CHAPTER – IV

DATA ANALYSIS & INTERPRETATION

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DATA ANALYSIS & INTERPRETATION

4.0 Introduction

The present chapter deals with the analysis and interpretation of data collected with reference to the various objectives of the study. In fact each stage of the thesis is important, but the stage of analysis of the data is very crucial. The choice of suitable statistics is crucial part of the analysis.

The procedures of data collected have been shown in Chapter 3. Appropriate statistical techniques were employed for the analysis and interpretation of the data. Depending upon the nature of data, both quantitative and qualitative techniques were used for analysing the data and the analysed data are presented in tabular form. Interpretation of analysis has been followed after the analysis of data pertaining to each aspect.

The entire data collected are analysed with reference to each objective and the findings and their interpretation arrived are presented separately.

As stated earlier, the study was conducted with the objectives of evolving a reflective strategy and finding out its effectiveness. The evolved strategy is given in Volume TWO. The following sections deal with the analysis of data related to objective 2, a, b, c, d and e, namely,

a) To study the effectiveness of the strategy in terms of teacher trainees' personal attributes.

b) To study the effectiveness of the strategy in terms of teacher trainees' professional expertise.

c) To study the effectiveness of the strategy in terms the students performance in English.

d) To study the effectiveness of the strategy in terms of teacher trainees' liking for the strategy.

e) To study the effectiveness of the strategy in terms of the opinion of the cooperating teachers regarding the feasibility of the strategy.

4.1 Section–I : Analysis And Interpretation of Data Related to Teacher Trainees' Personality Traits

4.1.1 Introduction

This section focuses on the analysis and interpretation of data related to objectives II a, i.e. to study the effectiveness of this strategy in terms of the teacher trainees' personal attributes. The trainees were given a five point personality test. The five point rating scale had 33 statements and the trainees were supposed to give responses in terms of always, often, sometimes, rarely and never. The scores for these responses were 5, 4, 3, 2 and 1 respectively. Thus maximum score which a trainee could get would be 33 x 5 = 165. Teacher-Trainees marked their responses at regular intervals, i.e., at lesson 1, 10, 20, 30 and 40 respectively.

From these markings total score for each teacher trainee was obtained for the 5 intervals. The scores obtained were added for all the 13 teacher trainees. The mean and standard deviation (S.D.) of personal attributes were calculated for 1^{st}, 10^{th}, 20^{th}, 30^{th} and 40^{th} lessons. In order to study the significance of difference in the personal attributes of the teacher

trainees over the intervals, the t-test was employed. The results are presented in Table 4.1.

According to the group data analysis of the 13 Teacher Trainees' personality attributes mean score for lesson 1, 10, 20, 30 and 40 of 13 trainees are 105.54, 114.76, 124.69, 134.08 and 140.92 respectively. The Standard Deviation for the same was 11.43, 13.35, 11.03, 9.59 and 9.39 respectively. (Refer Table No. 4.1 and Bar Chart for the same on the following page).

TABLE : 4.1

TEACHER TRAINEES' PERSONAL ATTRIBUTES
(A TEST FOR PERSONAL ATTRIBUTES)

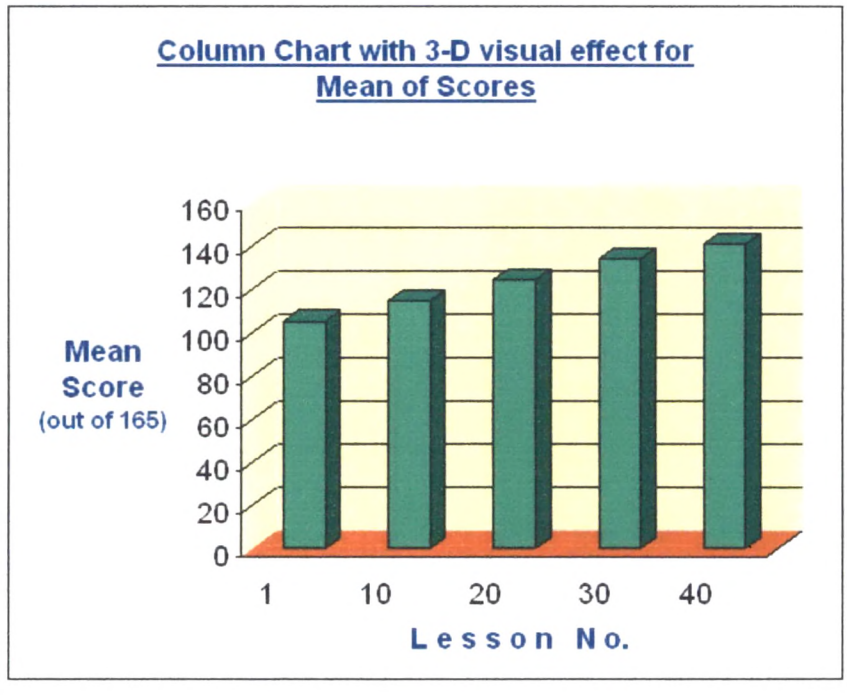
Sr. No.	Lesson 1	Lesson 10	Lesson 20	Lesson 30	Lesson 40
1	103	119	135	145	147
2	94	101	115	121	126
3	125	136	141	150	154
4	104	112	123	130	136
5	102	109	121	132	143
6	99	106	112	115	123
7	121	129	136	144	149
8	101	107	116	136	148
9	125	135	139	141	146
10	98	110	124	131	137
11	89	90	105	135	150
12	109	122	129	131	137
13	102	116	125	132	136
Total	**1372**	**1492**	**1621**	**1743**	**1832**

Mean	**105.5385**	**114.7692**	**124.6923**	**134.0769**	**140.9231**
S.D.	**11.43544**	**13.34887**	**11.02561**	**9.586984**	**9.393806**
p-value	**1 & 10**	**10 & 20**	**20 & 30**	**30 & 40**	
for T-Test	**0.035207**	**0.024867**	**0.014713**	**0.039156**	
p-value	**1 & 40**	**10 & 40**	**20 & 40**		
for T-Test	**4.1E-09**	**2.95E-06**	**0.000238**		

EFFECT ON THE PERSONAL ATTRIBUTES & TRAITS OF TEACHERS

TESTING STAGES	TOTAL SCORES	**MEAN**	**S.D.**	**p- value T-Test**	
Lesson 1	1372	**105.54**	11.44	**0.035207**	1 & 10
Lesson 10	1492	**114.77**	13.35	**0.024868**	10 & 20
Lesson 20	1621	**124.69**	11.03	**0.014713**	20 & 30
Lesson 30	1743	**134.08**	9.59	**0.039156**	30 & 40
Lesson 40	1832	**140.92**	9.39	**4.10E-09**	1 & 40

Chart : 4.1



4.1.2 *Details Regarding the Teacher Trainees' Personal Attributes*

Table 4.1 shows the scores obtained by each Teacher Trainee, total scores with respect to 1st, 10th, 20th, 30th and 40th lessons, Mean and Standard Deviation. It also shows the percentile value associated with P-value for the T-Test obtained from EXCEL programme of MS Office.

It can be noted from Table 4.1 that the mean scores of 1st, 10th, 20th, 30th and 40th lessons of 13 trainees were 105.54, 114.77, 124.69, 134.08 and 140.92 respectively. The results show gradual increase in the mean scores from lesson 1 to 40.

The table also shows the Standard Deviation of lessons 1 to 40 and it is 11.44, 13.35, 11.03, 9.59 and 9.39 respectively. This shows that the teacher trainees were divergent in their personal attributes at the first lesson and gradually they have become homogeneous at the fortieth lesson, although there was a tendency noticed at the 10th lesson, they became a little more divergent from the first lesson. However, due to this strategy all teacher trainees have acquired always the same probability. It can be noted that the P-value associated with study of the T-Tests obtained for lessons 1 and 10, 10 and 20, 20 and 30, 30 and 40 and 1 and 40 are 0.035207, 0.0248678, 0.014713, 0.03915 and 4.1 E-09 respectively. These values are between 0.01 and 0.05 and hence the results are significant and the null hypothesis that there is no significant difference is rejected.

With the help of the means of lessons cumulative standard deviation (S_1, S_2, ...), number of students, etc., the test of significance of difference between average scores (T-Test) after lessons 1 and 10, 10 and 20, 20

and 30, 30 and 40, and 1 and 40 were calculated. The formula for calculating the T-Test value was:

$$t_1 = \frac{\bar{x}_{10} - \bar{x}_1}{S_1\sqrt{(1/n_1 + 1/n_2)}}, \text{ where } S_1^2 = \frac{(n_1 - 1)\, S_{10}^2 + (n_2 - 1)\, S_1^2}{n_1 + n_2 - 2}$$

$$\text{with d.f} = n_1 + n_2 - 2$$

t_1 = Students' T-Test value

$\bar{x}_1$ = mean of lesson 1

$\bar{x}_{10}$ = mean of lesson 10

n_1 = number of observations (students) in lesson 1

n_2 = number of students in lesson 10

d.f = degree of freedom

S_1 = cumulative Standard Deviation of lesson 1 and 10

4.1.3 Observations

Test of significance of difference between average scores after lessons 1 and 10:

$t_1 = 1.893465343$ with d.f = 24

The calculated value of t_1 was 1.893465, which is greater than 1.71, the corresponding tabulated value of students' t with 5% (0.05) level of significance and 24 d.f.

