention	196	70.4	14.43	

Ns-Not Significant

From the above table, it is evident that the 't' value for posttest and retention score is 1.23 which is not significant at 0.01 level. It indicates that there is no significant difference in the mean scores of students of Non disabled peers after introduction of Collaborative Learning. Hence the null hypothesis stated that ***there is no significant difference in the Academic performance of students of Non disabled peers after introduction of Collaborative Learning is not rejected***. It indicates that the retention level of Non disabled peers after 40 days of Posttest was found to be at the same level. Hence it is concluded that Collaborative learning helped the students to retain the concepts for longer time.

4.2.3 Retention scores of students with Special Needs after introduction of Collaborative Learning

Table 4.18: Testing-wise Mean, SD and 't' value for Students with Special Needs

Test	N	Mean	SD	t-value
Posttest	44	63.3	12.5	2.8^{Ns}
Retention	44	61.4	12.4	

Ns-Not Significant

From the above table, it is evident that the 't' value for posttest and retention score is 2.8 which is not significant. It indicates that there is no significant difference in the mean scores of students with Special Needs after introduction of Collaborative Learning. Hence the null hypothesis stated that ***there is no significant difference in the Academic performance of students* with Special Needs *after introduction of Collaborative Learning is not rejected***. Hence it is concluded that collaborative learning does not have influence in their retention level among students enhancing their learning.

It indicates that the retention level of students with Special Needs after 40 days of Posttest was found to be at the same level. Hence it is concluded that Collaborative learning helped the students to retain the concepts for longer time.

4.2.4 Retention score of students with Cognitive Impaired after introduction of Collaborative Learning.

Table 4.19: Testing-wise Mean, SD and 't' value for students with Cognitive Impaired

Test	N	Mean	SD	t-value
Posttest	16	45.6	10.6	3.1^{Ns}
Retention	16	43.0	12.0	

Ns- Not Significant

From the above table, it is evident that the 't' value for posttest and retention score is 3.1 which is not significant. It indicates that there is no significant difference in the mean scores of students with Cognitive Impaired after introduction of Collaborative Learning. Hence the null hypothesis stated that ***there is no significant difference in the Academic performance of students*** **with Cognitive Impaired** ***after introduction of Collaborative Learning is not rejected***. Hence it is concluded that collaborative learning does not influence in their retention level among students enhancing their learning.

It indicates that the retention level of students with Cognitive Impaired after 40 days of Posttest was found to be at the same level. Hence it is concluded that Collaborative learning helped the students to retain the concepts for longer time.

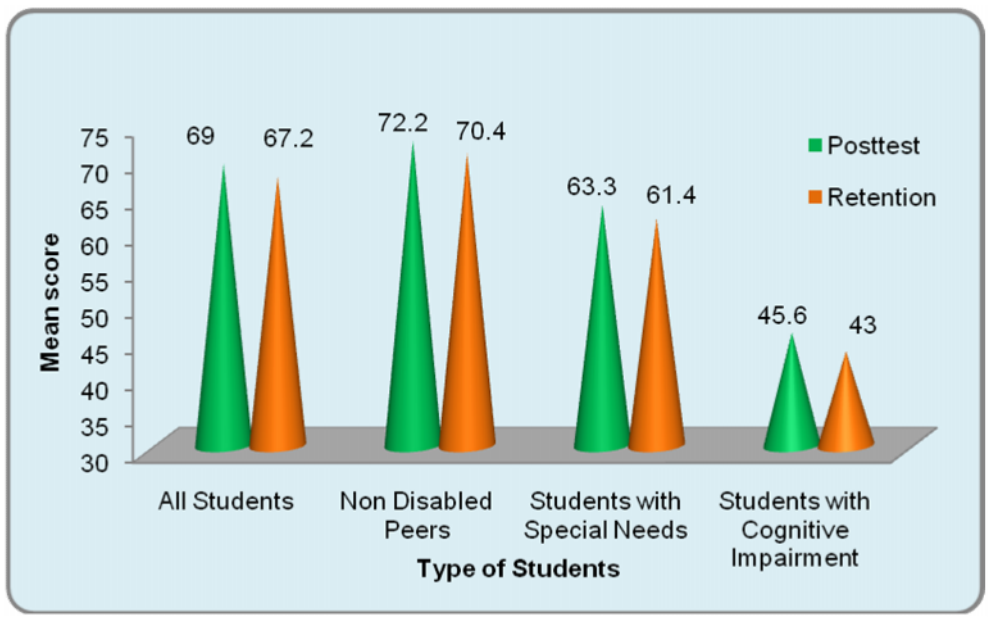

Figure 4.3: Posttest & Retention with respect to Category of Students

4.3 Academic Gain and Level of Retention of students before and after Collaborative Learning with regard to Grade, Gender and Categories of Students

4.3.1 Academic Gain of Students before and after Collaborative Learning with respect to Grade

An analysis was made to compare the academic gain of students with respect to Grade using t test. The following table reveals the results.

