Chapter IV

Data Analysis & Interpretation

CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

4.0 INTRODUCTION

The procedure of the study was discussed in detail in the chapter III. The present chapter deals with the analysis and interpretation of collected data. The data was collected by administering tools on the two groups of B.Ed. student teachers in the present study. These two groups of B.Ed. student teachers were selected from the same institute and the groups were - experimental group and control group. The control group was exposed to general pedagogy of teaching, whereas, experimental group was exposed to training programme on non-verbal communication along with the general pedagogy of teaching. The data was collected for two phases, i.e. pre-orientation phase and post-orientation phase. In the post-orientation phase, lessons of student-teachers were observed in ten blocks. Each block consisted of four lessons practiced by each student-teacher. Randomly selected one lesson out of four lessons was observed in one block for each student-teacher. The analysis of data was also done phase-wise. The basic purpose of analysis was to summarize the completed observations in such a manner that they yield answers to the research problems while the purpose of interpretation was to search for the broader meaning of these answers.

Data collected through the administration of the tools on selected sample were raw in nature. These data were organized, analyzed and interpreted for drawing sound conclusions and valid generalizations. Organization of data included editing, classifying and tabulating information. Editing implied checking of the gathered raw data for accuracy, usefulness and completeness. The data were then classified to divide it into different categories, classes and groups. Thus in brief, the data were

analyzed to study the organized material in order to discover inherent factors. Further the data were studied from various angles for accessing the new facts.

Attending to the objectives of the study, the analysis and interpretation of the data are presented under the following heads.

1. Use of non-verbal communication by experimental group and control group.
   - Component-wise use of non-verbal communication by experimental group and control group
   - Stage-wise use of non-verbal communication by experimental group and control group (Introduction, Presentation & Revision stages)
   - Overall use of non-verbal communication by experimental group and control group
2. Classroom transaction of experimental group and control group
   - Factor-wise classroom transaction of experimental group and control group
   - Comparative change in classroom transaction of experimental group and control group
   - Significance of difference in the classroom transaction by experimental group and control group
3. Reaction of B.Ed. student-teachers of experimental group towards training programme.

4.1 USE OF NON-VERBAL COMMUNICATION BY EXPEIMENTAL GROUP AND CONTROL GROUP

The overall use of non-verbal communication by experimental group and control group was analyzed along with the component-wise and stage-wise analysis of use of non-verbal communication. The results are presented in the following sections.

Component-Wise Use of Non-Verbal Communication by Experimental Group and Control Group

The component-wise use of non-verbal communication by experimental group and control group was studied for the components of non-verbal communication like, (i) Oculesics (ii) Paralinguistics (iii) Proxemics (iv) Facial Expressions (v) Kinesics (vi) Chronemics (v) Artifacts and (vi) Posture. The results are presented in the form of average intensity indices of use of each component of non-verbal communication during both the phases of this study i.e. pre-orientation phase and post-orientation phase.

USE OF OCULESICS

The use of oculesics component of non-verbal communication by experimental group and control group was measured using a rating scale having the rating varying from most appropriate to most inappropriate which was scored from 5 to 1 respectively. The oculesics component had three sub-components. The intensity index of each sub component was calculated for pre-orientation phase and post-orientation phase. Then the average of intensity indices of these three sub-components of oculesics was found for pre-orientation phase and post-orientation phase. The average intensity indices of the use of oculesics component by experimental group and control group are indicated in table 4.1.

Table 4.1 *Phase-wise and Group-wise Average Intensity Indices (For Rating 5 to 1 for Most Appropriate to Most Inappropriate Respectively) for the Use of Oculesics Component of Non-Verbal Communication and their Difference*

Phases		Average Intensity Indices		Difference in Average Intensity Indices
		Experimental Group (II_E)	Control Group (II_C)	(II_E-II_C)
Pre-Orientation Phase		2.75	2.92	-0.17
Post Orientation Phase	Block 1	2.93	2.78	0.15
	Block 2	3.26	3.29	-0.03
	Block 3	3.38	3.26	0.12
	Block 4	3.70	3.40	0.30
	Block 5	3.72	3.41	0.31
	Block 6	3.72	3.23	0.49
	Block 7	3.74	3.31	0.43
	Block 8	3.69	3.45	0.24
	Block 9	3.97	3.53	0.44
	Block 10	4.00	3.49	0.51
Average		3.53	3.28	0.25

From table 4.1 it was observed that average intensity indices of the use of oculesics component of non-verbal communication for experimental group were 2.75, 2.93, 3.26, 3.38, 3.70, 3.72, 3.72, 3.74, 3.69, 3.97, 4.00 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. Similarly from the same table it was found that average intensity indices of the use of oculesics component of non-verbal communication for control group were 2.92, 2.78, 3.29, 3.26, 3.40, 3.41, 3.23, 3.31, 3.45, 3.53, 3.49 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. The differences in average intensity indices of experimental group and control group were -0.17, 0.15, -0.03, 0.12, 0.30, 0.31, 0.49,

0.43, 0.24, 0.44, 0.51 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. The perusal of the average intensity indices of the use of oculesics component of non-verbal communication revealed that the indices of oculesics of both the groups increased gradually during these blocks. Table 4.1 also indicated that the rate of increase of average intensity indices of oculesics over different phases of study seemed to be better in case of experimental group in comparison to the control group. The differences in intensity indices of experimental group and control group were also found positively increasing, gradually from pre-orientation phase to post orientation phase. To get a clear picture of improvement of both the groups the comparative graph is given in figure 4.1.

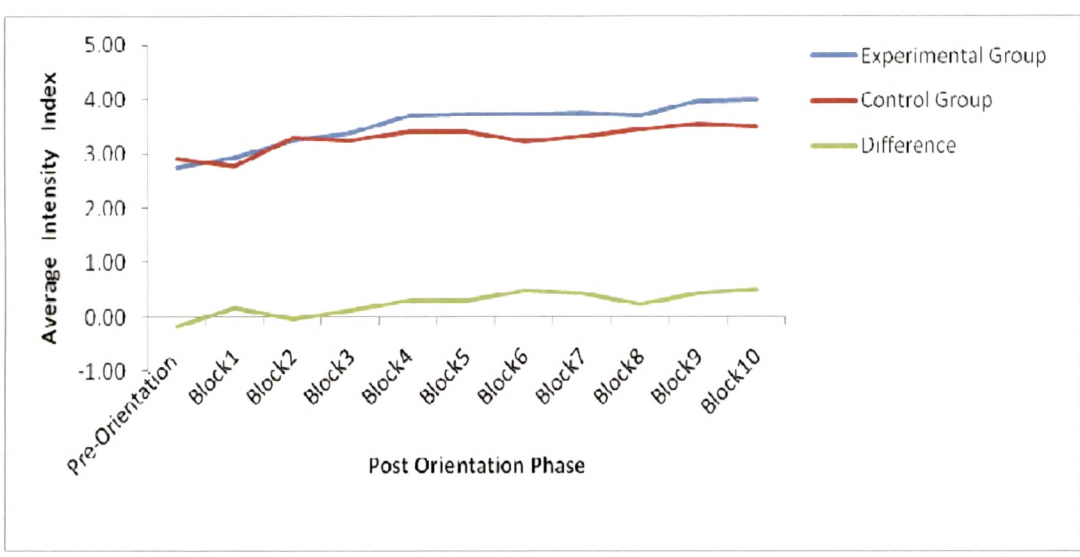

Figure 4.1 *Phase-Wise Average Intensity Indices of Use of Oculesics Component of Non-Verbal Communication for Experimental Group and Control Group and their Difference*

In figure 4.1, the line in blue shows the average intensity indices of use of oculesics component of non-verbal communication of experimental group, the line in red indicates the average intensity indices of the use of oculesics component of non-verbal communication of control group and the line in green represents the difference between the average intensity indices of use of oculesics component of non-verbal communication of experimental group and control group. From the figure 4.1 and table 4.1 it was revealed that the use of oculesics component of non-verbal communication by control group ($II_C = 2.92$) was slightly better than the experimental group ($II_E = 2.75$) in the pre-orientation phase in which teaching practice was carried in the simulated setting. Despite of that, steady progress in the average intensity indices of experimental group was observed during post-orientation phase whereas, the progress was found in a haphazard pattern in control group. On further analysis it was also found that the progress in average intensity indices of experimental group was better in comparison to control group which is very clear from figure 4.1 and from the average intensity indices of oculesics component of pre-orientation phase and post-orientation phase for experimental group and control group i.e. 3.53 and 3.28 respectively. Even intensity indices of experimental group from block 4 onwards showed the appropriate use of oculesics by experimental group which also indicated the same result from average intensity indices of pre-orientation and post-orientation phase, whereas, in the control group, during most of the blocks the result showed the satisfactory use of oculesics. From this analysis, it can be said that the use of oculesics was found to be more appropriate in experimental group in comparison to control group which may be due to training programme on non-verbal communication.

USE OF PARALINGUISTICS

The use of paralinguistics component of non-verbal communication by experimental group and control group was measured using rating scale varying from most appropriate to most inappropriate which was scored from 5 to 1 respectively. The paralinguistics component had five sub-components. The intensity index of each sub component was calculated for pre-orientation phase and post-orientation phase. Then the average of intensity indices of these five sub-components of paralinguistics was found for pre-orientation phase and post-orientation phase. The average intensity indices of use of paralinguistics component by experimental group and control group are shown in table 4.2.