Hence the null hypothesis $H_{0\text{-}1}$ is rejected, i.e., average score on personal attribute of teacher trainees after lesson 10 was more than that after lesson 1.

Test of significance of difference between average scores after lessons 10 and 20:

$t_2 = 2.066492315$, with d.f 24.

The calculated value of t_2 was 2.066492, which is greater than 1.71, the corresponding tabulated value of students' t with 5% (0.05) level of significance and 24 d.f.

Hence the null hypothesis $H_{0\text{-}2}$ is rejected. It shows that the average score on personal attribute of teacher trainees after lesson 20 was more than that after lesson 10.

Test of significance of difference between average scores after lessons 20 and 30:

$t_3 = 2.315875965$, with d.f 24.

The calculated value of t_3 was 2.3158759, which is greater than 1.71, the corresponding tabulated value of students' t with 5% (0.05) level of significance and 24 d.f.

Hence the null hypothesis $H_{0\text{-}3}$ is rejected. It shows that the average score on personal attribute of teacher trainees after lesson 30 was more than that after lesson 20.

Test of significance of difference between average scores after lessons 30 and 40:

$t_4 = 1.839062807$, with d.f 24.

The calculated value of t_4 was 1.8390628, which is greater than 1.71, the corresponding tabulated value of students' t with 5% (0.05) level of significance and 24 d.f.

Hence the null hypothesis $H_{0\text{-}4}$ is rejected. It shows that the average score on personal attribute of teacher trainees after lesson 40 was more than that after lesson 30.

Test of significance of difference between average scores after lessons 1 and 40:

$t_5 = 8.620875763$, with d.f 24.

It is noted that the calculated value of t_5 was 8.670876, which is greater than 1.71, the corresponding tabulated value of students' t with 5% (0.05) level of significance and 24 d.f.

Hence the null hypothesis $H_{0\text{-}5}$ is rejected. It shows that the average score on personal attribute of teacher trainees after lesson 40 was more than that after lesson 1.

From the analysis of the data it could be interpreted that there was gradual improvement in the personality traits of the trainees as a result of reflective approach to training. This is evident from the T-Test values of lessons 1 and 10, 10 and 20, 20 and 30, 30 and 40 and 1 and 40. In all these cases the calculated T-Test values are greater than the corresponding table values of 1.71 at 0.05 level of significance with 24

degrees of freedom. This shows that reflective approach to training can improve the personality traits of teacher trainees.

The column chart with 3-D visual effect for mean scores shows the overall scores or responses of the teacher trainees at various stages, i.e. lesson 1,10, 20, 30, 40. From the chart it can be seen very clearly that there is a clear progression in the mean scores of 13 trainers from lesson 1 to 40.

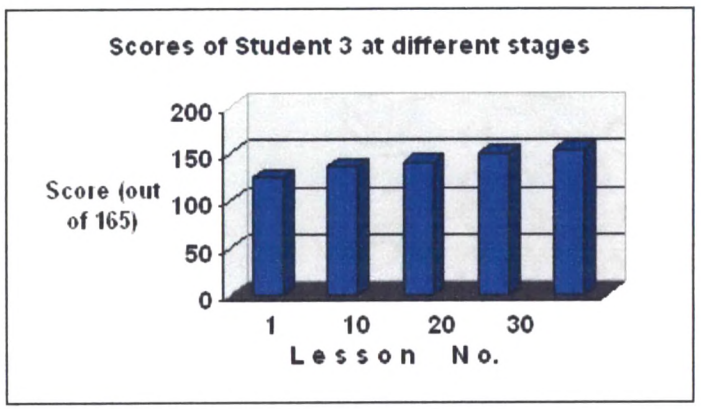
Table 4.2 shows individual Teacher Trainees score at different levels, i.e. lesson 1, 10, 20, 30 and 40. It also gives the total scores, mean of the scores of these lessons and the standard deviation. From the table it can be noted that trainee No. 3 had the maximum score of 706 and trainee No. 6 had the least score of 555. This shows that trainee No. 3 had the maximum impact of the training programme; the reflective training had influenced the trainee's personality traits. The same is evident from the 3-D Bar charts given below the table 4.2.

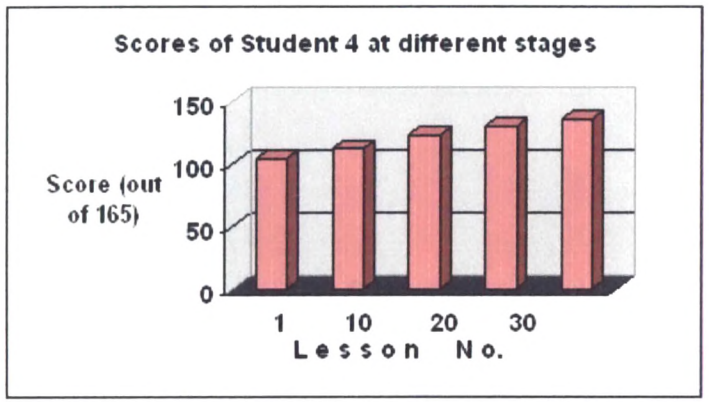
TABLE 4.2

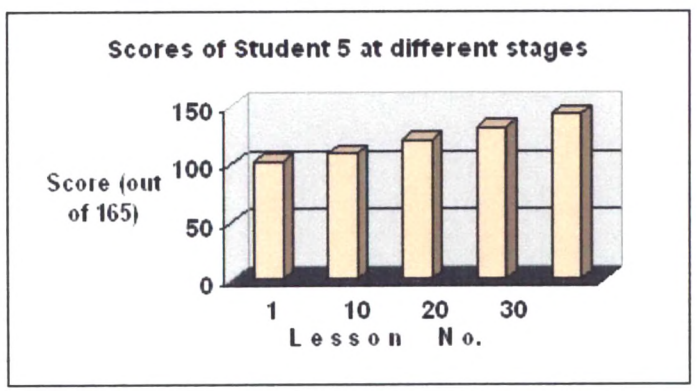
CHANGES IN TEACHER TRAINEES' PERSONAL ATTRIBUTES AT VARIOUS STAGES (A TEST FOR PERSONAL ATTRIBUTES)

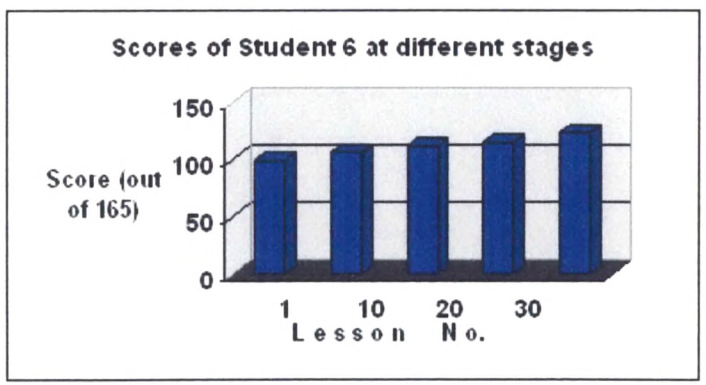
	1	2	3	4	5	6	7	8	9	10	11	12	13
Lesson 1	103	94	125	104	102	99	121	101	125	98	89	109	102
Lesson 10	119	101	136	112	109	106	129	107	135	110	90	122	116
Lesson 20	135	115	141	123	121	112	136	116	139	124	105	129	125
Lesson 30	145	121	150	130	132	115	144	136	141	131	135	131	132
Lesson 40	147	126	154	136	143	123	149	148	146	137	150	137	136
Total	**649**	**557**	**706**	**605**	**607**	**555**	**679**	**608**	**686**	**600**	**569**	**628**	**611**
Mean	**129.8**	**111.4**	**141.2**	**121**	**121.4**	**111**	**135.8**	**121.6**	**137.2**	**120**	**113.8**	**125.6**	**122.2**
S.D.	**18.633**	**13.502**	**11.52**	**13.038**	**16.652**	**9.083**	**11.256**	**19.832**	**7.8867**	**15.89**	**27.472**	**10.714**	**13.609**

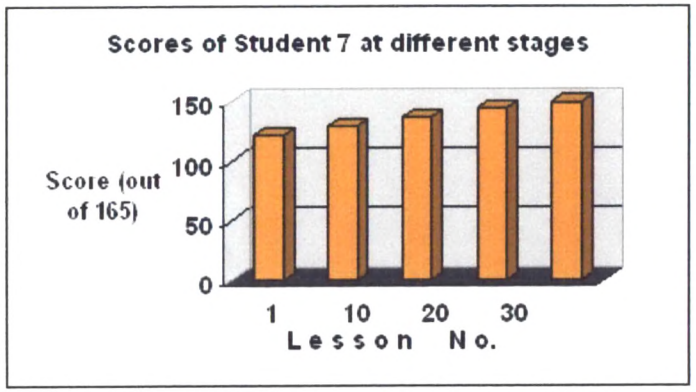
Chart : 4.2

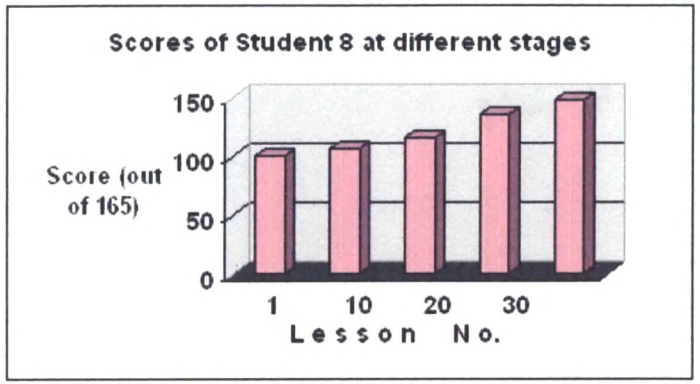

Scores of Student 3 at different stages
Score (out of 165)
200
150
100
50
0
1
10
20
30
Lesson No.