Table 4.20: Testing-wise Mean, SD and 't' value for Academic Gain in the Collaborative Learning with respect to Grade

Grade	N(256)	Mean	SD	t-value
VI	118	5.58	6.57	1.61^{Ns}
VIII	138	4.17	7.40	

Ns- Not Significant

From the above table, it is evident that the 't' value for academic gain with respect to Grades viz., VI and VIII is 1.61 which is not significant. This indicates that there is no significant difference between students in Grade VI and VIII in their academic gain after introduction of Collaborative Learning. Hence ***the null hypothesis stated that there is no significant difference between students in Grade VI and VIII grade in their academic gain after introduction of Collaborative Learning is not rejected***. Therefore it may be concluded that Grade did not influence academic gain. Students in Grade VI and VIII showed academic gain to the same extent when compared their post scores.

4.3.2 Academic Gain of Students before and after Collaborative Learning with respect to Gender

An analysis was made to compare the academic gain of students with respect to Gender using t test. The following table reveals the results.

Table 4.21: Testing-wise Mean, SD and 't' value for Academic Gain in the Collaborative Learning with respect to Gender

Gender	N(256)	Mean	SD	t-value
Boys	150	4.34	7.71	1.29 Ns
Girls	106	5.50	5.96	

Ns- Not Significant

From the above table, it is evident that the 't' value for academic gain with respect to Gender is 1.29 which is not significant. This indicates that there is no significant difference between Boys and Girls in their academic gain after introduction of Collaborative Learning. Hence ***the null hypothesis stated that there is no significant difference in their academic gain with respect to Gender after introduction of Collaborative Learning is not rejected***. Therefore it may be concluded that Gender did not influence academic gain. Both Boys and Girls showed academic gain to the same extent.

4.3.3 Summary of One way ANOVA for Academic Gain of students before and after Collaborative Learning

An analysis was made to compare the academic gain of students with respect to three categories of students viz., Non disabled peers, Students with Special Needs and Students with Cognitive Impaired using ANOVA test. The academic gain was considered their independent gain separately.

Table 4.22: Analysis of variance for Academic Gain

Source of Variance	Df	SS	MSS	F value
Category of students	2	1.13	0.57	0.01^{Ns}
Error	253	12666.6	50.1	
Total	255	12667.7		

NS- Not Significant

From the above table, it is evident that the F-value for Academic Gain for different categories of students viz., Non Disabled Peers, Special Needs and Cognitive Impaired is 0.01 which is not significant. This shows that the Mean Academic Gain did not differ significantly though the gain of each category was taken separately. Hence the null hypothesis stated that ***there is no significant difference in the Academic Gain with respect to different*** **category** ***of students is not rejected.*** Hence it is concluded that different category of students secured the academic gain to the same extent when compared the gain level though the mean scores are significantly different when compared.

4.3.4 Retention level of students after the Introduction of Collaborative Learning with respect to Grade

An analysis was made to compare the retention level of students with respect to Grade. The following table reveals the results.

Table 4.23: Testing-wise Mean, SD and 't' value for Retention level of students with respect to Grade

Grade	N(256)	Mean	SD	t-value
VI	118	3.97	7.10	1.97*
VIII	138	2.12	7.75	

Significant at 0.05 level

From the above table, it is evident that the 't' value for retention with respect to grade viz., VI and VIII is 1.97 which is significant at 0.05 level. This indicates that there is significant difference between students in Grade VI and VIII in their retention level after introduction of Collaborative Learning. Hence ***the null hypothesis stated that there is no significant difference between students in Grade VI and VIII in their retention level after introduction of Collaborative Learning is rejected***. Therefore it may be concluded that Grade did influence retention. Students in Grade VI secured higher retention score (M:3.97) than students in Grade VIII (M: 2.12).

4.3.5 Retention level of students after the introduction of Collaborative Learning with respect to Gender

An analysis was made to compare the retention level of students with respect to Gender. The following table reveals the results.

Table 4.24: Testing-wise Mean, SD and 't' value for Retention level of students with respect to Gender

Gender	N(256)	Mean	SD	t-value
Boys	150	2.33	7.78	1.65 ^{Ns}
Girls	106	3.90	7.02	

NS- Not Significant

From the above table, it is evident that the 't' value for retention with respect to gender is 1.65 which is not significant. This indicates that there is no significant difference between students in Gender in their retention level after introduction of Collaborative Learning. Hence ***the null hypothesis stated that there is no significant difference between students in Gender in their retention level after introduction of Collaborative Learning is not rejected***. Therefore it may be concluded that Gender did not influence retention. Both Boys and Girls showed retention level to the same extent.

4.3.6 Summary of One way ANOVA for Retention level of students before and after Collaborative Learning

An analysis was made to compare the retention level of students with respect to Category of students viz., Non disabled peers, Students with Special Needs and Students with Cognitive Impaired. The results show below.

Table 4.25: Analysis of Variance for Retention

Source of Variance	df	SS	MSS	F value
Category of students	2	17.4	8.71	0.15^{Ns}
Error	253	14342.4	56.67	
Total	255	14359.9		

Ns- Not Significant

From the above table, it is evident that the F-value for the retention level of students' viz., Non Disabled Peers, Special Needs and Cognitive Impaired is 0.15 which is not significant. This shows that the mean retention level did not differ significantly though the retention of each category was taken separately. Hence the null hypothesis stated that ***there is no significant difference in the level of Retention with respect to different categories of students is not rejected.*** Hence it is concluded that scores of different categories of students when taken separately, secured the retention score to the same extent though their mean scores are significantly different when compared.