Table 4.2 *Phase-wise and Group-wise Average Intensity Indices (For Rating 5 to 1 for Most Appropriate to Most Inappropriate Respectively) of Use of Paralinguistics Component of Non-Verbal Communication and their Difference*

Phases		Average Intensity Indices of		Difference in Average Intensity Indices
		Experimental Group (II_E)	Control Group (II_C)	(II_E-II_C)
Pre-Orientation Phase		3.25	3.43	-0.18
Post Orientation Phase	Block 1	3.17	3.11	0.06
	Block 2	3.64	3.36	0.28
	Block 3	3.79	3.45	0.34
	Block 4	3.81	3.63	0.18
	Block 5	3.91	3.76	0.15
	Block 6	3.92	3.73	0.19
	Block 7	3.99	3.77	0.22
	Block 8	3.99	3.72	0.27
	Block 9	4.02	3.74	0.28
	Block 10	4.15	3.69	0.46
Average		3.79	3.58	0.21

It was observed from table 4.2 that average intensity indices of use of paralinguistics component of non-verbal communication for experimental group were 3.25, 3.17, 3.64, 3.81, 3.91, 3.92, 3.99, 3.99, 4.02, 4.15 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. Similarly from the same table it was found that average intensity indices of use of paralinguistics component of non-verbal communication for control group were 3.43, 3.11, 3.36, 3.45, 3.63, 3.76, 3.73, 3.77, 3.72, 3.74, 3.69 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. The differences in the average intensity indices of experimental group and control group were -0.18, 0.06, 0.28, 0.34, 0.18, 0.15, 0.19, 0.22, 0.27, 0.28,0.46 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. The glance of the average intensity indices of use of paralinguistics component of non-verbal communication of both the groups reflected that the indices of both the groups increased gradually over previous blocks. Table 4.2 also indicated that the rate of increase of average intensity indices of paralinguistics over different phases of study seemed to be better in case of experimental group in comparison to the control group. The differences in intensity indices of experimental group and control group were also found positively increasing gradually from pre-orientation phase to post orientation phase. To get a clear picture of progress of both the groups the comparative graph is given in figure 4.2.

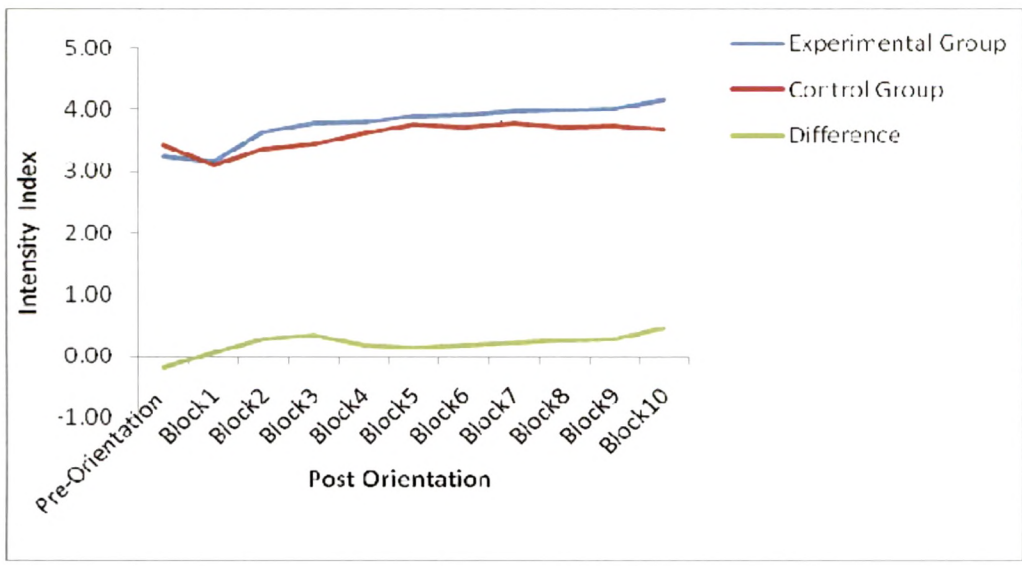

Figure 4.2 *Phase-Wise Average Intensity Indices of Use of Paralinguistics Component of Non-Verbal Communication for Experimental Group and Control Group and their Difference*

In figure 4.2, the line in blue shows the average intensity indices of use of paralinguistics component of non-verbal communication of experimental group, the line in red indicates the average intensity indices of use of paralinguistics component of non-verbal communication of control group and the line in green represents the difference between the average intensity indices of use of paralinguistics component of non-verbal communication of experimental group and control group. From the figure 4.2 and table 4.2 it was revealed that the use of paralinguistics component of non-verbal communication by control group (II_C = 3.43) was slightly better than the experimental group (II_E = 3.25) in the pre-orientation phase in which teaching practice was carried in the simulated setting. Despite of that, steady progress in the average intensity indices of experimental group was observed during post-orientation phase whereas, the change was found in an unsteady pattern in control group. On further analysis it was also found that the progress in average intensity indices of

experimental group was better in comparison to control group which is very clear from figure 4.2 and from the average intensity indices of paralinguistics component of pre-orientation phase and post-orientation phase for experimental group and control group i.e. 3.79 and 3.58 respectively. Even intensity indices of experimental group from block 2 onwards showed the appropriate use of paralinguistics by experimental group which also indicated the same result from average intensity indices of pre-orientation and post-orientation phase whereas, in the control group, although the result showed the appropriate use of paralinguistics from block 4 but the increase in intensity indices was not as much as that of experimental group. From this analysis, it can be said that the use of paralinguistics was found to be more appropriate in experimental group in comparison to control group which may be due to training programme on non-verbal communication.

USE OF PROXEMICS

The use of proxemics component of non-verbal communication by experimental group and control group was measured using rating scale varying from most appropriate to most inappropriate which was scored from 5 to 1 respectively. The proxemics component had one sub-component. The intensity index of sub component was calculated for pre-orientation phase and post-orientation phase. The average intensity indices of use of proxemics component by experimental group and control group are revealed in table 4.3.

Table 4.3 *Phase-wise and Group-wise Average Intensity Indices (For Rating 5 to 1 for Most Appropriate to Most Inappropriate Respectively) for the Use of Proxemics Component of Non-Verbal Communication and their Difference*

Phase		Average Intensity Indices of		Difference in Average Intensity Indices (II_E-II_C)
		Experimental Group (II_E)	Control Group (II_C)	
Pre-Orientation Phase		3.40	3.07	0.30
Post Orientation Phase	Block 1	3.40	3.07	0.30
	Block 2	3.53	3.49	0.04
	Block 3	3.93	3.63	0.30
	Block 4	4.03	3.70	0.33
	Block 5	4.07	3.90	0.17
	Block 6	3.97	3.80	0.17
	Block 7	3.97	3.78	0.19
	Block 8	4.07	3.77	0.30
	Block 9	4.07	3.87	0.20
	Block 10	4.13	3.77	0.36
Average		3.87	3.62	0.25

From table 4.3 it was reflected that average intensity indices of use of proxemics component of non-verbal communication for experimental group were 3.40, 3.40, 3.53, 3.93, 4.03, 4.07, 3.97, 3.97, 4.07, 4.07, 4.13 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. Similarly from the same table it was found that average intensity indices of use of proxemics component of non-verbal communication for control group were 3.07, 3.07, 3.49, 3.63, 3.70, 3.90, 3.80, 3.78, 3.77, 3.87, 3.77 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. The differences in the average intensity indices of experimental group and control group were 0.30, 0.30, 0.04, 0.30, 0.33, 0.17, 0.17,

0.19, 0.30, 0.20, 0.36 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. The read-through of the average intensity indices of use of proxemics component of non-verbal communication of both the groups revealed that the index of both the groups increased gradually over previous blocks. Table 4.3 also indicated that the rate of increase of average intensity indices of proxemics over different phases of study seemed to be better in case of experimental group in comparison to the control group. The differences in intensity indices of experimental group and control group were also found positively increasing gradually from pre-orientation phase to post orientation phase. To get a clear picture of improvement of both the groups the comparative graph is given in figure 4.3.