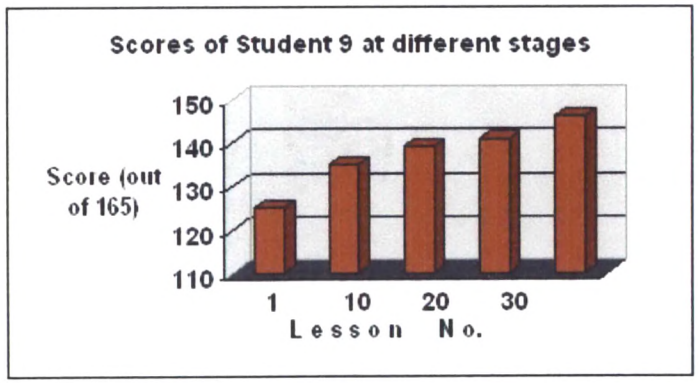

Scores of Student 4 at different stages
Score (out of 165)
150
100
50
0
1
10
20
30
Lesson No.

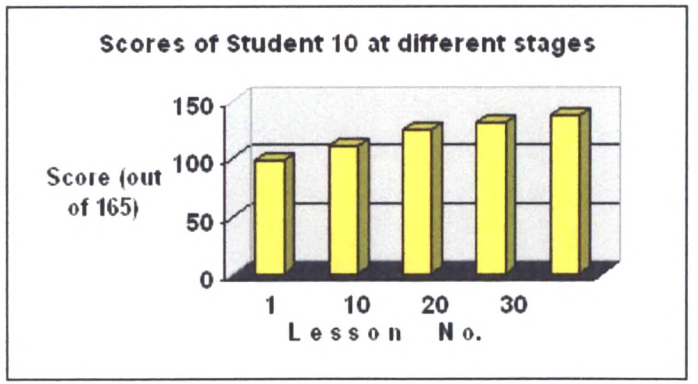

Scores of Student 5 at different stages
Score (out of 165)
150
100
50
0
1
10
20
30
Lesson No.

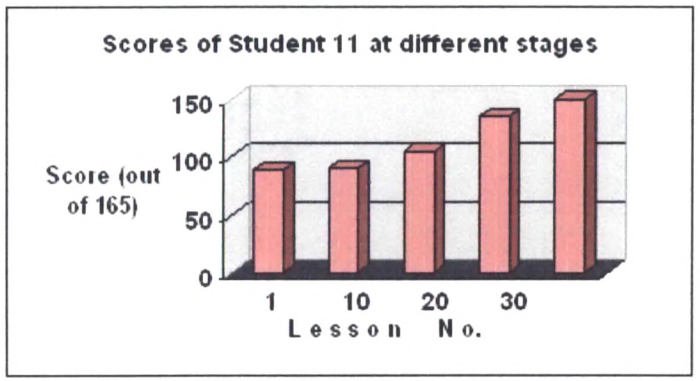

Scores of Student 6 at different stages
Score (out of 165)
150
100
50
0
1
10
20
30
Lesson No.

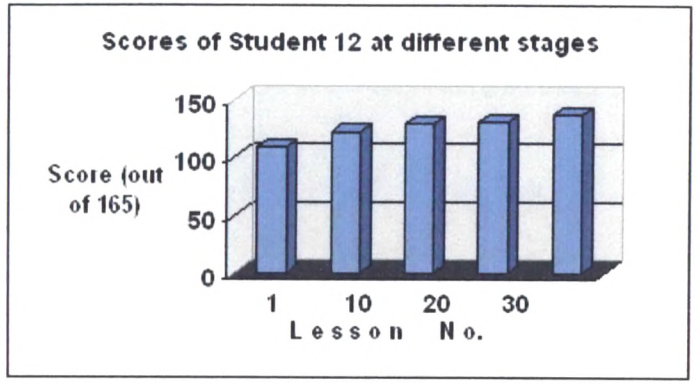

Scores of Student 7 at different stages
Score (out of 165)
150
100
50
0
1
10
20
30
Lesson No.

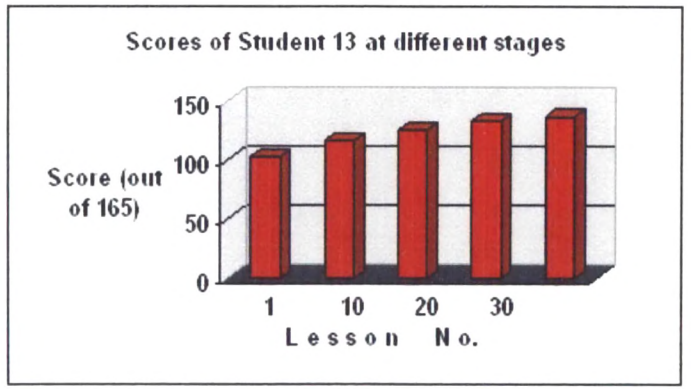

Scores of Student 8 at different stages
Score (out of 165)
150
100
50
0
1
10
20
30
Lesson No.


Scores of Student 9 at different stages
Score (out of 165)
150
140
130
120
110
1
10
20
30
Lesson No.


Scores of Student 10 at different stages
Score (out of 165)
150
100
50
0
1
10
20
30
Lesson No.


Scores of Student 11 at different stages
Score (out of 165)
150
100
50
0
1
10
20
30
Lesson No.


Scores of Student 12 at different stages
Score (out of 165)
150
100
50
0
1
10
20
30
Lesson No.


Scores of Student 13 at different stages
Score (out of 165)
150
100
50
0
1
10
20
30
Lesson No.

4.2 Section–II: Analysis and Interpretation of Data Related to Teacher Trainees' Professional Competence

4.2.1 *Introduction*

In this section, analysis and interpretation of data collected with reference to objective II, b, i.e., to study the effectiveness of the strategy in terms of teacher-trainees' professional expertise are presented.

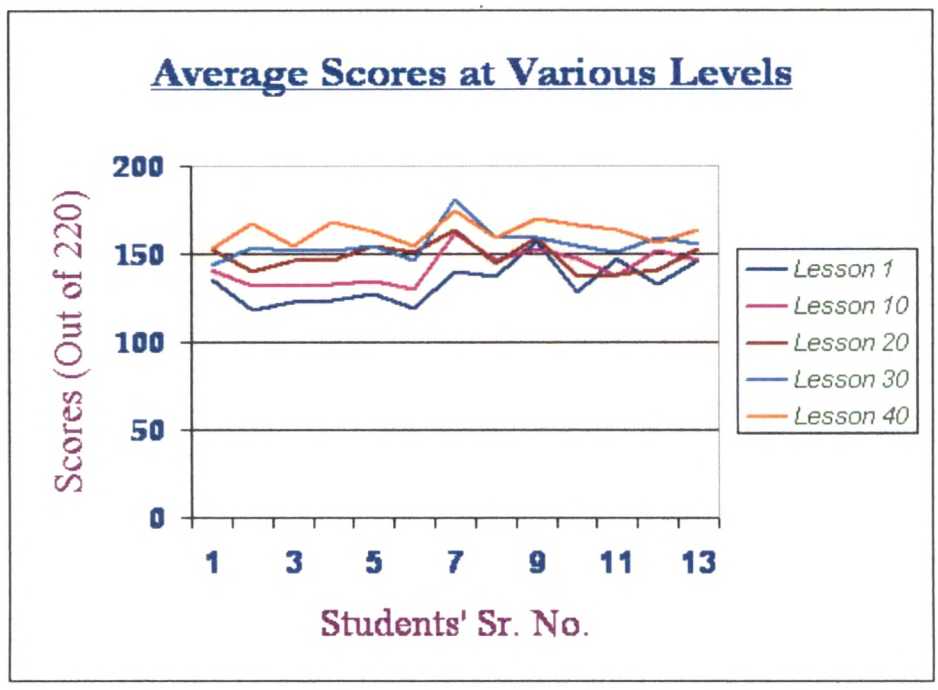
In order to collect data about the teacher-trainees' professional expertise, the investigator prepared a five-point rating scale. The rating scale is given in Appendix II. The cooperating teachers and the investigator used this rating scale for observing each teacher-trainee's lesson at regular intervals, i.e., 1, 10, 20, 30 and 40. The rating scale had 44 statements and each statement had 5 options, viz., very poor, poor, average, good and very good. The value given to these were 1, 2, 3, 4 and 5. The total score or value would be 44 x 5 = 220 as maximum.

With the help of the means of lessons 1, 10, 20, 30 and 40, given on Table 4.3 and the cumulative standard deviation, the T-Test value of the teacher trainees' score after 1^{st} and 10^{th}, 10^{th} and 20^{th}, 20^{th} and 30^{th}, 30^{th} and 40^{th} and 1^{st} and 40^{th} have been calculated. The following table shows that there is a gradual increase in the total and mean scores of the teacher-trainees at different stages of their lesson giving. The same is also depicted in the line graph given below the table 4.3.