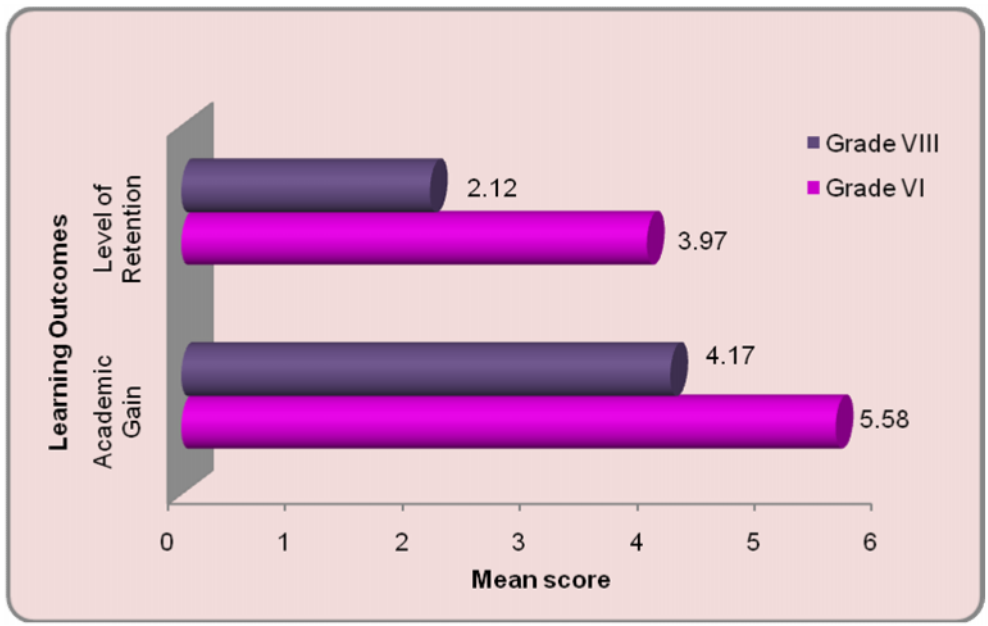

Figure 4.4: Academic Gain & Retention level of Students with respect to Grade

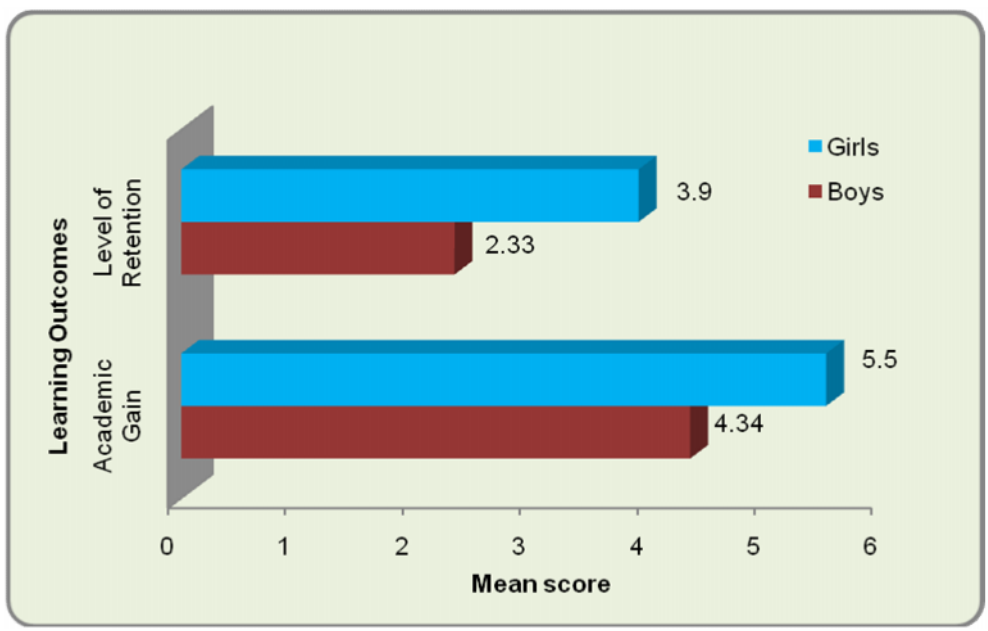

Figure 4.5: Academic Gain & Retention level of Students with respect to Gender

4.4 Interaction in Academic Gain and Level of Retention of students before and after Collaborative Learning with regard to Gender and Grade

4.4.1 MANCOVA, Interaction in the Academic Gain and Level of Retention of Non disabled peers before and after Collaborative Learning with regard to Gender and Grade

Comparison of Academic Gain and level of Retention of Non Disabled peers with respect to Gender and Grade.