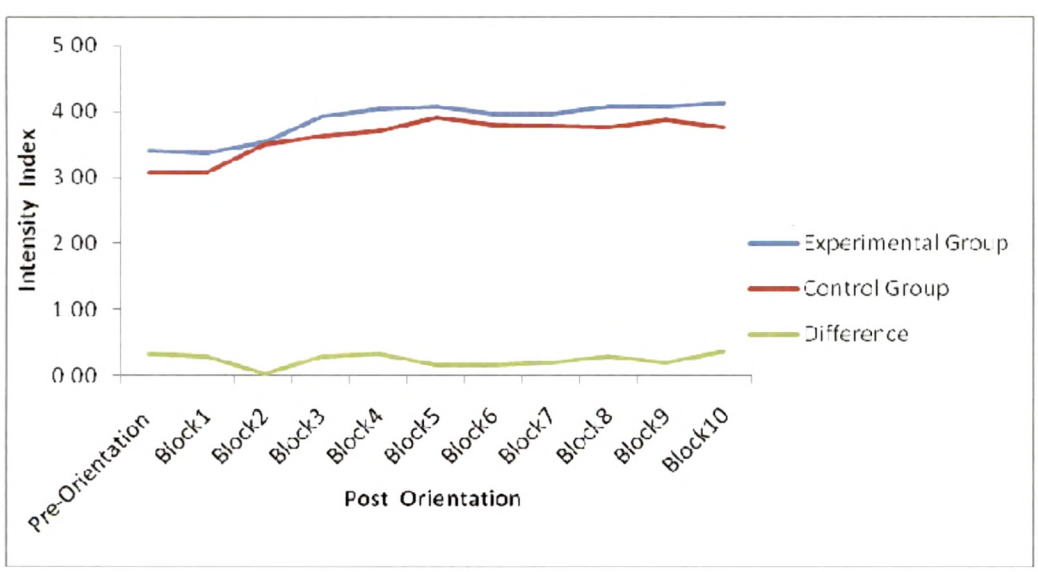

Figure 4.3 *Phase-Wise Average Intensity Indices of Use of Proxemics Component of Non-Verbal Communication for Experimental Group and Control Group and their Difference*

In figure 4.3, the line in blue shows the average intensity indices of use of proxemics component of non-verbal communication of experimental group, the line in red indicates the average intensity indices of use of proxemics component of non-verbal communication of control group and the line in green represents the difference between the average intensity indices of use of proxemics component of non-verbal communication of experimental group and control group. From the figure 4.3 and table 4.3 it was revealed that the use of proxemics component of non-verbal communication by experimental group (II_E = 3.40) was slightly better than the control group (II_C = 3.07) in the pre-orientation phase in which teaching practice was carried in the simulated setting. The steady progress in the average intensity indices of experimental group was observed during post-orientation phase but, the progress in control group was not as steady as that of experimental group. On further analysis it was also found that the progress in average intensity indices of experimental group was better in comparison to control group which is very clear from figure 4.3 and from the average intensity indices of proxemics component of pre-orientation phase and post-orientation phase for experimental group and control group i.e. 3.87 and 3.62 respectively. From this analysis, it can be said that the use of proxemics was found to be more appropriate in experimental group in comparison to control group which may be due to training programme on non-verbal communication.

USE OF FACIAL EXPRESSIONS

The use of facial expressions component of non-verbal communication by experimental group and control group was measured using rating scale varying from most appropriate to most inappropriate which was scored from 5 to 1 respectively. The facial expressions component had three sub-components. The intensity index of

each sub-component was calculated for pre-orientation phase and post-orientation phase. Then the average of intensity indices of these three sub-components of facial expressions was found for pre-orientation phase and post-orientation phase. The average intensity indices of use of facial expressions component by experimental group and control group are specified in table 4.4.

Table 4.4 *Phase-wise and Group-wise Average Intensity Indices (For Rating 5 to 1 for Most Appropriate to Most Inappropriate Respectively) for the Use of Facial Expressions Component of Non-Verbal Communication and their Difference*

Phase		Average Intensity Indices of		Difference in Average Intensity Indices (II_E-II_C)
		Experimental Group (II_E)	Control Group (II_C)	
Pre-Orientation Phase		2.80	2.71	0.09
Post Orientation Phase	Block 1	2.86	2.66	0.20
	Block 2	3.04	3.00	0.04
	Block 3	2.92	2.84	0.08
	Block 4	3.19	3.03	0.16
	Block 5	3.34	3.09	0.25
	Block 6	3.58	2.99	0.59
	Block 7	3.42	3.10	0.32
	Block 8	3.42	3.03	0.39
	Block 9	3.50	3.17	0.33
	Block 10	3.69	3.07	0.62
Average		3.25	2.97	0.28

The table 4.4 revealed that average intensity indices of use of facial expressions component of non-verbal communication for experimental group were 2.80, 2.86, 3.04, 2.92, 3.19, 3.34, 3.58, 3.42, 3.42, 3.50, 3.69 for pre-orientation,

Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. Similarly from the same table it was indicated that average intensity indices of use of facial expressions component of non-verbal communication for control group were 2.71, 2.66, 3.00, 2.84, 3.03, 3.09, 2.99, 3.10, 3.03, 3.17, 3.07 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. The differences in the average intensity indices of experimental group and control group were 0.09, 0.20, 0.04, 0.08, 0.16, 0.25, 0.59, 0.32, 0.39, 0.33, 0.62 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. The perusal of the average intensity indices of use of facial expressions component of non-verbal communication of both the groups revealed that the index of both the groups increased gradually over previous blocks. Table 4.4 also indicated that the rate of increase of average intensity indices of facial expressions over different phases of study seemed to be better in case of experimental group in comparison to the control group. The differences in intensity indices of experimental group and control group were also found positively increasing gradually from pre-orientation phase to post orientation phase. To get a clear picture of development of both the groups the comparative graph is given in figure 4.4.

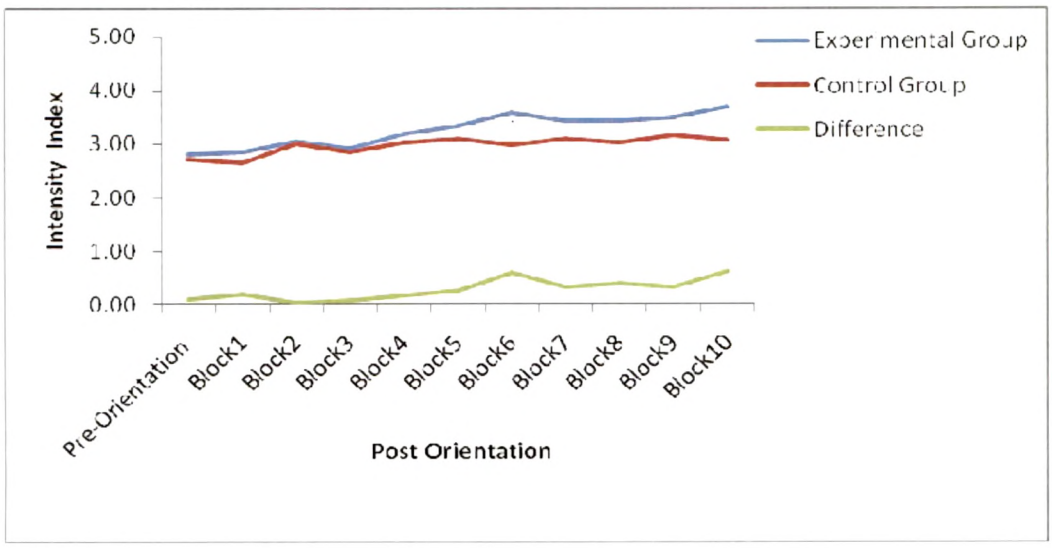

Figure 4.4 *Phase-Wise Average Intensity Indices of Use of Facial Expressions Component of Non-Verbal Communication for Experimental Group and Control Group and their Difference*

In figure 4.4, the line in blue shows the average intensity indices of use of facial expressions component of non-verbal communication of experimental group, the line in red indicates the average intensity indices of use of facial expressions component of non-verbal communication of control group and the line in green represents the difference between the average intensity indices of use of facial expressions component of non-verbal communication of experimental group and control group. From the figure 4.4 and table 4.4 it was revealed that the use of facial expressions component of non-verbal communication by experimental group (II_E = 2.80) was slightly better than the control group (II_C = 2.71) in the pre-orientation phase in which teaching practice was carried in the simulated setting. The steady progress in the average intensity indices of experimental group was observed during post-orientation phase from block 7 whereas, the progress was found in a zigzag manner in control group. On further analysis it was also found that the progress in average intensity indices of experimental group was better in comparison to control

group which is very clear from figure 4.4 and from the average intensity indices of facial expressions component of pre-orientation phase and post-orientation phase for experimental group and control group i.e. 3.25 and 2.97 respectively. Even intensity indices of experimental group in the last blocks showed the appropriate use of facial expressions by experimental group whereas, in the control group, during all the blocks the result showed the satisfactory use of facial expressions. From this analysis, it can be said that the use of facial expressions was found to be more appropriate in experimental group in comparison to control group which may be due to impact of training programme on non-verbal communication.

USE OF KINESICS

The use of kinesics component of non-verbal communication by experimental group and control group was measured using rating scale varying from most appropriate to most inappropriate which was scored from 5 to 1 respectively. The kinesics component had two sub-components. The intensity index of each sub-component was calculated for pre-orientation phase and post-orientation phase. Then the average of intensity indices of these two sub-components of kinesics was found for pre-orientation phase and post-orientation phase. The average intensity indices of use of kinesics component by experimental group and control group are presented in table 4.5.