TABLE 4.3
Average Scores at Various Stages

Sr. No.	Lesson 1	Lesson 10	Lesson 20	Lesson 30	Lesson 40
1	135.5	140.5	153	144	152.5
2	118.5	131.5	140	154	167.5
3	122.5	132	146	152	154.5
4	124	133	146	152	168
5	127.5	135	154.5	154.5	162.5
6	119.5	130	151	146	155
7	140	161.5	164	180.5	174.5
8	137	146.5	144.5	159.5	159
9	157	152.5	159.5	159.5	170
10	128	147	137	155	166
11	147.5	137.5	138	151	163.5
12	132.5	152	141	159.5	156
13	146	146	152.5	155.5	164
	1735.5	**1845**	**1927**	**2023**	**2113**
Means =	**133.5**	**141.9231**	**148.2308**	**155.6154**	**162.5385**
S.D. =	**11.77037**	**9.825236**	**8.358168**	**8.867435**	**6.743706**
p - value	**0.029594**	**0.045308**	**0.019443**	**0.017286**	**2.96E-08**
T-Test	**(1 & 10)**	**(10 & 20)**	**(20 & 30)**	**(30 & 40)**	**(1 & 40)**

Chart : 4.3



4.2.2 *Observations*

Test of significance of difference between average scores after lessons 1 and 10:

$H_{0\text{-}1}$: There is no significant difference between average scores reflecting competence of teacher-trainees after lesson 1 and lesson 10.

$H_{1\text{-}1}$: The average score reflecting competence of teacher trainees after lesson 10 is more than that after lesson 1.

$$t_1 = \frac{\bar{x}_{10} - \bar{x}_1}{S_1\sqrt{(1/n_1 + 1/n_2)}}, \text{ where } S_1^2 = \frac{(n_1 - 1)\, S_{10}^2 + (n_2 - 1)\, S_1^2}{n_1 + n_2 - 2}$$

$$\text{with d.f} = n_1 + n_2 - 2$$

i.e. $t_1 = 1.980785482$, with d.f = 24.

The calculated value of t_1 is 1.9807, which is greater than 1.71, the corresponding tabulated value of students' t at 5% (0.05) level of significance with 24 d.f.

Hence the null hypothesis $H_{0\text{-}1}$ is rejected, that means the average score reflecting professional competence of teacher trainee after lesson 10 is more than that after lesson 1.

Test of significance of difference between average scores after lessons 10 and 20:

$H_{0\text{-}2}$: There is no significant difference between average scores reflecting competence of teacher-trainees after lesson 10 and lesson 20.

$H_{1\text{-}2}$: The average score reflecting competence of teacher trainees after lesson 20 is more than that after lesson 10.

$$t_2 = \frac{\bar{x}_{20} - \bar{x}_{10}}{S_2\sqrt{(1/n_1 + 1/n_2)}}, \text{ where } S_2^2 = \frac{(n_1 - 1)\,S_{20}^2 + (n_2 - 1)\,S_{10}^2}{n_1 + n_2 - 2}$$

$$\text{with d.f} = n_1 + n_2 - 2$$

i.e. $t_2 = 1.763084162$, with d.f = 24.

The calculated value of t_2 is 1.76308, which is greater than 1.71, the corresponding tabulated value of students' t at 5% (0.05) level of significance with 24 d.f.

Hence the null hypothesis $H_{0\text{-}2}$ is rejected, that means the average score reflecting professional competence of teacher trainee after lesson 20 is more than that after lesson 10.

Test of significance of difference between average scores after lessons 20 and 30:

$H_{0\text{-}3}$: There is no significant difference between average scores reflecting competence of teacher-trainees after lesson 20 and lesson 30.

$H_{1\text{-}3}$: The average score reflecting competence of teacher trainees after lesson 30 is more than that after lesson 20.

$$t_3 = \frac{\bar{x}_{30} - \bar{x}_{20}}{S_3\sqrt{(1/n_1 + 1/n_2)}}, \text{ where } S_3^2 = \frac{(n_1 - 1)\,S_{30}^2 + (n_2 - 1)\,S_{20}^2}{n_1 + n_2 - 2}$$

$$\text{with d.f} = n_1 + n_2 - 2$$

i.e. $t_3 = 2.184994716$, with d.f = 24.

Thus the calculated value of t_3 is 2.1849947, which is greater than 1.71, the corresponding tabulated value of students' t at 5% (0.05) level of significance with 24 d.f.

Hence the null hypothesis $H_{0\text{-}3}$ is rejected, that means the average score reflecting professional competence of teacher trainee after lesson 30 is more than that after lesson 20.

Test of significance of difference between average scores after lessons 30 and 40:

$H_{0\text{-}4}$: There is no significant difference between average scores reflecting competence of teacher-trainees after lesson 30 and lesson 40.

$H_{1\text{-}4}$: The average score reflecting competence of teacher trainees after lesson 40 is more than that after lesson 30.

$$t_4 = \frac{\bar{x}_{40} - \bar{x}_{30}}{S_4\sqrt{(1/n_1 + 1/n_2)}}, \text{ where } S_4^2 = \frac{(n_1 - 1)\, S_{40}^2 + (n_2 - 1)\, S_{30}^2}{n_1 + n_2 - 2}$$

$$\text{with d.f} = n_1 + n_2 - 2$$

i.e. $t_4 = 2.240625323$, with d.f = 24.

Thus the calculated value of t_4 is 2.240625, which is greater than 1.71, the corresponding tabulated value of students' t at 5% (0.05) level of significance with 24 d.f.

Hence the null hypothesis $H_{0\text{-}4}$ is rejected, that means the average score reflecting professional competence of teacher trainee after lesson 40 is more than that after lesson 30.

Test of significance of difference between average scores after lessons 1 and 40:

$H_{0\text{-}5}$: There is no significant difference between average scores reflecting professional competence of teacher-trainees after lesson 1 and lesson 40.

$H_{1\text{-}5}$: The average score reflecting professional competence of teacher trainees after lesson 40 is more than that after lesson 1.

$$t_5 = \frac{\bar{x}_{40} - \bar{x}_1}{S_5\sqrt{(1/n_1 + 1/n_2)}}, \text{ where } S_5^2 = \frac{(n_1 - 1)\, S_{40}^2 + (n_2 - 1)\, S_1^2}{n_1 + n_2 - 2}$$

$$\text{with d.f} = n_1 + n_2 - 2$$

i.e. $t_5 = 7.718158168$, with d.f = 24.

Thus the calculated value of t_5 is 7.718158168, which is greater than 1.71, the corresponding tabulated value of students' t at 5% (0.05) level of significance with 24 d.f.

Hence the null hypothesis $H_{0\text{-}5}$ is rejected, that means the average score reflecting professional competence of teacher trainee after lesson 40 is more than that after lesson 1.

From the calculations of t-value based on the means given in Table B, it can be interpreted that the teacher-trainee' calculated t-value of lessons 1 and 10 is 1.9807, which is found significant at 0.05 level with d.f 24.

The teacher-trainee' calculated t-value of lessons 10 and 20 is 1.76308, which is found significant at 0.05 level with d.f 24.

The teacher-trainee' calculated t-value of lessons 20 and 30 is 2.1849, which is found significant at 0.05 level with d.f 24.

The teacher-trainee' calculated t-value of lessons 30 and 40 is 2.240625, which is found significant at 0.05 level with d.f 24.

The teacher-trainee' calculated t-value of lessons 1 and 40 is 7.7181, which is found significant at 0.05 level with d.f 24.

From the above result it can be interpreted that reflective approach to training had a positive impact on the teacher-trainees professional competence.

4.3 Section–III : Analysis and Interpretation of Data Related to the Students' Achievement in English

4.3.1 *Introduction*

This section deals with the analysis and interpretation of data related to objective II, c, i.e., to study the effectiveness of the strategy in terms of the students' performance in English. In order to find out the students' performance in English, the investigator used Pre-Tests and Post Tests for each of the class, i.e. standards VIII and IX.

According to the Group Data Analysis of the Pre Test and Post Test of class VIII, the number of distribution is 211, Mean of Pre Test is 21.98, Mean of Post Test is 26.58, the standard deviation of Pre Test and Post Test are 4.51 and 4.17 respectively and the P-value (the probability associated with the teacher trainees' t-test) and the P-value of the Pre Test and Post Test is 7.27625 E-27, i.e. 7.27625×10^{-27}. The P-value is obtained from EXCEL programme of the MS Office.

4.3.2 *Information concerning the distribution of scores of Standard VIII students' Pre Test and Post Test*

The Table No. 4.4 shows the scores obtained by the students of Standard VIII in English in the Pre-Test and Post Test. From the table it can be noted that the mean of the scores of Pre Test of 231 students is 21.98 and the standard deviation is 4.51. The mean of the scores of the Post Test of the same students is 26.58 and the standard deviation is 4.17.