Table 4.26: Academic Gain and Retention level of the Non Disabled Peers with respect to Gender and Grade while keeping Pre-Test as a Covariate

Box's Test of Equality of Covariance Matrices[a]	
Box's M	19.64*
F	2.14
df1	9
df2	2.026E5

**** Significant at 0.05 level***

From the above table, it is evident that the Box's test of equality of covariance matrices is 19.64 which is significant at 0.05 level. It indicates that there is significant difference between Academic Gain and Retention level with respect to Gender and Grade. Hence the null hypothesis stated that there is no significant difference in the Academic Gain and Retention level of Non disabled peers with respect to Gender and Grade is rejected. Therefore it is concluded that Academic gain and Retention level has effect among Non disabled peers in enhancing their learning.

The further analysis is given in the following sections.

Table 4.27a: MANCOVA results of the Academic Gain and level of Retention of Non Disabled Peers with respect to Gender and Grade while keeping Pre-Test as a Covariate

Effect		Value	F[(a)]	Hypo-thesis df	Error df	Sig.
Intercept	Pillai's Trace	.245	30.91[a]	2.00	190.00	.00
	Wilks' Lambda	.755	30.91[a]	2.00	190.00	.00
	Hotelling's Trace	.325	30.91[a]	2.00	190.00	.00
	Roy's Largest Root	.325	30.91[a]	2.00	190.00	.00
Pre_Test	Pillai's Trace	.132	14.49[a]	2.00	190.00	.00
	Wilks' Lambda	.868	14.49[a]	2.00	190.00	.00
	Hotelling's Trace	.153	14.49[a]	2.00	190.00	.00
	Roy's Largest Root	.153	14.49[a]	2.00	190.00	.00
Gender	Pillai's Trace	.001	.06[a]	2.00	190.00	.94
	Wilks' Lambda	.999	.06[a]	2.00	190.00	.94
	Hotelling's Trace	**.001**	**.06[a]**	**2.00**	**190.00**	**.94**
	Roy's Largest Root	.001	.06[a]	2.00	190.00	.94
Grade	Pillai's Trace	.018	1.70[a]	2.00	190.00	.19
	Wilks' Lambda	.982	1.70[a]	2.00	190.00	.19
	Hotelling's Trace	**.018**	**1.70[a]**	**2.00**	**190.00**	**.19**
	Roy's Largest Root	.018	1.70[a]	2.00	190.00	.19
Gender & Grade	Pillai's Trace	.007	.64[a]	2.00	190.00	.53
	Wilks' Lambda	.993	.64[a]	2.00	190.00	.53
	Hotelling's Trace	**.007**	**.64[a]**	**2.00**	**190.00**	**.53**
	Roy's Largest Root	.007	.64[a]	2.00	190.00	.53

The Multivariate Analysis of Covariance for Gender with the ‘p’ values for the Hotelling’s Trace is 0.94 which is not significant. It indicates that there is no significant difference in the Academic Gain and Retention level of Non Disabled Peers with respect to Gender.

The Multivariate Analysis of Covariance for Grade with the ‘p’ values for the Hotelling’s Trace is 0.19 which is not significant. It indicates that there is no significant difference in the Academic Gain and Retention level of Non Disabled Peers with respect to Grade.

The Multivariate Analysis of Covariance for Gender & Grade with the ‘p’ values for the Hotelling’s Trace is 0.53 which is not significant. It indicates that there is no significant difference in the Academic Gain and Retention level of Non Disabled Peers with respect to interaction effect of Gender & Grade.

Table 4.27b: MANCOVA results of the Between Subjects Effects of Academic Gain and Retention level of Non Disabled Peers with respect to Gender and Grade

Source	Dependent Variable	Type III SS	Df	MS	F	Sig.	Partial Eta Squared
Corrected Model	Academic Gain	1657.65[a]	4	414.41	8.35	.00	.15
	Retention level	1667.83[b]	4	416.96	8.11	.00	.15
Intercept	Academic Gain	2738.37	1	2738.37	55.16	.00	.22
	Retention level	2179.59	1	2179.59	42.41	.00	.18
Pretest	Academic Gain	1445.32	1	1445.32	29.11	.00	.13
	Retention level	1418.45	1	1418.46	27.60	.00	.13
Gender	**Academic Gain**	**4.765**	**1**	**4.76**	**.096**	**.76**	**.001**
	Retention level	**6.128**	**1**	**6.13**	**.12**	**.73**	**.001**
Grade	**Academic Gain**	**110.003**	**1**	**110.00**	**2.27**	**.14**	**.011**
	Retention level	**151.72**	**1**	**151.72**	**2.95**	**.09**	**.015**
Gender & Grade	**Academic Gain**	**19.000**	**1**	**19.000**	**.383**	**.54**	**.002**
	Retention level	**36.24**	**1**	**36.24**	**.705**	**.40**	**.004**
Error	Academic Gain	9482.35	191	49.65			
	Retention level	9816.52	191	51.40			
Total	Academic Gain	15764.00	196				
	Retention level	13358.00	196				
Corrected Total	Academic Gain	11140.00	195				
	Retention level	11484.35	195				

4.4.1.1 Effects of Gender on Academic Gain and Retention level

When the tests for between subjects effects have been conducted with the 'p' value for Academic Gain on Gender is 0.76 which is not significant. It indicates that there is no significant difference in the Academic Gain of Non Disabled Peers with respect to Gender.