Table 4.5 *Phase-wise and Group-wise Average Intensity Indices (For Rating 5 to 1 for Most Inappropriate to Most Appropriate Respectively) for the Use of Kinesics Component of Non-Verbal Communication and their Difference*

Phases		Average Intensity Indices of		Difference in Average Intensity Indices
		Experimental Group (II_E)	Control Group (II_C)	(II_E-II_C)
Pre-Orientation Phase		3.22	3.38	-0.16
Post Orientation Phase	Block 1	3.22	3.22	0.00
	Block 2	3.45	3.43	0.02
	Block 3	3.73	3.48	0.25
	Block 4	3.88	3.57	0.31
	Block 5	4.03	3.92	0.11
	Block 6	3.98	3.93	0.05
	Block 7	4.07	3.78	0.29
	Block 8	4.08	3.83	0.25
	Block 9	4.17	3.75	0.42
	Block 10	4.12	3.75	0.37
Average		3.81	3.64	0.17

The table 4.5 indicated that average intensity indices of use of facial expressions component of non-verbal communication for experimental group were 3.22, 3.22, 3.45, 3.73, 3.88, 4.03, 3.98, 4.07, 4.08, 4.17, 4.12 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. Similarly from the same table it was observed that average intensity indices of use of facial expressions component of non-verbal communication for control group were 3.38, 3.22, 3.43, 3.48, 3.57, 3.92, 3.93, 3.78, 3.83, 3.75, 3.75 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. The differences in the average intensity indices of experimental group and control group were -0.16, 0.00, 0.02, 0.25, 0.31,

0.11, 0.05, 0.29, 0.25, 0.42, 0.37 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. The glance of the average intensity indices of use of facial expressions component of non-verbal communication of both the groups revealed that the index of both the groups increased gradually over previous blocks. Table 4.5 also indicated that the rate of increase of average intensity indices of facial expressions over different phases of study seemed to be better in case of experimental group in comparison to the control group. The differences in intensity indices of experimental group and control group were also found positively increasing gradually from pre-orientation phase to post orientation phase. To get a clear picture of improvement of both the groups the comparative graph is given in figure 4.5.

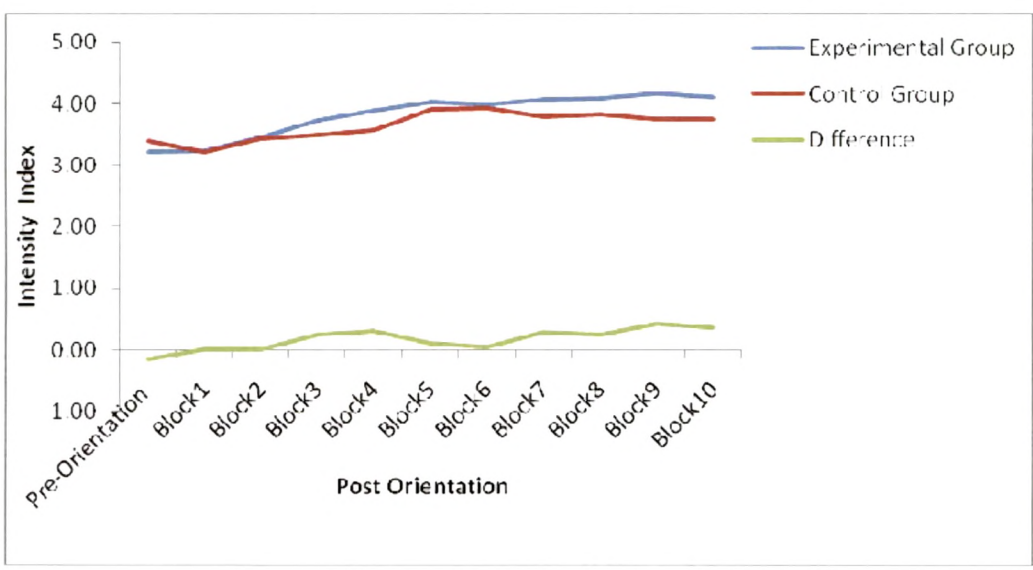

Figure 4.5 *Phase-Wise Average Intensity Indices of Use of Kinesics Component of Non-Verbal Communication for Experimental Group and Control Group and their Difference*

In figure 4.5, the line in blue shows the average intensity indices of use of kinesics component of non-verbal communication of experimental group, the line in red indicates the average intensity indices of use of kinesics component of non-verbal communication of control group and the line in green represents the difference between the average intensity indices of use of kinesics component of non-verbal communication of experimental group and control group. From the figure 4.5 and table 4.5 it was revealed that the use of kinesics component of non-verbal communication by control group ($II_C = 3.38$) was slightly better than the experimental group ($II_E = 3.22$) in the pre-orientation phase in which teaching practice was carried in the simulated setting. Despite of that, steady progress in the average intensity indices of experimental group was observed during post-orientation phase whereas, the progress was found in a haphazard pattern in control group. On further analysis it was also found that the progress in average intensity indices of experimental group was better in comparison to control group which is very clear from figure 4.5 and from the average intensity indices of kinesics component of pre-orientation phase and post-orientation phase for experimental group and control group i.e. 3.81 and 3.64 respectively. From this analysis, it can be said that the use of kinesics was found to be more appropriate in experimental group in comparison to control group which may be due to training programme on non-verbal communication.

USE OF CHRONEMICS

The use of chronemics component of non-verbal communication by experimental group and control group was measured using rating scale varying from most appropriate to most inappropriate which was scored from 5 to 1 respectively. The chronemics component had two sub-components. The intensity index of each

sub-component was calculated for pre-orientation phase and post-orientation phase. Then the average of intensity indices of these two sub-components of chronemics was found for pre-orientation phase and post-orientation phase. The average intensity indices of use of chronemics component by experimental group and control group are shown in table 4.6.

Table 4.6 *Phase-wise and Group-wise Average Intensity Indices (For Rating 5 to 1 for Most Appropriate to Most Inappropriate Respectively) for the Use of Chronemics Component of Non-Verbal Communication and their Difference*

Phases		Average Intensity Indices of		Difference in Average Intensity Indices
		Experimental Group	Control Group	
		(II_E)	(II_C)	(II_E-II_C)
Pre-Orientation Phase		3.27	3.23	0.03
Post Orientation Phase	Block 1	3.45	3.13	0.32
	Block 2	3.88	3.48	0.40
	Block 3	3.77	3.50	0.27
	Block 4	3.88	3.43	0.45
	Block 5	4.18	3.65	0.53
	Block 6	4.25	3.67	0.58
	Block 7	4.40	3.63	0.77
	Block 8	4.27	3.67	0.60
	Block 9	4.30	3.48	0.82
	Block 10	4.28	3.47	0.82
Average		3.99	3.49	0.50

From table 4.6 it was reflected that average intensity indices of use of chronemics component of non-verbal communication for experimental group were 3.27, 3.45, 3.88, 3.77, 3.88, 4.18, 4.25, 4.40, 4.27, 4.30, 4.28 for pre-orientation,

Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. Similarly from the same table it was found that average intensity indices of use of chronemics component of non verbal communication for control group were 3.23, 3.13, 3.48, 3.50, 3.43, 3.65, 3.67, 3.63, 3.67, 3.48, 3.47, 3.49 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. The differences in the average intensity indices of experimental group and control group were 0.03, 0.32, 0.40, 0.27, 0.45, 0.53, 0.58, 0.77, 0.60, 0.82, 0.82, 0.50 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. The perusal of the average intensity indices of use of chronemics component of non verbal communication of both the groups revealed that the index of both the groups increased gradually over previous blocks. Table 4.6 also indicated that the rate of increase of average intensity indices of chronemics over different phases of study seemed to be better in case of experimental group in comparison to the control group. The differences in intensity indices of experimental group and control group were also found positively increasing gradually from pre-orientation phase to post orientation phase. To get a clear picture of improvement of both the groups the comparative graph is given in figure 4.6.

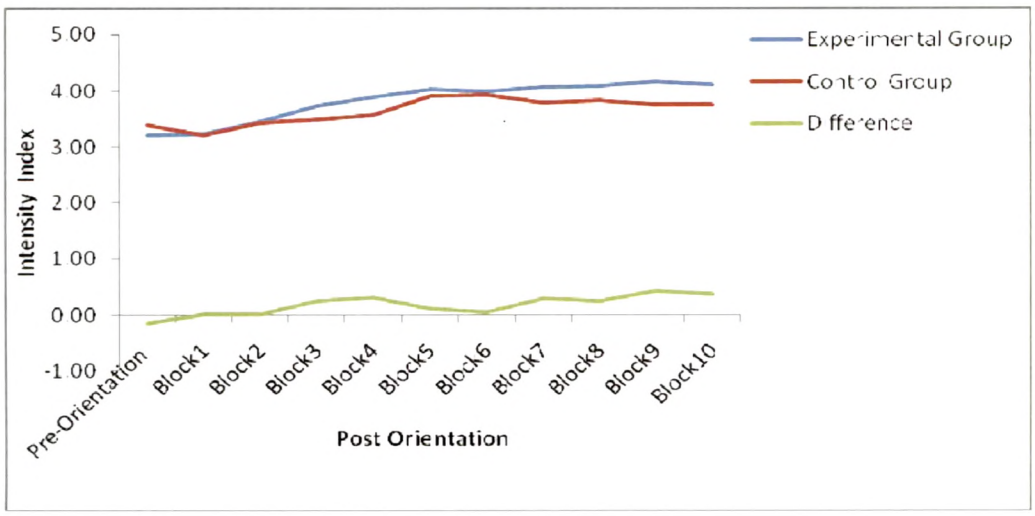

Figure 4.6 *Phase-Wise Average Intensity Indices of Use of Chronemics Component of Non-Verbal Communication for Experimental Group and Control Group and their Difference*

In figure 4.6, the line in blue shows the average intensity indices of use of chronemics component of non-verbal communication of experimental group, the line in red indicates the average intensity indices of use of chronemics component of non-verbal communication of control group and the line in green represents the difference between the average intensity indices of use of chronemics component of non-verbal communication of experimental group and control group. From the figure 4.6 and table 4.6 it was revealed that the use of chronemics component of non-verbal communication by experimental group (II_E = 3.27) was slightly better than the control group (II_C = 3.23) in the pre-orientation phase in which teaching practice was carried in the simulated setting. The steady progress in the average intensity indices of experimental group was observed during post-orientation phase whereas the progress in the control group was not as steady as experimental group. On further analysis it was also found that the progress in average intensity indices of experimental group was better in comparison to control group which is very clear from figure 4.6 and

from the average intensity indices of chronemics component of pre-orientation phase and post-orientation phase for experimental group and control group i.e. 3.99 and 3.49 respectively. Even intensity indices of experimental group from block 2 onwards showed the appropriate use of chronemics by experimental group which also indicated the same result from average intensity indices of pre-orientation and post-orientation phase whereas, in the control group, during most of the blocks the result showed the satisfactory use of chronemics. From this analysis, it can be said that the use of chronemics was found to be more appropriate in experimental group in comparison to control group which may be due to training programme on non-verbal communication.