Table : 4.4
STUDENTS' PERFORMANCE IN ENGLISH
STANDARD : VIII

Sr.. No.	Pre-Test Score	Post-Test Score	Sr. No.	Pre-Test Score	Post-Test Score	Sr. No.	Pre-Test Score	Post-Test Score	Sr. No.	Pre-Test Score	Post-Test Score
1	27	29	**28**	28	32	**55**	21	25	**82**	27	33
2	27	29	**29**	23	28	**56**	21	26	**83**	21	33
3	21	25	**30**	28	32	**57**	20	23	**84**	22	26
4	28	29	**31**	25	27	**58**	28	25	**85**	21	33
5	24	26	**32**	29	32	**59**	26	31	**86**	26	29
6	27	28	**33**	26	27	**60**	25	25	**87**	18	28
7	29	30	**34**	23	27	**61**	19	26	**88**	17	30
8	26	28	**35**	21	29	**62**	19	24	**89**	22	30
9	27	28	**36**	27	28	**63**	21	29	**90**	22	31
10	25	28	**37**	26	28	**64**	20	23	**91**	21	31
11	26	28	**38**	26	24	**65**	21	28	**92**	18	26
12	24	27	**39**	25	32	**66**	24	25	**93**	19	29
13	26	27	**40**	23	25	**67**	19	22	**94**	22	26
14	26	27	**41**	24	25	**68**	21	29	**95**	16	31
15	28	30	**42**	19	23	**69**	22	33	**96**	19	28
16	27	31	**43**	22	22	**70**	25	24	**97**	20	30
17	27	28	**44**	22	22	**71**	24	31	**98**	22	33
18	27	27	**45**	28	31	**72**	26	32	**99**	21	33
19	29	29	**46**	23	24	**73**	23	29	**100**	22	28
20	25	28	**47**	19	26	**74**	17	24	**101**	22	29
21	21	28	**48**	26	30	**75**	20	26	**102**	19	32
22	22	32	**49**	18	20	**76**	18	27	**103**	17	33
23	28	25	**50**	22	28	**77**	77	25	**104**	17	29
24	26	289	**51**	21	27	**78**	20	29	**105**	19	29
25	24	28	**52**	20	29	**79**	24	29	**106**	19	29
26	22	30	**53**	21	25	**80**	25	26	**107**	21	33
27	26	31	**54**	24	25	**81**	21	33	**108**	15	32

Sr.. No.	Pre-Test Score	Post-Test Score	Sr. No.	Pre-Test Score	Post-Test Score	Sr. No.	Pre-Test Score	Post-Test Score	Sr. No.	Pre-Test Score	Post-Test Score
109	23	29	**137**	20	28	**165**	27	22	**193**	14	29
110	18	31	**138**	24	25	**166**	23	24	**194**	16	26
111	20	27	**139**	29	21	**167**	30	22	**195**	14	25
112	23	34	**140**	26	28	**168**	26	27	**196**	14	29
113	20	31	**141**	16	31	**169**	27	31	**197**	15	24
114	20	31	**142**	24	27	**170**	29	29	**198**	16	20
115	18	31	**143**	25	23	**171**	30	21	**199**	16	30
116	21	32	**144**	24	34	**172**	26	31	**200**	15	17
117	23	32	**145**	27	25	**173**	29	28	**201**	14	28
118	19	28	**146**	21	32	**174**	23	22	**202**	16	17
119	15	29	**147**	31	27	**175**	20	26	**203**	20	17
120	23	33	**148**	27	29	**176**	21	25	**204**	16	32
121	15	24	**149**	25	22	**177**	29	27	**205**	20	18
122	27	27	**150**	26	23	**178**	22	32	**206**	16	22
123	26	31	**151**	19	25	**179**	24	31	**207**	21	16
124	22	26	**152**	28	21	**180**	26	32	**208**	16	23
125	25	20	**153**	22	30	**181**	23	31	**209**	29	16
126	24	23	**154**	24	24	**182**	24	25	**210**	11	32
127	30	22	**155**	22	28	**183**	25	28	**211**	17	16
128	24	24	**156**	29	27	**184**	19	28	**212**	17	18
129	17	18	**157**	19	21	**185**	20	24	**213**	9	22
130	26	30	**158**	30	27	**186**	25	25	**214**	12	16
131	17	38	**159**	29	23	**187**	17	25	**215**	13	21
132	24	24	**160**	25	23	**188**	21	23	**216**	12	29
133	24	26	**161**	24	20	**189**	24	24	**217**	13	18
134	22	24	**162**	22	20	**190**	23	24	**218**	21	23
135	28	23	**163**	27	27	**191**	25	26	**219**	17	21
136	25	24	**164**	20	27	**192**	22	23	**220**	14	23

Sr.. No.	Pre-Test Score	Post-Test Score
221	18	21
222	15	25
223	21	24
224	14	17
225	13	27
226	14	19
227	27	24
228	17	20
229	13	24
230	16	25
231	13	23

Comparison of Scores in Pre-Test & Post-Test

N	TEST	Total Score	Mean	S.D.	p** - value (T-Test)
231	Pre	5078	21.98	4.51	7.27625E-27<<0.01
231	Post	6139	26.58	4.17	

**The observed p-value for T-Test is highly significant. Therefore we reject Ho.

The Mean Scores for Post-Test are more than those of Pre-Test.

i.e., the training programme is effective to a great extent.

From the table it can be interpreted that the mean score for the Post Test is more than that of the Pre Test. The training programme is effective to a great extent.

The standard deviation for the Post Test is less than that of the Pre Test. This clearly shows that due the training programme the students have scored homogeneously.

4.3.3 *Observations*

Test of significance of difference between mean scores in Pre and Post Tests

H_0 = There is no significant difference between the mean scores of Pre Test and Post Test.

$$t = \frac{\bar{x}_{Post} - \bar{x}_{Pre}}{S_C\sqrt{(1/n_1 + 1/n_2)}}, \text{ where } S_C^2 = \frac{(n_1 - 1)\, S_{Post}^2 + (n_2 - 1)\, S_{Pre}^2}{n_1 + n_2 - 2}$$

with d.f = 460.

i.e. t = 11.38222, with d.f = 460.

Thus the calculated value of t is 11.38222, which is greater than 1.65, the corresponding tabulated value of the pupils' t with 0.05 level of significance with d.f 460.

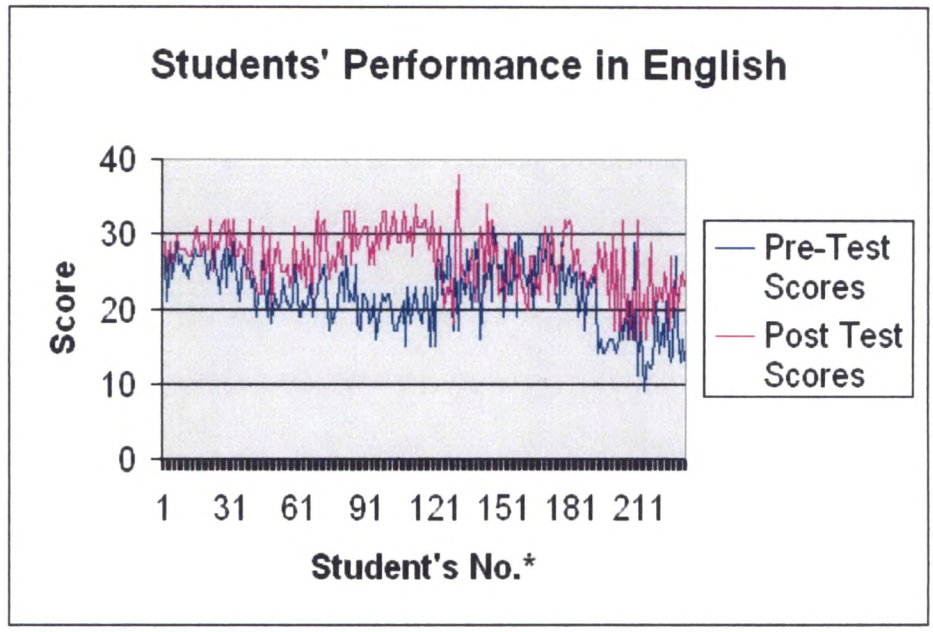
Hence the null hypothesis is rejected, that means that the mean score of Post Test is significantly higher than that of the Pre Test.

From the calculation of t-value based on the data given in the Table it can be interpreted that the calculated t-value of the Pre Test and Post

Test is 11.38222, which is significant at 0.05 level with d.f 460. Thus it can be noted that reflective approach to training had a positive impact on the performance of pupils of Class VIII in English. Thus the programme was quite successful.

The line graph below shows the VIII Standard Pupils performance in English in the Pre Test and Post Test. The graph clearly shows that many pupils' scores are between 30 and 40. From the table it can be noted that one of the pupils scored 38 marks out of 50.