Similarly, the 'p' value for Retention level on Gender is 0.73 which is not significant. It indicates that there is no significant difference in the Retention level of Non Disabled Peers with respect to Gender.

4.4.1.2 Effects of Grade on Academic Gain and Retention level

When the tests for between subjects effects have been conducted with the 'p' value for Academic Gain on Grade is 0.14 which is not significant. It indicates that there is no significant difference in the Academic Gain of Non Disabled Peers with respect to Grade.

Similarly, the 'p' value for Retention level on grade is 0.09 which is not significant. It indicates that there is no significant difference in the Academic Gain of Non Disabled Peers with respect to Grade.

4.4.1.3 Effects of Interaction Effects of Gender and Grade on Academic Gain and Retention level

When the tests for between subjects' effects have been conducted with the 'p' value for Academic Gain on Gender & Grade is 0.54 which is not significant. It indicates that there is no significant difference in the Academic Gain of Non Disabled Peers with respect to Gender & Grade.

Similarly, the 'p' value for level of Retention on Gender & Grade is 0.40 which is not significant. It indicates that there is no significant difference in the Retention level of Non Disabled Peers with respect to Gender & Grade.

4.4.2 Comparison of Academic Gain and level of Retention of Students with Special Needs with respect to Gender and Grade

Table 4.28: Academic Gain and Retention level of the Students with Special Needs with respect to Gender and Grade while keeping Pre-Test as a Covariate

Box's Test of Equality of Covariance Matrices[a]	
Box's M	33.56*
F	3.35
df1	9
df2	5.820E3

**** Significant at 0.05 level***

From the above table, it is evident that the Box's test of equality of covariance matrices is 33.56 which is significant at 0.05 level. it indicates that there is significant difference between Academic Gain and Retention level with respect to Gender and Grade while keeping the Pre-Test as a Covariate. Hence the null hypothesis stated that there is no significant difference in the Academic Gain and Retention level of Student with Special Needs with respect to Gender and Grade is rejected. Therefore it is concluded that Academic gain and Retention level has effect among Student with Special Needs in enhancing their learning. The further analysis is given in the following sections.

Table 4.29a: MANCOVA results of the Academic Gain and Retention level of Students with Special Needs with respect to Gender and Grade while keeping Pre-Test as a Covariate

Effect		Value	F		Error df	Sig.
Intercept	Pillai's Trace	0.39	12.09[a]	2.00	38.00	.00
	Wilks' Lambda	0.61	12.09[a]	2.00	38.00	.00
	Hotelling's Trace	0.64	12.09[a]	2.00	38.00	.00
	Roy's Largest Root	0.64	12.09[a]	2.00	38.00	.00
Pretest	Pillai's Trace	0.27	6.93[a]	2.00	38.00	.003
	Wilks' Lambda	0.73	6.93[a]	2.00	38.00	.003
	Hotelling's Trace	0.36	6.93[a]	2.00	38.00	.003
	Roy's Largest Root	0.36	6.93[a]	2.00	38.00	.003
Gender	Pillai's Trace	0.13	2.72[a]	2.00	38.00	.08
	Wilks' Lambda	0.87	2.72[a]	2.00	38.00	.08
	Hotelling's Trace	**0.14**	**2.72[a]**	**2.00**	**38.00**	**.08**
	Roy's Largest Root	0.14	2.72[a]	2.00	38.00	.08
Grade	Pillai's Trace	0.10	2.04[a]	2.00	38.00	.14
	Wilks' Lambda	0.90	2.04[a]	2.00	38.00	.14
	Hotelling's Trace	**0.10**	**2.04[a]**	**2.00**	**38.00**	**.14**
	Roy's Largest Root	0.10	2.04[a]	2.00	38.00	.14
Gender & Grade	Pillai's Trace	0.05	1.01[a]	2.00	38.00	.37
	Wilks' Lambda	0.95	1.01[a]	2.00	38.00	.37
	Hotelling's Trace	**0.05**	**1.01[a]**	**2.00**	**38.00**	**.37**
	Roy's Largest Root	0.05	1.01[a]	2.00	38.00	.37

From the above Table 29a, the Multivariate Analysis of Covariance for Gender with the ‘p’ values for the Hotelling’s Trace is 0.08 which is not significant. It indicates that there is no significant difference in the Academic Gain and Retention level of Student with Special Needs with respect to Gender.

The Multivariate Analysis of Covariance for Grade with the ‘p’ values for the Hotelling’s Trace is 0.14 which is not significant. It indicates that there is no significant difference in the Academic Gain and Retention level of Student with Special Needs with respect to Grade.

The Multivariate Analysis of Covariance for Gender & Grade with the ‘p’ values for the Hotelling’s Trace is 0.37 which is not significant. It indicates that there is no significant difference in the Academic Gain and Retention level of Student with Special Needs with respect to interaction effect of Gender & grade.