USE OF ARTIFACTS

The use of artifacts component of non-verbal communication by experimental group and control group was measured using rating scale varying from most appropriate to most inappropriate which was scored from 5 to 1 respectively. The artifacts component had two sub-components. The intensity index of each sub-component was calculated for pre-orientation phase and post-orientation phase. Then the average of intensity indices of these two sub-components of artifacts was found for pre-orientation phase and post-orientation phase. The average intensity indices of use of artifacts component by experimental group and control group are shown in table 4.7.

Table 4.7 *Phase-wise and Group-wise Average Intensity Indices (For Rating 5 to 1 for Most Inappropriate to Most Appropriate Respectively) for the Use of Artifacts Component of Non-Verbal Communication and their Difference*

Phases		Average Intensity Indices of		Difference in Average Intensity Indices
		Experimental Group (II_E)	Control Group (II_C)	(II_E-II_C)
Pre-Orientation Phase		3.50	3.32	0.18
Post Orientation Phase	Block 1	3.40	3.28	0.12
	Block 2	3.80	3.60	0.20
	Block 3	3.65	3.43	0.22
	Block 4	4.03	3.63	0.40
	Block 5	3.97	3.70	0.27
	Block 6	4.03	3.77	0.25
	Block 7	4.35	3.65	0.70
	Block 8	4.32	3.78	0.54
	Block 9	4.43	3.90	0.53
	Block 10	4.41	3.82	0.59
Average		3.99	3.63	0.36

From table 4.7 it was reflected that average intensity indices of use of artifacts component of non-verbal communication for experimental group were 3.50, 3.40, 3.80, 3.65, 4.03, 3.97, 4.03, 4.35, 4.32, 4.43, 4.41 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. Similarly from the same table it was found that average intensity indices of use of artifacts component of non verbal communication for control group were 3.32, 3.28, 3.60, 3.43, 3.63, 3.70, 3.77, 3.65, 3.78, 3.90, 3.82 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. The differences in the average intensity indices of experimental group and control group were 0.18, 0.12, 0.20, 0.22, 0.40, 0.27, 0.25,

0.70, 0.54, 0.53, 0.59 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. The perusal of the average intensity indices of use of artifacts component of non-verbal communication of both the groups revealed that the index of both the groups increased gradually over previous Blocks. Table 4.7 also indicated that the rate of increase of average intensity indices of artifacts over different phases of study seemed to be better in case of experimental group in comparison to the control group. The differences in intensity indices of experimental group and control group were also found positively increasing gradually from pre-orientation phase to post orientation phase. To get a clear picture of improvement of both the groups the comparative graph is given in figure 4.7.

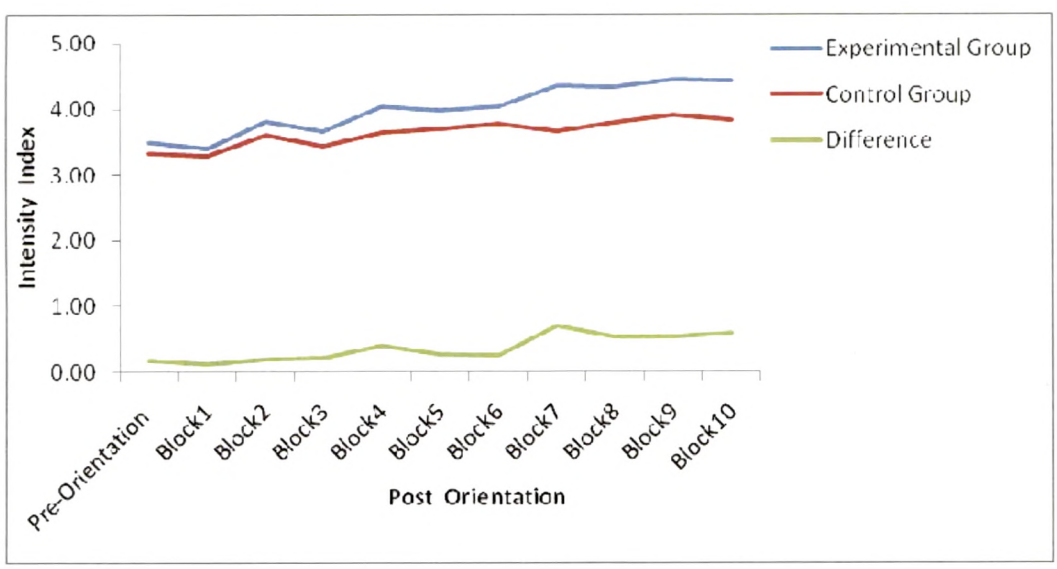

Figure 4.7 *Phase-Wise Average Intensity Indices of Use of Artifacts Component of Non-Verbal Communication for Experimental Group and Control Group and their Difference*

In figure 4.7, the line in blue shows the average intensity indices of use of artifacts component of non-verbal communication of experimental group, the line in red indicates the average intensity indices of use of artifacts component of non-verbal communication of control group and the line in green represents the difference between the average intensity indices of use of artifacts component of non-verbal communication of experimental group and control group. From the figure 4.7 and table 4.7 it was revealed that the use of artifacts component of non-verbal communication by experimental group ($II_E = 3.50$) was slightly better than the control group ($II_C = 3.32$) in the pre-orientation phase in which teaching practice was carried in the simulated setting. The steady increase in the average intensity indices of experimental group was observed during post-orientation phase whereas, the progress was found in a haphazard pattern in control group. On further analysis it was also found that the progress in average intensity indices of experimental group was better in comparison to control group which is very clear from figure 4.7 and from the average intensity indices of artifacts component of pre-orientation phase and post-orientation phase for experimental group and control group i.e. 3.99 and 3.63 respectively. From this analysis, it can be said that the use of artifacts was found to be more appropriate in experimental group in comparison to control group which may be due to training programme on non-verbal communication.

USE OF POSTURE

The use of posture component of non-verbal communication by experimental group and control group was measured using rating scale varying from most appropriate to most inappropriate which was scored from 5 to 1 respectively. The posture component had three sub-components. The intensity index of each sub-

component was calculated for pre-orientation phase and post-orientation phase. Then the average of intensity indices of these three sub-components of posture was found for pre-orientation phase and post-orientation phase. The average intensity indices of use of posture component by experimental group and control group are shown in table 4.8.

Table 4.8 *Phase-wise and Group-wise Average Intensity Indices (For Rating 5 to 1 for Most Appropriate to Most Inappropriate Respectively) for the Use of Posture Component of Non-Verbal Communication and their Difference*

Phases		Average Intensity Indices of		Difference in Average Intensity Indices
		Experimental Group (II_E)	Control Group (II_C)	(II_E-II_C)
Pre-Orientation Phase		3.17	3.22	-0.15
Post Orientation Phase	Block 1	3.14	3.13	0.01
	Block 2	3.59	3.37	0.22
	Block 3	3.63	3.23	0.40
	Block 4	3.79	3.43	0.36
	Block 5	3.72	3.50	0.20
	Block 6	3.58	3.48	0.10
	Block 7	3.74	3.28	0.46
	Block 8	3.71	3.36	0.35
	Block 9	3.99	3.62	0.37
	Block 10	3.92	3.53	0.39
Average		3.63	3.38	0.25

From table 4.8 it was reflected that average intensity indices of use of posture component of non-verbal communication for experimental group were 3.17, 3.14, 3.59, 3.63, 3.79, 3.2, 3.58, 3.74, 3.71, 3.99, 3.92 for pre-orientation, Block 1, Block 2,

Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. Similarly from the same table it was found that average intensity indices of use of posture component of non-verbal communication for control group were 3.22, 3.13, 337, 3.23, 3.43, 3.50, 3.48, 3.28, 3.36, 3.62, 3.53 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. The differences in the average intensity indices of experimental group and control group were -0.15, 0.01, 0.22, 0.40, 0.36, 0.20, 0.10, 0.46, 0.35, 0.37, 0.39 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. The perusal of the average intensity indices of use of posture component of non-verbal communication of both the groups revealed that the index of both the groups increased gradually over previous blocks. Table 4.8 also indicated that the rate of increase of average intensity indices of posture component over different phases of study seemed to be better in case of experimental group in comparison to the control group. The differences in intensity indices of experimental group and control group were also found positively increasing gradually from pre-orientation phase to post orientation phase. To get a clear picture of improvement of both the groups the comparative graph is given in figure 4.8.