Chart 4.4 (Std. VIII)



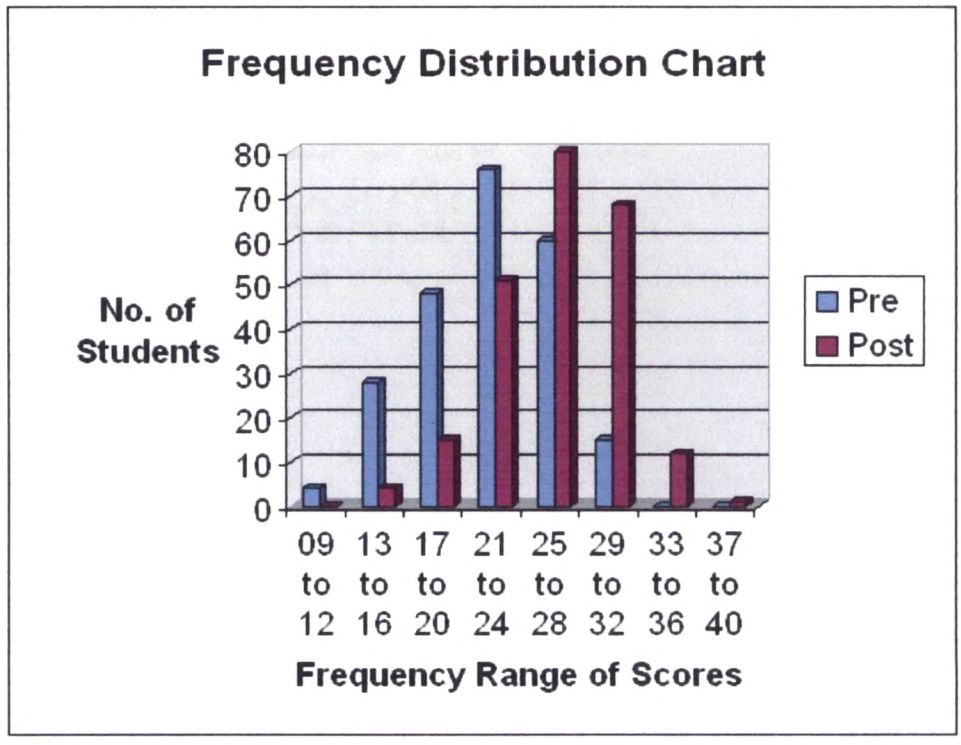
The Frequency Distribution table No. 4.5 below shows the frequency distribution of the scores of Pre Test and Post Test of VIII Standard pupils. From the table it can be noted that 4 pupils scored between 9-12 marks, 28 students between 13-16, 48 students between 17 and 20, 76 students between 21 and 24, 60 students between 25-28, 15 students between 29-32 and none between 33-36 and 37-40 for the Pre Test. For the Post Test, none scored between 9-12 marks, 4

scored between 13-16, 15 scored between 17-20, 51 scored between 21-24, 80 scored between 25-28, 68 scored between 29-32, 12 between 33-36 and 1 scored between 37-40. From the frequency distribution table, it can be noted that the number of students in the range of 25-28 marks in the Pre Test were 60 and the number was raised to 80 in the Post Test. Similarly, the number of students in the range of 29-32 was raised from 15 to 68 with respect to Pre Test and Post Test. The number of students in the range of 33-36 in the Post Test was raised from 0 to 12 with respect to Pre Test and Post Test and there was none in the range of 37-40 as far as the Pre Test was concerned. In the Post Test there was one student who scored between 37-40. From the analysis it can be noted that there was improvement in the performance of the students. The training had positive impact on the performance of the students.

Table : 4.5

Frequency Distribution Table : Std. VIII		
Scores Range	**Pre-Test**	**Post-Test**
09 to 12	4	0
13 to 16	28	4
17 to 20	48	15
21 to 24	76	51
25 to 28	60	80
29 to 32	15	68
33 to 36	0	12
37 to 40	0	1
Total	**231**	**231**

Chart : 4.5 – Std. VIII



The Frequency Distribution chart 4.5 shows the frequency of scores of 231 students within various ranges of marks. From the chart also it can be noted that the number of students in the Post Test within the range 25-28 increased as compared to Pre Test. Similarly more students had a score of 29-32 in the Post Test as compared to the Pre Test. From the chart it can be noted that there was none in the range of 33-36 in the Pre Test, but in the Post Test the number went beyond 10 in the same category. The chart also shows that there is improvement in the number of students in the category 37-40 with respect to Post Test.

4.3.4 *Information concerning the Distribution of Scores of Standard IX Students. Pre Test and Post Test*

The table on the following page shows the scores obtained by the students of Standard IX in English in the Pre Test and Post Test. From the table it can be noted that the mean of the scores of Pre Test of 270 students is 18.124 and standard deviation is 6.063. The mean of the scores of the Post Test of the same students is 22.904 and the standard deviation is 6.226.

From the table it can be interpreted that the mean score for the Post Test is more than that of the Pre Test. This shows that the training programme is effective to a great extent. From the table with comparison of scores in Pre Test and Post Test, it can be noted that the observed P-value for the T-Test of the scores of Pre Test and Post Test is 1.44351 E-8, i.e. 1/44351 x 10^{-8}, which is obtained from EXCEL programme of MS Office.

The test of significance of difference between mean scores in Pre and Post Tests has been calculated using the mean score of Pre Test and Post Test and the cumulative standard deviation.

Table : 4.6
STUDENTS' PERFORMANCE IN ENGLISH
STANDARD : IX

Sr.. No.	Pre-Test Score	Post-Test Score	Sr. No.	Pre-Test Score	Post-Test Score	Sr. No.	Pre-Test Score	Post-Test Score	Sr. No.	Pre-Test Score	Post-Test Score
1	25	22	**28**	22	23	**55**	21	20	**82**	21	24
2	23	27	**29**	27	28	**56**	26	28	**83**	21	21
3	23	29	**30**	19	25	**57**	16	24	**84**	21.5	28
4	26	26	**31**	21	22	**58**	13	25	**85**	17	21
5	24	28	**32**	25	28	**59**	23	23	**86**	27	27
6	23	23	**33**	19	29	**60**	11	23	**87**	21	31
7	19	26	**34**	18	30	**61**	18	19	**88**	15	23
8	24	29	**35**	22	27	**62**	28	32	**89**	10	19
9	20	26	**36**	19	26	**63**	14	18	**90**	22	32
10	24	26	**37**	27	24	**64**	16	10	**91**	23	30
11	26	26	**38**	26	25	**65**	18	25	**92**	19	29
12	23	28	**39**	22	28	**66**	19	24	**93**	16	23
13	25	24	**40**	25	20	**67**	29	34	**94**	17.5	17
14	25	30	**41**	20	23	**68**	13	27	**95**	26	24
15	25	22	**42**	24	23	**69**	25	30	**96**	26	33
16	18	22	**43**	30	33	**70**	14	22	**97**	20	21
17	21	28	**44**	16	25	**71**	21	22	**98**	15.5	26
18	22	23	**45**	19	22	**72**	22	33	**99**	18.5	26
19	32	42	**46**	24	31	**73**	31	35	**100**	20	24
20	21	28	**47**	24	25	**74**	15	23	**101**	19.5	30
21	24	24	**48**	27	28	**75**	18	30	**102**	22	23
22	30	29	**49**	22	27	**76**	23	29	**103**	17	23
23	19	23	**50**	13	27	**77**	23	24	**104**	18	27
24	25	30	**51**	22	21	**78**	26	34	**105**	26	27
25	22	28	**52**	11	25	**79**	25	24	**106**	20	24
26	27	26	**53**	12	22	**80**	14	21	**107**	11	12
27	24	22	**54**	17	22	**81**	13	15	**108**	13	20

Sr.. No.	Pre-Test Score	Post-Test Score	Sr. No.	Pre-Test Score	Post-Test Score	Sr. No.	Pre-Test Score	Post-Test Score	Sr. No.	Pre-Test Score	Post-Test Score
109	12	20	**137**	17	26	**165**	20	23	**193**	20	26
110	23	27	**138**	18	22	**166**	23	22	**194**	19	20
111	18	25	**139**	17	22	**167**	15	22	**195**	29	35
112	19	18	**140**	22	24	**168**	22	27	**196**	14	24
113	21	16	**141**	21	17	**169**	13	16	**197**	23	18
114	27.5	31	**142**	18	22	**170**	20	22	**198**	9	19
115	15	17	**143**	15	22	**171**	15	21	**199**	11	16
116	14	20	**144**	9	22	**172**	21	29	**200**	11	23
117	20	22	**145**	19	21	**173**	20	20	**201**	9	17
118	18.5	22	**146**	29	33	**174**	15	31	**202**	9	27
119	18	21	**147**	15	31	**175**	20	35	**203**	18	23
120	21	25	**148**	23	23	**176**	22	28	**204**	13	22
121	17	20	**149**	26	26	**177**	20	17	**205**	20	25
122	24	27	**150**	18	24	**178**	16	20	**206**	14	12
123	24	28	**151**	21	25	**179**	20	30	**207**	13	21
124	21	26	**152**	17	31	**180**	26	30	**208**	8	18
125	17	25	**153**	27	23	**181**	23	28	**209**	14	18
126	17	23	**154**	17	27	**182**	10	25	**210**	34	41
127	23	26	**155**	18	31	**183**	21	36	**211**	17	27
128	18	24	**156**	26	27	**184**	15	20	**212**	18	18
129	22	25	**157**	21	30	**185**	16	32	**213**	23	23
130	20	29	**158**	22	23	**186**	25	27	**214**	14	20
131	13	24	**159**	21	21	**187**	20	19	**215**	15	15
132	23	30	**160**	24	26	**188**	16	23	**216**	15	19
133	17	24	**161**	18	25	**189**	23	20	**217**	13	22
134	24	25	**162**	21	27	**190**	18	17	**218**	7	23
135	15	17	**163**	16	32	**191**	18	20	**219**	8	16
136	13	24	**164**	21	25	**192**	22	18	**220**	20	13

Sr.. No.	Pre-Test Score	Post-Test Score	Sr. No.	Pre-Test Score	Post-Test Score	Sr. No.	Pre-Test Score	Post-Test Score	Sr. No.	Pre-Test Score	Post-Test Score
221	28	36	**236**	7	18	**251**	7	17	**266**	12	18
222	18	22	**237**	17	19	**252**	4	12	**267**	7	15
223	18	21	**238**	7	21	**253**	10	11	**268**	14	14
224	7	15	**239**	9	12	**254**	11	7	**269**	6	19
225	19	23	**240**	5	10	**255**	8	13	**270**	8	12
226	13	25	**241**	15	15	**256**	9	17			
227	11	25	**242**	9	16	**257**	14	11			
228	23	32	**243**	8	17	**258**	6	11			
229	12	25	**244**	13	15	**259**	17	7			
230	20	27	**245**	7	13	**260**	10	12			
231	10	23	**246**	3	6	**261**	10	13			
232	17	14	**247**	7	12	**262**	9	14			
233	7	8	**248**	7	11	**263**	6	15			
234	21	14	**249**	12	14	**264**	9	8			
235	13	14	**250**	10	8	**265**	7	14			

H_0: The Mean Scores for Pre-Test & Post Test do not differ significantly.