Table 4.29b: MANCOVA results of the Between Subjects Effects of Academic Gain and Retention level of Students with Special Needs with respect to Gender and Grade

Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	Academic Gain	368.59[a]	4	92.146	4.119	.007
	Retention level	904.13[b]	4	226.031	5.365	.002
Intercept	Academic Gain	527.29	1	527.287	23.567	.000
	Retention level	814.17	1	814.166	19.325	.000
Prettest	Academic Gain	245.94	1	245.938	10.992	.002
	Retention level	571.11	1	571.110	13.556	.001
Gender	**Academic Gain**	**66.83**	**1**	**66.828**	**2.987**	**.09**
	Retention level	**234.65**	**1**	**234.652**	**5.570**	**.02**
Grade	**Academic Gain**	**68.84**	**1**	**68.842**	**3.077**	**.08**
	Retention level	**171.07**	**1**	**171.070**	**4.061**	**.05**
Gender & Grade	**Academic Gain**	**37.94**	**1**	**37.943**	**1.696**	**.20**
	Retention level	**13.95**	**1**	**13.952**	**.331**	**.57**
Error	Academic Gain	872.57	39	22.374		
	Retention level	1643.04	39	42.129		
Total	Academic Gain	2215.00	44			
	Retention level	2891.00	44			
Corrected Total	Academic Gain	1241.16	43			
	Retention level	2547.16	43			

4.4.2.1 Effects of Gender on Academic Gain and Retention level

When the tests for between subjects effects have been conducted with the 'p' value for Academic Gain on Gender is 0.09 which is not significant. It indicates that there is no significant difference in the Academic Gain of Students with Special Needs with respect to Gender.

Similarly, the 'p' value for Retention level on Gender is 0.02 which is significant. It indicates that there is significant difference in the Retention level of Students with Special Needs with respect to Gender.

4.4.2.2 Effects of Grade on Academic Gain and level of Retention

When the tests for between subjects effects have been conducted with the 'p' value for Academic Gain on grade is 0.08 which is not significant. It indicates that there is no significant difference in the Academic Gain of Students with Special Needs with respect to Grade.

Similarly, the 'p' value for Retention level on grade is 0.05 which is not significant. It indicates that there is no significant difference in the Academic Gain of Students with Special Needs with respect to Grade.

4.4.2.3 Effects of Interaction effects of Gender and Grade on Academic Gain and Retention level

When the tests for between subjects' effects have been conducted with the 'p' value for Academic Gain on Gender & Grade is 0.20 which is not significant. It indicates that there is no significant difference in the Academic Gain of Students with Special Needs with respect to Gender & Grade.

Similarly, the 'p' value for level of Retention on Gender & Grade is 0.57 which is not significant. It indicates that there is no significant difference in the Retention level of Students with Special Needs with respect to Gender & Grade.

4.4.3 Comparison of Academic Gain and level of Retention of Students with Cognitive Impaired with respect to Gender and Grade

Table 4.30: The Mean and Standard Deviation of the Academic Gain and Retention level of Students with Cognitive Impaired with respect to Gender and Grade while keeping Pre-Test as a Covariate

Box's Test of Equality of Covariance Matrices[a]	
Box's M	5.47[Ns]
F	1.46
df1	3
df2	4.335E5

Ns- Not Significant

From the above table, it is evident that the Box's test of equality of covariance matrices is 5.47 which is not significant. It indicates that there is no significant difference between Academic Gain and Retention level with respect to Gender and Grade while keeping the Pre-Test as a Covariate. Hence the null hypothesis stated that there is no significant difference in the Academic Gain and Retention level of Student with Cognitive Impaired with respect to Gender and Grade is not rejected. Therefore it is concluded that Academic gain and Retention level has effect among Student with Cognitive Impaired in enhancing their learning. The further analysis is given in the following sections.

Table 4.31a: MANCOVA results of the Academic Gain and Retention level of the Students with Cognitive Impaired with respect to Gender and Grade while keeping Pre-Test as a Covariate

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.309	2.24[a]	2.00	10.00	.157
	Wilks' Lambda	.691	2.24[a]	2.00	10.00	.157
	Hotelling's Trace	.448	2.24[a]	2.00	10.00	.157
	Roy's Largest Root	.448	2.24[a]	2.00	10.00	.157
Pretest	Pillai's Trace	.054	.29[a]	2.00	10.00	.757
	Wilks' Lambda	.946	.29[a]	2.00	10.00	.757
	Hotelling's Trace	.057	.29[a]	2.00	10.00	.757
	Roy's Largest Root	.057	.29[a]	2.00	10.00	.757
Gender	Pillai's Trace	.649	9.23[a]	2.00	10.00	.005
	Wilks' Lambda	.351	9.23[a]	2.00	10.00	.005
	Hotelling's Trace	**1.846**	**9.23[a]**	**2.00**	**10.00**	**.005**
	Roy's Largest Root	1.846	9.23[a]	2.00	10.00	.005
Grade	Pillai's Trace	.715	12.57[a]	2.00	10.00	.002
	Wilks' Lambda	.285	12.57[a]	2.00	10.00	.002
	Hotelling's Trace	**2.514**	**12.57[a]**	**2.00**	**10.00**	**.002**
	Roy's Largest Root	2.514	12.57[a]	2.00	10.00	.002
Gender & Grade	Pillai's Trace	.690	11.14[a]	2.00	10.00	.003
	Wilks' Lambda	.310	11.14[a]	2.00	10.00	.003
	Hotelling's Trace	**2.227**	**11.14[a]**	**2.00**	**10.00**	**.003**
	Roy's Largest Root	2.227	11.14[a]	2.00	10.00	.003

From the above Table 31a, the Multivariate Analysis of Covariance for Gender with the ‘p’ values for the Hotelling’s Trace is 0.005 which is significant. It indicates that there is significant difference in the Academic Gain and Retention level of Student with Cognitive Impaired with respect to Gender.