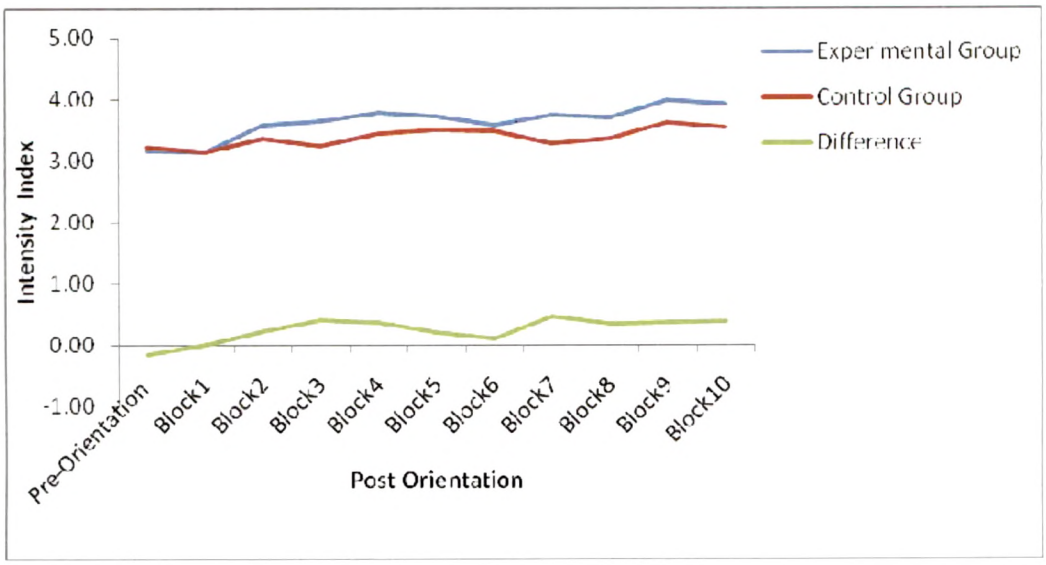

Figure 4.8 *Phase-Wise Average Intensity Indices of Use of Posture Component of Non-Verbal Communication for Experimental Group and Control Group and their Difference*

In figure 4.8, the line in blue shows the average intensity indices of use of posture component of non-verbal communication of experimental group, the line in red indicates the average intensity indices of use of posture component of non-verbal communication of control group and the line in green represents the difference between the average intensity indices of use of posture component of non-verbal communication of experimental group and control group. From the figure 4.8 and table 4.8 it was revealed that the use of posture component of non-verbal communication by control group ($II_C = 3.22$) was slightly better than the experimental group ($II_E = 3.17$) in the pre-orientation phase in which teaching practice was carried in the simulated setting. Despite of that, steady progress in the average intensity indices of experimental group was observed during post-orientation phase whereas, the progress was found in a haphazard pattern in control group. On further analysis it was also found that the progress in average intensity indices of experimental group

was better in comparison to control group which is very clear from figure 4.8 and from the average intensity indices of posture component of pre-orientation phase and post-orientation phase for experimental group and control group i.e. 3.63 and 3.38 respectively. Even intensity indices of experimental group from Block 4 onwards showed the appropriate use of posture by experimental group which also indicated the same result from average intensity indices of pre-orientation and post-orientation phase whereas, in the control group, during most of the blocks the result showed the satisfactory use of posture. From this analysis, it can be said that the use of posture was found to be more appropriate in experimental group in comparison to control group which may be due to training programme on non-verbal communication.

Average Intensity Index of the Use of Non-Verbal Components

In order to study the comparative use of components of non-verbal communication by experimental group and control group, the average intensity indices of each component of non-verbal communication along with the difference in the average intensity indices is presented in table 4.9 and figure 4.9.

Table 4.9 *Component-wise and Group-wise Average Intensity Indices (For Rating 5 to 1 for Most Appropriate to Most Inappropriate Respectively) of Different Components of Non-Verbal Communication*

S.No.	Component	Average Intensity Indices of Experimental Group (II_E)	Control Group (II_C)	Difference in Average Intensity Indices (II_E-II_C)
1.	Oculesics	3.53	3.28	0.25
2.	Paralinguistics	3.79	3.58	0.21
3.	Proxemics	3.87	3.62	0.25
4.	Facial Expressions	3.25	2.97	0.28
5.	Kinesics	3.81	3.64	0.17
6.	Chronemics	3.99	3.49	0.50
7.	Artifacts	3.99	3.63	0.36
8.	Posture	3.63	3.38	0.25

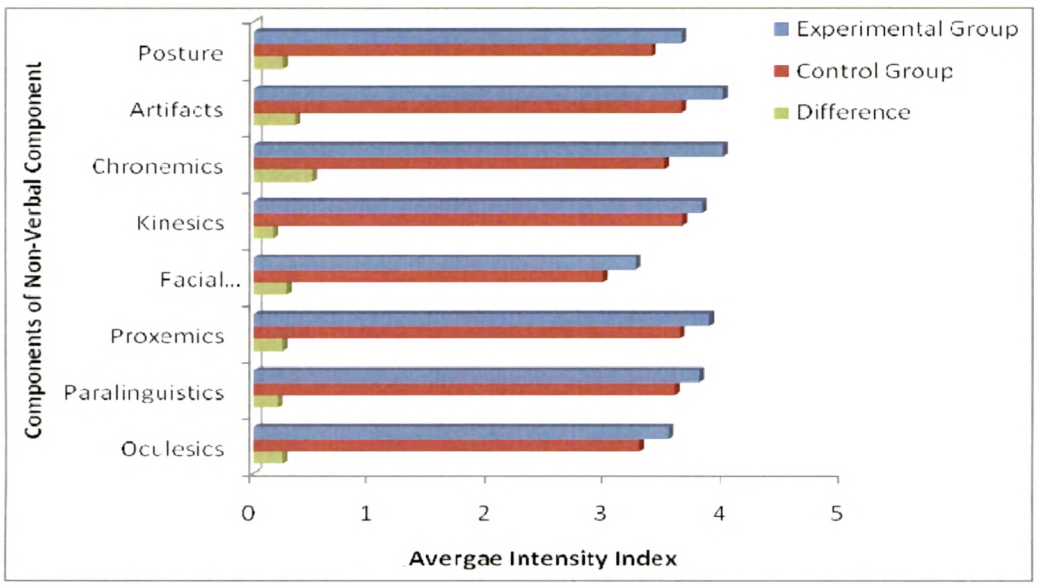

Figure 4.9 *Group-wise Average Intensity Indices of Different Components Non-Verbal Communication*

In figure 4.9, the blue bars represent the average intensity indices of different components of non-verbal communication of experimental group, the red bars represent the average intensity indices of different components of non-verbal communication of control group and the green bars represent the difference in average intensity indices of different components of non-verbal communication of experimental group and control group. Figure 4.9 and table 4.9 showed that the average intensity indices of experimental group is greater than the average intensity indices of control group for all the components of non-verbal communication which indicated that the use of all components of non-verbal communication by experimental group was better than the control group. It was clear from the figure 4.9 that the difference in the average intensity indices of experimental group and control group was highest for the chronemics component followed by artifacts, facial expressions, posture, proxemics, oculesics, paralinguistics and kinesics components of non-verbal communication successively. The differences in average intenisty indices

of experimental group and cotnrol group for all components were found to be positive with higher score in experimental group. It showed the better performance of experimental group in comparison to the control group in terms of the use of non-verbal communication during practice teaching which may be due to the training programme on non-verbal communication. However, this analysis did not reveal that whether the experimental group showed better performance in comparison to control group in terms of the use of non-verbal communication in all stages of teaching i.e. introduction, presentation and revision stage or not. In order to find out the use of non-verbal communication by experimental group and control group in different stages of teaching, stage-wise analysis of non-verbal communication of both the groups was done.

Stage-Wise Use of Non-Verbal Communication of Experimental Group and Control Group

After studying the component-wise use of non-verbal communication of experimental group and control group, use of non-verbal communication of both the groups was studied for the three stages of observation of classroom transaction – (i) Introduction Stage (ii) Presentation Stage (iii) Revision Stage.

USE OF NON-VERBAL COMMUNICATION IN INTRODUCTION STAGE OF TEACHING

The introduction stage was the first stage of teaching. First five to ten minutes of the class when teacher introduced the lesson before starting the actual teaching, was considered as the introduction stage of teaching. The use of non-verbal communication by experimental group and control group in the introduction stage of

teaching was measured using rating scale varying from most appropriate to most inappropriate which was scored from 5 to 1 respectively. The scale had eight components and total 22 sub-components of non-verbal communication. The intensity index of each sub-component was calculated for pre-orientation phase and post-orientation phase. Then the average intensity indices of 22 sub-components of non-verbal communication was found for pre-orientation phase and post-orientation phase for both experimental and control groups. The average intensity indices of use of non-verbal communication by both the groups in the introduction stage of teaching are indicated in table 4.10.