H_1: The Mean Scores for Post-Test are more than those of Pre-Test.

Comparison of Scores in Pre-Test & Post-Test

N	TEST	Total Score	Mean	S.D.	p** - value (T-Test)
270	**Pre**	**4895.5**	**18.124**	**6.063**	**1.44351E-**
270	**Post**	**6184**	**22.904**	**6.226**	**18<<0.01**

****The observed p-value for T-Test is highly significant. Therefore we reject Ho.**

The Mean Scores for Post-Test are more than those of Pre-Test.

i.e., the training programme is effective to a great extent.

H_0 = There is no significant difference between the mean scores of Pre Test and Post Test.

H_1 = The mean score of Post Test is more than that of Pre Test.

$$t = \frac{\bar{x}_{Post} - \bar{x}_{Pre}}{S_C\sqrt{(1/n_1 + 1/n_2)}}, \text{ where } S_C^2 = \frac{(n_1 - 1)\, S_{Post}^2 + (n_2 - 1)\, S_{Pre}^2}{n_1 + n_2 - 2}$$

with d.f = 538.

i.e. t = 9.037952, with d.f = 538.

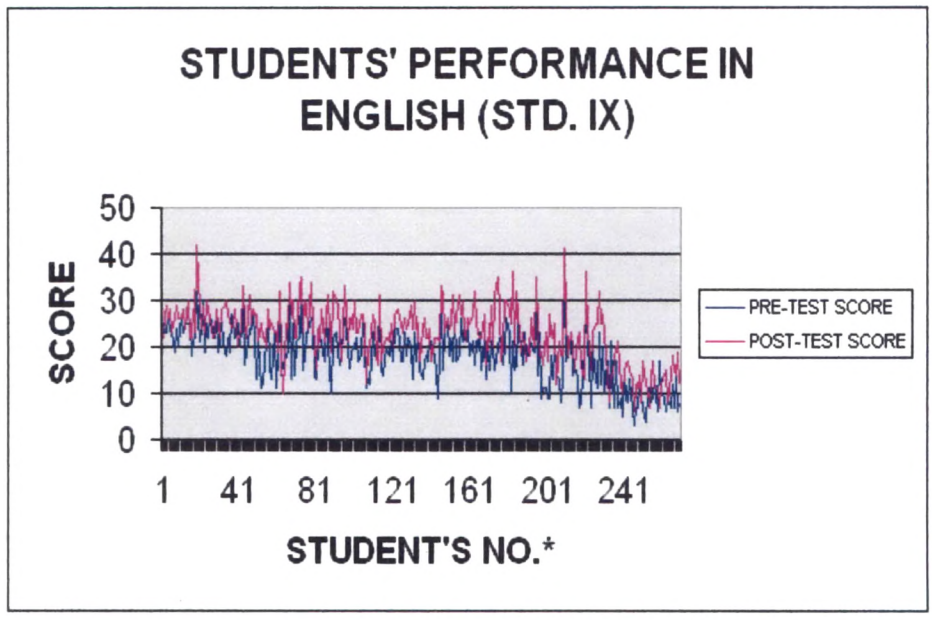
The calculated value of t is 9.037952, which is greater than 1.65, the corresponding tabulated value of pupils' t at 0.05 level of significance with d.f 538.

Hence the null hypothesis H_0 is rejected, that means the mean score of Post Test is significantly higher than that of the Pre Test.

From the above calculations it can be interpreted that the calculated t-value of class IX pupils' Pre Test and Post Test is 9.037952, which is significant at 0.05 level with d.f 538. Thus it can be noted that reflective approach to training had a positive impact on the results of class IX pupils. The programme was successful to a great extent.

The line graph below shows the frequency of the scores of students in the Pre Test and the Post Test. From the graph it could be interpreted that some students scored more than 40 marks, some between 30 and 40and many scored between 20 and 30 out of 50 marks. The graph also shows that the Post Test scores are better than the Pre Test scores.

Chart : 4.6



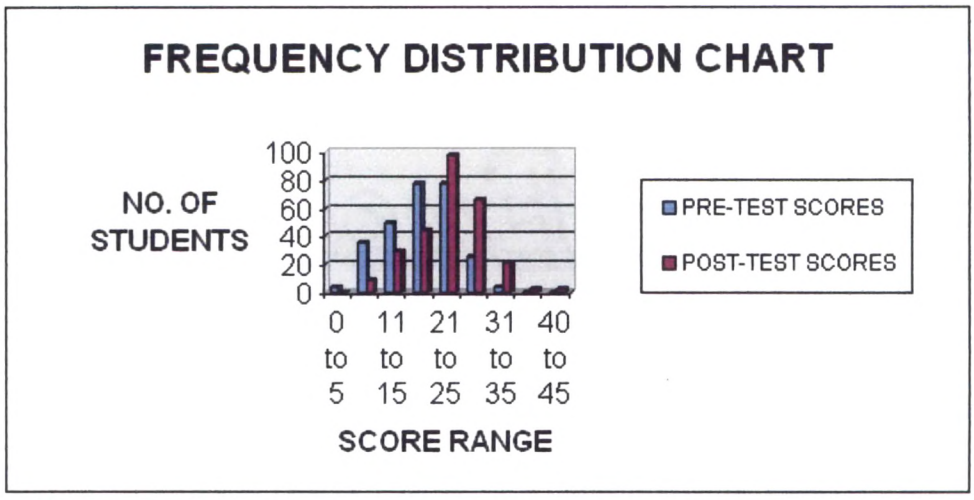
The Frequency Distribution Table below clearly shows that the number of students in various ranges of marks increased considerably in the Post Test as compared to the Pre Test. For the ranges 21-25 marks, 26-30, 31-35, 36-40, 40-45 the increase in the number is from 77-99, 25-66, 3-21, 0-2, 02 with respect to Pre Test and Post Test respectively. This shows that there is significant improvement as a result of the training programme.

Table No. 4.7

FREQUENCY DISTRIBUTION TABLE : Std. IX		
Score Range	**Pre - Test**	**Post - Test**
0 to 5	3	0
6 to 10	35	8
11 to 15	49	29
16 to 20	78	44
21 to 25	77	98
26 to 30	25	66
31 to 35	3	21
36 to 40	0	2
40 to 45	0	2
Total	**270**	**270**

The Frequency Distribution Chart on the following page gives a comparative view of the number of students in various ranges of marks with respect to Pre Test and Post Test. From the chart it can be noted that there is substantial increase in the number of students in the ranges 21-25, 25-30, 31-35 with respect to Post Test. It can also be noted from the chart that there are some students in the ranges 36-40 and 40-45.

Chart : 4.7 – Std. IX



4.4 Section–IV: Analysis & Interpretation of Data Related to the Teacher-Trainees' Liking for the Strategy

4.4.1 *Introduction*

This section deals with the analysis and interpretation of data related to objective II, d, i.e., to study the effectiveness of the strategy in terms of teacher-trainees' liking for the strategy. In order to find out the teacher- trainees' liking for the strategy, the investigator used a five point scale opinionnaire.

According to the Group Data Analysis of the opinionnaire the mean score is 106.3077 out of a total possible score of 120, the Standard Deviation is 6.342773 and the percentage is 88.5897%.

4.4.2 *Information Concerning Teacher-Trainees' Liking for the Strategy*

Table 4.8 shows the total scores of each Teacher-Trainee out of 120 and the total scores of all the 13 trainees. The table also shows the mean score was 106.3077 and Standard Deviation is 6.342773 and the percentage of Teacher-Trainees who liked the programme is 88.5897%. From this table it can be interpreted that the majority of 13 Teacher-Trainees liked the programme. Thus the training was successful.