The Multivariate Analysis of Covariance for Grade with the ‘p’ values for the Hotelling’s Trace is 0.002 which is significant. It indicates that there is significant difference in the Academic Gain and Retention level of Student with Cognitive Impaired with respect to Grade.

The Multivariate Analysis of Covariance for Gender & Grade with the ‘p’ values for the Hotelling’s Trace is 0.003 which is significant. It indicates that there is significant difference in the Academic Gain and Retention level of Student with Cognitive Impaired with respect to interaction effect of Gender & grade.

Table 4.31b: MANCOVA results of the Between Subjects Effects of Academic Gain and Retention level of the Students with Cognitive Impaired with respect to Gender and Grade

Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	Academic Gain	63.23[a]	4	15.81	0.78	0.56
	Level of Retention	50.79[b]	4	12.70	0.54	0.71
Intercept	Academic Gain	.97	1	.97	0.05	0.83
	Level of Retention	7.89	1	7.88	0.33	0.58
Pretest	Academic Gain	12.62	1	12.62	0.63	0.45
	Level of Retention	12.05	1	12.05	0.51	0.49
Gender	**Academic Gain**	**27.31**	**1**	**27.31**	**1.35**	**0.27**
	Level of Retention	**4.90**	**1**	**4.90**	**0.21**	**0.66**
Grade	**Academic Gain**	**54.84**	**1**	**54.84**	**2.72**	**0.13**
	Level of Retention	**1.24**	**1**	**1.24**	**0.05**	**0.82**
Gender & Grade	**Academic Gain**	**33.68**	**1**	**33.68**	**1.67**	**0.22**
	Level of Retention	**5.57**	**1**	**5.57**	**0.24**	**0.64**
Error	Academic Gain	222.21	11	20.20		
	Level of Retention	260.14	11	23.65		
Total	Academic Gain	637.000	16			
	Level of Retention	379.000	16			
Corrected Total	Academic Gain	285.44	15			
	Level of Retention	310.94	15			

4.4.3.1 Effects of Gender on Academic Gain and Retention level

When the tests for between subjects effects have been conducted, with the 'p' value for Academic Gain on Gender is 0.27 which is not significant. It indicates that there is no significant difference in the Academic Gain of Students with Cognitive Impaired with respect to Gender.

Similarly, the 'p' value for Retention on Gender is 0.66 which is not significant. It indicates that there is no significant difference in the Retention of Students with Cognitive Impaired with respect to Gender.

4.4.3.2 Effects of Grade on Academic Gain and Retention level

When the tests for between subjects effects have been conducted, it shows that the 'p' value for Academic Gain on Grade is 0.13 which is not significant. It indicates that there is no significant difference in the Academic Gain of Students with Cognitive Impaired with respect to Grade.

Similarly, the 'p' value for Retention on Grade is 0.82 which is not significant. It indicates that there is no significant difference in the Retention level of Students with Cognitive Impaired with respect to Grade.

4.4.3.3 Effects of Interaction Effects of Gender and Grade on Academic Gain and level of Retention

When the tests for between subjects effects have been conducted, it shows that the 'p' value for Academic Gain on Gender & Grade is 0.22 which is not significant. It indicates that there is no significant difference in the Academic Gain of Students with Cognitive Impaired with respect to Gender & Grade.

Similarly, the 'p' value for retention level on Grade is 0.64 which is not significant. It indicates that there is no significant difference in level of Retention of Students with Cognitive Impaired with respect to Gender & Grade.

In this case, MANOVA results are in contrast with the Univariate results. This may be due to the fact that collectively, due to the error terms, there may be differences. But, when the Univariate tests are conducted, the error terms may be minimized and the significant differences also could have been reduced.

Table 4.31c: Univariate test of significant differences in Academic Gain and Retention level of Students with Cognitive Impaired with respect to Gender and Grade

Independent Variable	Dependent Variable		Sum of Squares	Df	Mean Square	F	Sig.
Gender	Academic Gain	Contrast	27.312	1	27.312	1.352	.270
		Error	222.211	11	20.201		
	Level of Retention	Contrast	4.901	1	4.901	.207	.658
		Error	260.144	11	23.649		
Grade	Academic Gain	Contrast	54.841	1	54.841	2.715	.128
		Error	222.211	11	20.201		
	Level of Retention	Contrast	1.235	1	1.235	.052	.823
		Error	260.144	11	23.649		

4.5 Comparison of relationship between Academic Performance and level of Social skill development

4.5.1 Comparison of Academic Performance and social skill development of all students

The analysis was made to compare the relationship of Academic performance and social skill development of students using “Pearson correlation coefficient”.