Table 4.10 *Phase-wise and Group-wise Average Intensity Indices (For Rating 5 to 1 for Most Appropriate to Most Inappropriate Respectively) of Non-Verbal Communication and their Difference in the Introduction Stage of Teaching*

Phase		Average Intensity Indices of		Difference in Average Intensity Indices (II_E-II_C)
		Experimental Group (II_E)	Control Group (II_C)	
Pre-Orientation Phase		3.11	3.21	-0.10
Post Orientation Phase	Block 1	3.11	3.00	0.11
	Block 2	3.47	3.47	0.00
	Block 3	3.55	3.36	0.19
	Block 4	3.72	3.54	0.18
	Block 5	3.70	3.56	0.13
	Block 6	3.84	3.53	0.30
	Block 7	3.88	3.54	0.34
	Block 8	3.84	3.50	0.34
	Block 9	3.95	3.60	0.35
	Block 10	4.07	3.53	0.55
Average		3.66	3.44	0.22

From table 4.10 it was evident that the average intensity indices of non-verbal communication in the introduction stage of teaching for experimental group were 3.11, 3.11, 3.47, 3.55, 3.72, 3.70, 3.84, 3.88, 3.84, 3.95, 4.07 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. Similarly the same table indicated that the average intensity indices of non-verbal communication in the introduction stage of teaching for control group were 3.21, 3.00, 3.47, 3.36, 3.54, 3.56, 3.53, 3.54, 3.50, 3.60, 3.53 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. The differences in average intensity indices of experimental group and control group for the introduction stage of teaching indicated in table 4.10 were -0.10, 0.11, 0.00, 0.19, 0.18, 0.13, 0.30, 0.30, 0.34, 0.34, 0.35, 0.55 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively of the introduction stage of teaching. The perusal of the intensity indices of non-verbal communication of both the groups pointed out that the in the introduction stage of teaching, average intensity indices of both the groups increased gradually over previous blocks. Table 4.10 also showed that the rate of increase of non-verbal communication index seemed to be better of experimental group than the control group in the introduction stage of teaching. To get a clear picture of progress of both the groups the comparative graph is given in figure 4.10.

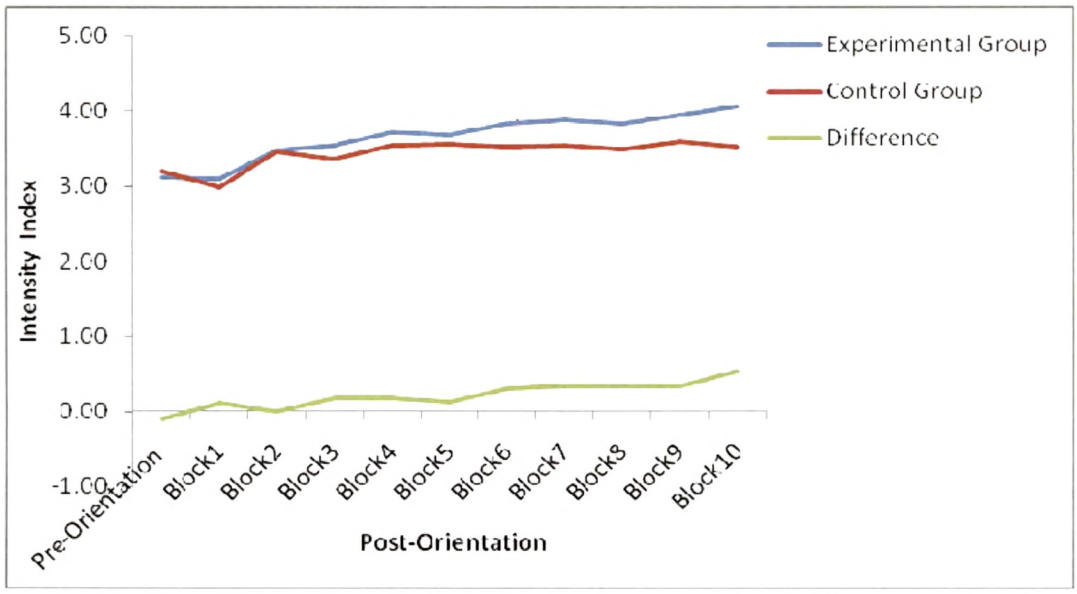

Figure 4.10 *Phase-wise Presentation of Average Intensity Indices of Non-Verbal Communication of Experimental Group and Control Group in the Introduction Stage of Teaching*

In figure 4.10, the line in blue shows the average intensity indices of non-verbal communication of experimental group in the introduction stage over different phases, the line in red indicates the average intensity indices of non-verbal communication indices of control group in the introduction stage over different phases and the line in green represents the difference in average intensity indices of non-verbal communication indices of experimental group and control group. Figure 4.10 and table 4.10 indicated that the use of non-verbal communication in introduction stage by control group (II_C = 3.21) was slightly better than the experimental group (II_E = 3.11) for the pre-orientation phase in which teaching practice was carried in the simulated setting. Despite of that in the introduction stage of teaching, the steady increase in the average intensity indices of experimental group was observed during post-orientation phase whereas, the progress was found in a haphazard pattern in control group. On further analysis it was also found that the

progress in average intensity indices of experimental group was better in comparison to control group which is very clear from figure 4.10 and from the average intensity indices of pre-orientation phase and post-orientation phase for experimental group and control group i.e. 3.66 and 3.44 respectively. Also, the use of non-verbal communication was appropriate from block 4 onwards for experimental group in the introduction stage whereas, the use of non-verbal communication was satisfactory for most of the blocks in the introduction stage of teaching as is reflected from the average intensity indices of pre-orientation phase and post-orientation phase in the introduction stage of teaching. From this analysis, it can be said that the use of non-verbal communication in introduction stage was found to be more appropriate in experimental group in comparison to control group which may be due to impact of training programme on non-verbal communication.

USE OF NON-VERBAL COMMUNICATION IN PRESENTATION STAGE OF TEACHING

After the introduction stage, the next stage of teaching is the presentation stage. This stage starts immediately after the introduction stage and ends with the onset of revision stage. The use of non-verbal communication by experimental group and control group in the presentation stage of teaching was measured using rating scale varying from most appropriate to most inappropriate which was scored from 5 to 1 respectively. The scale had eight components and total 22 sub-components of non-verbal communication. The intensity index of each sub-component was calculated for pre-orientation phase and post-orientation phase. Then the average of intensity indices of 22 sub-components of non-verbal communication was found for

pre-orientation phase and post-orientation phase for both experimental and control groups. The average intensity indices of use of non-verbal communication by both the groups in the presentation stage of teaching are indicated in table 4.11.

Table 4.11 *Phase-wise and Group-wise Average Intensity Indices (For Rating 5 to 1 for Most Appropriate to Most Inappropriate Respectively) of Non-Verbal Communication and their Difference in the Presentation Stage of Teaching*

Phases		Average Intensity Indices of		Difference in Average Intensity Indices
		Experimental Group (II_E)	Control Group (II_C)	(II_E-II_C)
Pre-Orientation Phase		3.07	3.16	-0.09
Post Orientation Phase	Block 1	3.15	3.01	0.14
	Block 2	3.50	3.52	-0.02
	Block 3	3.55	3.49	0.06
	Block 4	3.71	3.52	0.20
	Block 5	3.83	3.63	0.20
	Block 6	3.79	3.55	0.23
	Block 7	3.90	3.49	0.41
	Block 8	4.02	3.54	0.48
	Block 9	4.00	3.65	0.35
	Block 10	4.12	3.59	0.53
Average		3.69	3.47	0.23

From table 4.11 it was observed that intensity indices of non verbal communication in the presentation stage of teaching for experimental group was 3.07, 3.15, 3.50, 3.55, 3.71, 3.83, 3.79, 3.90, 4.02, 4.00, 4.12 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. Similarly the same table indicated that intensity indices of non-verbal

communication in the presentation stage of teaching for control group were 3.16, 3.01, 3.52, 3.49, 3.52, 3.63, 3.55, 3.49, 3.54, 3.65, 3.59 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. The differences in average intensity indices of experimental group and control group indicated in table 4.11 were -0.09, 0.14, -0.02, 0.06, 0.20, 0.20, 0.23, 0.41, 0.48, 0.35, 0.53 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively of the presentation stage of teaching. The perusal of the intensity indices of non-verbal communication of both the groups indicated that the indices of both the groups increased gradually over previous blocks. Table 4.11 also indicated that the rate of increase of average intensity indices of non-verbal communication seemed to be better of experimental group than the control group in the presentation phase. To get a clear picture of improvement of both the groups the comparative line graph is given in figure 4.11.