TABLE : 4.8
TEACHER TRAINEES' LIKING FOR THE STRATEGY

SR. NO.	SCORE*
1	110
2	116
3	104
4	106
5	106
6	103
7	111
8	102
9	108
10	115
11	106
12	104
13	91
TOTAL	**1382**

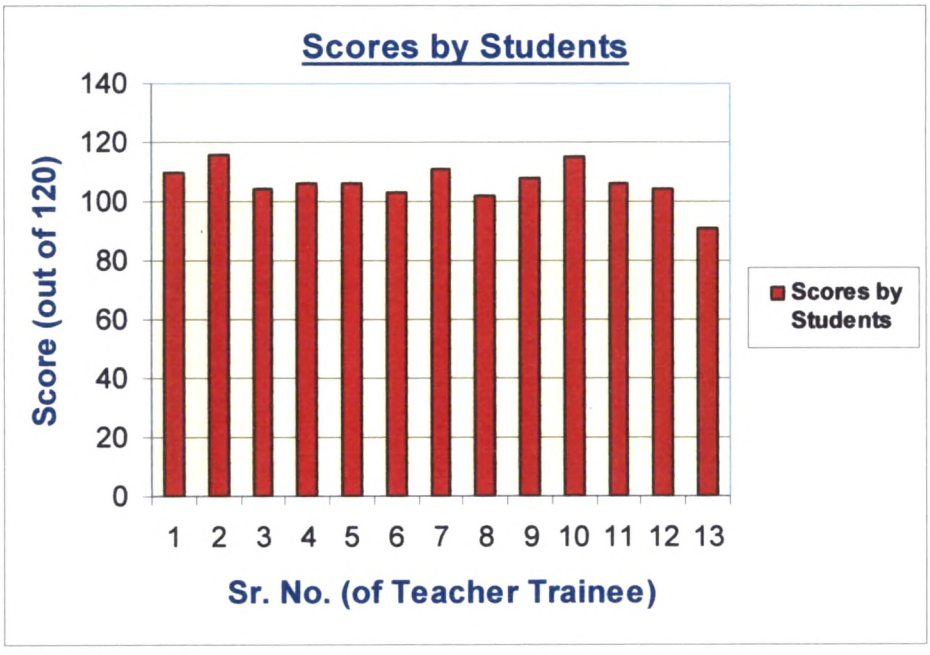
*** Scores are out of 120**

SCORES ON THE TEST OF STUDENTS'
(TEACHER TRAINEES')
LIKING FOR THE STRATEGY

N	TOTAL SCORES	MEAN	S.D.	PERCENT
13	1382	106.308	6.34277	88.5897

The bar graph below shows the responses of each of the 13 Teacher-Trainees. From the graph it can be noted that majority of them have a score between 100-120. This shows the success of the programme.

Chart : 4.8



4.5 Section–V : Analysis & Interpretation of Data Related to the Opinion of the Cooperating Teachers regarding the Feasibility of the Strategy

4.5.1 *Introduction*

This section deals with the analysis and interpretation of data related to objective II, e, i.e., to study the effectiveness of the strategy in terms of the opinion of the cooperating teachers regarding the feasibility of the strategy.

The data related to this objective was obtained through unstructured personal interviews which were content analysed for different aspects. The results are discussed hereunder.

4.5.2 *Information Concerning the Opinion of the Cooperating Teachers regarding the Feasibility of the Strategy*

There were 4 cooperating teachers. The investigator interviewed each of the 4 teachers. Even though the check-list used was unstructured, the investigator occasionally used some questions like the following:

- Were you aware of the concept of reflective teaching?
- Did you find any difference between traditional teaching and reflective teaching?
- Do you find any improvement?
- Do you think it is useful for in-service teachers?
- Do you find any attitudinal changes in the trainees?

The cooperating teachers expressed their views:

One of the teachers said, "This is better than the traditional method since it provides a platform for the trainee to reflect on his/her own experiences." He said that he was aware of the fact that the trainees were using some reflective tools like journal writing, lesson reports, Action Research, observation, etc. He further expressed, "This motivates both the trainee and the students. Students are attracted by the trainee's teaching. The trainees were using more teaching aids, they were active, enthusiastic in trying out new ideas." He said this method made great demands on the teacher trainee and hence the trainees used to come to the class with full preparation. He said if he is asked to use this strategy, he would surely prefer this, since it is an innovative method. He also said that reflective training strategy is useful for both pre-service and in-service teachers.

Teacher No. 2 said that this approach is a good approach, since the trainees used different materials and techniques for teaching. He also said that this method made the trainees to put in more efforts. He could notice a lot of improvement in the trainees. It had also greater impact on the students, since the students were eager to attend classes. It improved the percentage of attendance. The trainees could gain a lot of confidence. Since each trainee was meeting the same class, proper rapport was established. He also said. "This is a better strategy, better than the traditional teaching."

Teacher No. 3 heard about reflective teaching for the first time. Since he got some ideas from the investigator initially, he took the work seriously and showed a lot of interest. He was of the opinion that this helped the trainees to reflect on their own experiences to find out their strong and weak points, the trainees could perform better in the

classroom. It made them hardworking and made them write whatever happened in the classroom. It also helped the trainee to make a systematic record of the happenings in the classroom. It helped the Teacher-Trainees to get actively involved in the teaching programme. It inspired them; it helped them speak better English. He also said, "It is useful for both pre-service and in-service teachers." If he is asked to undergo training in this area, he would certainly prefer it. He found some attitudinal changes in the Teacher-Trainees. They became more mature and responsible.

Teacher No. 4 said that he was aware of the reflective training strategy by the Teacher Trainees. He found a lot of improvement in the Teacher –Trainees with regard to the use of grammar, pronunciation, students' involvement in the learning process. It is useful for a teacher, since it provides opportunities for reflecting on one's own experience to find the strong and weak points. He further said that the Teacher can use this technique without easting any time.

From the analysis of the opinions given by the cooperating teachers it can be interpreted that all the four cooperating teachers of English liked this strategy and they themselves would like to use it for their own classroom teaching.

4.5.3 *Discussion*

Reflective Teaching is an innovative strategy, which is very useful for both the pre-service and in-service teachers. In the present study the focus was on pre-service secondary school teachers of English. The Teacher-Trainees used some of the tools of reflective teaching when

they gave 40 lessons. The trainees used Journal Writing, Lesson Reports, Audio-recording, Lesson observation and Action Research. The first objective of the present study was to develop a reflective training strategy for Pre-Service Secondary School Teachers of English.

The second objective has five parts beginning with a, i.e. to study the effectiveness of the strategy in terms of teacher-trainees' personal attributes. The trainees showed improvement in their personal attributes. An individual's personality is often described in terms of traits. Traits are the ways through which individuals think, feel and act. Thus they are tentatively permanent characteristics with the help of which an individuals personality can be understood as something that cannot be changed once formed. However, today traits are seen like clay. Like clay it can be shaped in any form which one wants it, provided that he or she has the desire, the energy and time to shape them. No wonder then that the strategy which mainly concerned with learning to teach has created interest in the teacher-trainees. It helped them to pick up better awareness skills about the theory and practice of teaching. As a result, they became more open-minded sympathetic, humane, sensitive, hardworking and confident. Hence their responses clearly show that reflective training helped them improve their personality.

The second part of the second objective was pertaining to the impact of the strategy on the professional expertise of the teacher trainees. The trainees employed various tools of reflection after giving the lessons. Each one made sincere effort to improve their quality of

teaching. Good teaching depends upon a number of factors like awareness about the curriculum and its goals and objectives, awareness about learners and their characteristics and awareness about the manner of instruction. This means proficiency in teaching depends on, among others, the trainees facility with various techniques, methods and approaches to teaching and learning. This awareness about instruction which the strategy has succeeded in inculcating them in terms of pre-instructional activities, while instructional activities and post instructional activities has given them a lot of confidence in the matter of teaching. Their way of reflection after each lesson with the help of such tools as observation, journal writing, lesson report helped them much to make out their strong and weak points with respect to their instruction. As they proceeded to do this lesson after lesson, their professional expertise might have undergone an upward spiral. They resorted to reflection over their teaching from first lesson to the 40^{th} lesson. As a result, the trainees each subsequent lesson was an improvement upon his previous lesson. This might be the reason why the strategy has helped the trainees to attain greater professional expertise in the matter of teaching.

Reflective training has some impact on the students' performance in English. Both Class VIII and IX students participated actively in their lessons and the result is encouraging. The students were motivated. Students learn in the class or not depend on a number of factors. The earnestness and enthusiasm of the trainees, their systematic handling of the various lessons, their involvement of the students in a big way in the teaching-learning tasks, the motivation

they brought into their learners, the meaningful educative activities they got them involved as result of employment of the strategy. All these might have their impact on the learners. As a result of all these the teacher-trainees might have succeeded in creating an intellectual climate in the classroom. Perhaps this might have been the major reason for their better performance in English in the classroom.

As far as the Teacher Trainees' liking for the strategy is concerned, most of them liked the strategy. They liked to use the strategy more and more. They got opportunity for the first time to reflect on what they did. The strategy involving reflection with its various guiding tools like journal writing, lesson report, action research, with its subsequent posing of questions with respect to various aspect and steps of teaching to themselves might have given the teacher-trainees ample opportunity for introspection and detection of their strong and weak points. They might have found the reflection a perpetual companion and guide in their attempt at picking up more by way of personal attributes and professional expertise. Their tutors, may or may not remain present as they teach. But the facility they picked up by way of reflection might never leave them. By day or night it will be at their beck and call to help them and to improve them. Perhaps the teacher trainees might have found reflection a handy tool in their hands for embellishment. No doubt, this might have made them to have liking for the strategy.

The cooperating teachers also were found to have great affinity for the reflective strategy. As they followed, the teacher trainees in their effort at reflection and detection of their own weaknesses and strengths and self-remediation of their own weaknesses, they might

have found reflection and its related tools and effective means of self-help and improvement. They might have found reflection a handy tool not only for trainees but also for any one who is involved in any serious activities. Even they had found it a handy tool for self-improvement. Hence they might have been impressed by the utility that the strategy is capable of rendering.

In short, the strategy involving reflection was found improving the personal attributes of the trainee teachers, their professional expertise, and therefore they expressed their affinity for the strategy. The students too who were taught by the teacher trainees not only showed better performance through the teaching of the trainees who took the help of the strategy but also expressed their liking for the strategy. As the strategy involving reflection could draw positive response from everyone involved it needs to be given the importance it deserves. The method of reflection should be put to more research and its merits should be brought to light and effort may be made to optimize the use of reflection in the area of teaching and learning.