Table 2.32: Correlation Coefficient of Academic performance and social skill development of students

Learning Outcomes	Academic Performance (Posttest)	Level of Retention	Social Skills
Academic Performance (Posttest)	1	0.10 Ns	0.03 Ns
		(.103)	(.590)
Level of Retention		1	-0.003 Ns
			(.965)
Social skills			1

Ns-Not Significant

The correlation coefficient between Academic Performance and level of Retention of all Students is 0.10 which is not significant. It indicates the level of Retention is retained at the same level. The results show that there is no higher score or lower score comparing with the Posttest and the Retention score.

The correlation coefficient between Academic Performance and Social Skill development of all Students is 0.03 which is not significant. It indicates the Academic Performance is retained at the same level. Therefore it is concluded that Academic Performance has no correlation with the Social Skill development.

Similarly, the correlation coefficient between level of Retention and Social Skill development of Students with Special Needs is -0.003 which is

not significant. Therefore it is concluded that Social Skill development has no correlation with the level of Retention.

4.5.2 Comparison of Academic Performance and Social Skill development of Non Disabled Peers

The analysis was made to compare the relationship of Academic performance and social skill development of Non Disabled Peers using "Pearson correlation coefficient".

Table 4.33: Correlation Coefficient of Academic Performance and Social Skill development of Non Disabled Peers

Learning Outcomes	Social Skill development	Academic Performance (Posttest)	Level of Retention
Social Skill development	1	0.22**	0.08Ns
		0.002	0.25
Academic Performance (Posttest)		1	0.13 Ns
			0.07
Level of Retention			1

***.Significant at 0.01 level** **Ns -Not Significant**

The correlation coefficient between Academic Performance and Social Skill of Non disabled peers is 0.22 indicating statistically significant. It is said that Collaborative Learning enhanced Academic Performance which is correlated with Social skill development. Hence it is concluded that Academic Performance is positively correlated with Social skill development of non disabled peers.

Similarly, the correlation coefficient between Social Skill development and level of Retention of Non disabled peers is 0.08 which is not significant. Therefore it is concluded that Social Skill development has no correlation with the level of Retention of non disabled peers.

The correlation coefficient between Academic Performance and level of Retention of Non disabled peers is 0.13 which is not significant. It indicates that level of Retention is retained at the same level. The results show that there is no higher score or lower score comparing with the posttest and the retention score.

4.5.3 Comparison of Academic Performance and Social Skill development of Student with Special Needs

The analysis was made to compare the relationship of Academic performance and social skill development of Student with Special Needs using “Pearson correlation coefficient”.

Table 4.34: Correlation Coefficient of Academic performance and social skill development of Student with Special Needs

Learning Outcomes	Academic Performance (Posttest)	Level of Retention	Social Skill development
Academic Performance (Posttest)	1	0.15^{Ns}	0.19^{Ns}
		0.32	0.20
Level of Retention		1	0.18^{Ns}
			0.241
Social Skill development			1

Ns-Not Significant

The correlation coefficient between Academic Performance and level of Retention of Students with Special Needs is 0.15 which is not significant. It indicates the level of Retention is retained at the same level. The results show that there is no higher score or lower score comparing with the posttest and the retention score.

The correlation coefficient between Academic Performance and Social Skill development of Students with Special Needs is 0.19 which is not

significant. Therefore it is concluded that Academic Performance has no correlation with the Social Skill development.

Similarly, the correlation coefficient between level of Retention and Social Skill development of Students with Special Needs is 0.18 which is not significant. Therefore it is concluded that Social Skill development has no correlation with the level of Retention.

4.5.4 Comparison of Academic Performance and social skill development of Student with Cognitive Impairment

The analysis was made to compare the relationship of Academic performance and social skill development of Student with Cognitive Impairment using “Pearson correlation coefficient”.

Table 4.35: Correlation Coefficient of Academic performance and social skill development of Student with Cognitive Impairment

Learning Outcomes	Academic Performance (Posttest)	Level of Retention	Social Skill development
Academic Performance (Posttest)	1	0.63**	0.21 Ns
		0.01	0.43
Level of Retention		1	0.14 Ns
			0.61
Social Skill development			1

.Significant at 0.01 level Ns-Not Significant

The correlation coefficient between Academic Performance and level of Retention of Students with Cognitive Impairment is 0.63 which is Statistically Significant. It is said that the Collaborative Learning enhanced the Academic Performance which is positively correlated with Level of Retention. Hence it is concluded that Academic Performance is positively correlated with Level of Retention of Students with Cognitive Impaired.

The correlation coefficient between Academic Performance and Social Skill development of Students with Cognitive Impaired is 0.21 which is not significant. Therefore it is concluded that Academic Performance has no correlation with the Social Skill development

Similarly, the correlation coefficient between level of Retention and Social Skill development of Students with Cognitive Impaired is 0.14 which is not significant. Therefore it is concluded that Academic Performance has no correlation with the Social Skill development.

Based on the results obtained the Summary and Findings are presented in the V chapter.