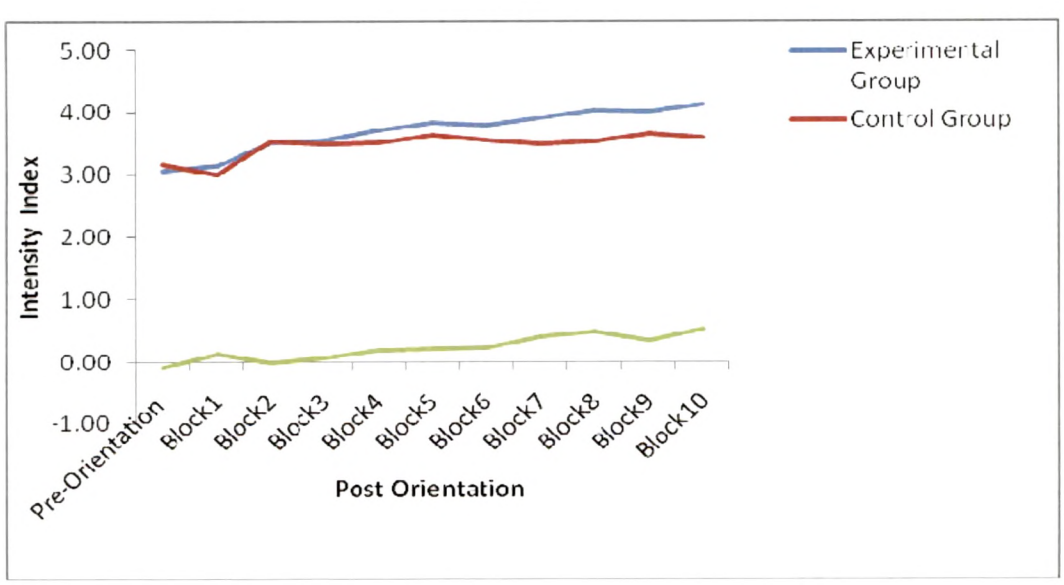

Figure 4.11 *Phase-wise Presentation of Average Intensity Indices of Non-Verbal Communication of Experimental Group and Control Group in the Presentation Stage of Teaching*

In figure 4.11, the line in blue shows the average intensity indices of non-verbal communication indices of experimental group in the presentation stage over different phases, the line in red indicates the average intensity indices of non-verbal communication of control group in the presentation stage over different phases and the line in green represents the difference in average intensity indices of non-verbal communication indices of experimental group and control group. Figure 4.11 and table 4.11 indicated that the use of non-verbal communication in presentation stage by control group ($II_C = 3.16$) was slightly better than the experimental group ($II_E = 3.07$) for the pre-orientation phase in which teaching practice was carried in the simulated setting. Despite of that, the steady increase in the average intensity indices of experimental group was observed during post-orientation phase whereas, the progress was not as steady as experimental group in the presentation stage of teaching in control group. On further analysis it was found that the progress in average intensity indices of experimental group was better in comparison to control group which is very clear from figure 4.10 and from the average intensity indices of pre-orientation phase and post-orientation phase for experimental group and control group i.e. 3.69 and 3.47 respectively which also pointed out that the use of non-verbal communication in the presentation stage of teaching by experimental group was more appropriate than the control group. This may be due to impact of training programme on non-verbal communication.

USE OF NON-VERBAL COMMUNICATION IN REVISION STAGE OF TEACHING

After the presentation stage, the next stage of teaching is the revision stage. While teaching, when the student teacher starts achieving closure by revising and

recapitulating the lesson, it was considered as the revision stage of teaching. The use of non-verbal communication by experimental group and control group in the revision stage of teaching was measured using rating scale varying from most appropriate to most inappropriate which was scored from 5 to 1 respectively. The scale had eight components and total 22 sub-components of non-verbal communication. The intensity index of each sub-component was calculated for pre-orientation phase and post-orientation phase. Then the average of intensity indices of 22 sub-components of non-verbal communication was found for pre-orientation phase and post-orientation phase for both experimental and control groups. The average intensity indices of use of non-verbal communication by both the groups in the revision stage of teaching are indicated in table 4.12.

Table 4.12 *Phase-wise and Group-wise Average Intensity Indices (For Rating 5 to 1 for Most Appropriate to Most Inappropriate Respectively) of Non-Verbal Communication and their Difference in the Revision Stage of Teaching*

Phases		Average Intensity Indices of		Difference in Average Intensity Indices
		Experimental Group (II_E)	Control Group (II_C)	(II_E-II_C)
Pre-Orientation Phase		3.12	3.12	0.00
Post Orientation Phase	Block 1	3.15	3.06	0.09
	Block 2	3.51	3.44	0.07
	Block 3	3.61	3.43	0.18
	Block 4	3.80	3.45	0.35
	Block 5	3.85	3.60	0.15
	Block 6	3.82	3.53	0.29
	Block 7	3.93	3.50	0.43
	Block 8	3.91	3.60	0.31
	Block 9	4.04	3.63	0.41
	Block 10	3.95	3.51	0.45
Average		3.70	3.44	0.26

The table 4.12 it indicated that the average intensity indices of non verbal communication in the revision stage of teaching for experimental group were 3.12, 3.15, 3.51, 3.61, 3.80, 3.85, 3.82, 3.93, 3.91, 4.04, 3.95 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. Similarly the same table revealed that the average intensity indices of non verbal communication in the revision stage of teaching for control group were 3.12, 3.06, 3.44, 3.43, 3.45, 3.6, 3.53, 3.50, 3.60, 3.63, 3.51 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. The differences in average intensity indices of experimental group and control group indicated in table 4.12 were 0.00, 0.09, 0.07, 0.18, 0.35, 0.15, 0.29, 0.43, 0.31, 0.41, 0.45 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively of the revision stage of teaching. The perusal of the average intensity indices of non-verbal communication of both the groups indicated that the indices of both the groups increased gradually over previous Blocks. Table 4.12 also revealed that the rate of increase of average intensity indices of non-verbal communication seemed to be better of experimental group than the control group in the revision stage of teaching. To get a clear picture of improvement of both the groups the comparative graph is given in figure 4.12.

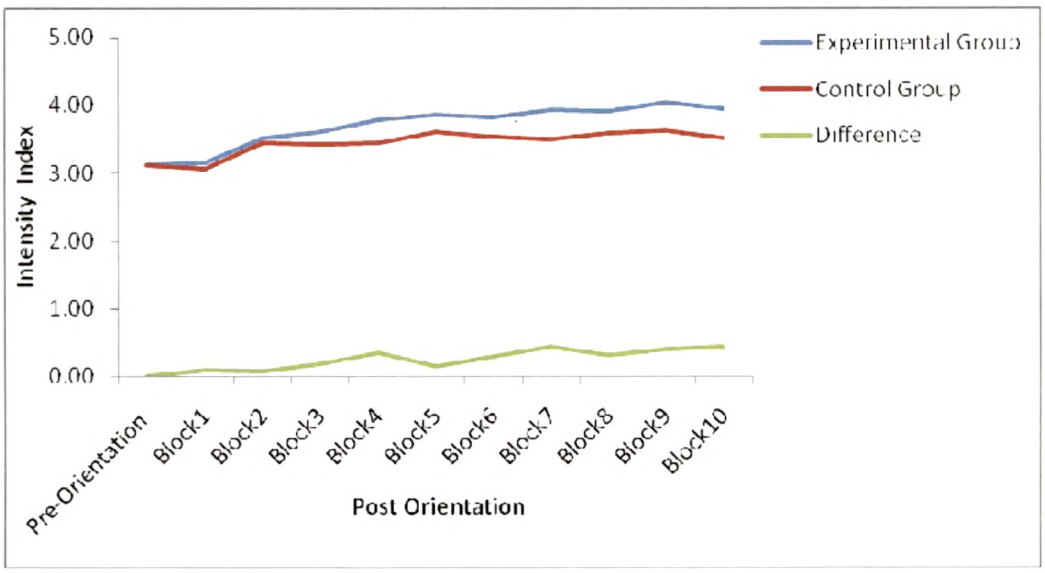

Figure 4.12 *Phase-wise Presentation of Average Intensity Indices of Non-Verbal Communication of Experimental Group and Control Group in the Revision Stage of Teaching*

In figure 4.12, the line in blue shows the average intensity indices of non-verbal communication of experimental group in the revision stage over different phases, the line in red indicates the average intensity indices of non-verbal communication of control group in the revision stage over different phases and the line in green represents the difference in average intensity indices of non-verbal communication of experimental group and control group. Figure 4.12 and table 4.12 revealed that the use of non-verbal communication in revision stage by control group ($II_C = 3.12$) was same as experimental group ($II_E = 3.12$) for the pre-orientation phase in which teaching practice was carried in the simulated setting. The steady increase in the average intensity indices of experimental group was observed during post-orientation phase whereas, the progress was not as steady as experimental group in the revision stage of teaching in control group. On further analysis it was found that the progress in average intensity indices of experimental group was better in comparison

to control group which is very clear from figure 4.12 and from the average intensity indices of pre-orientation phase and post-orientation phase for experimental group and control group i.e. 3.70 and 3.44 respectively which also indicated that the use of non-verbal communication in the revision stage of teaching by experimental group was more appropriate than the control group. This may be due to impact of training programme on non-verbal communication.

Overall Use of Non-Verbal Communication

The overall use of non-verbal communication of experimental group and control group in pre-orientation phase and post-orientation phase was studied. The results are indicated in table 4.13.

Table 4.13 *Phase-wise and Group-wise Average Intensity Indices (For Rating 5 to 1 for Most Appropriate to Most Inappropriate Respectively) of Overall Non-Verbal Communication and their Difference*

Phases		Average Intensity Indices of		Average Difference in Intensity Indices (II_E-II_C)
		Experimental Group (II_E)	Control Group (II_C)	
Pre-Orientation Phase		3.11	3.17	-0.06
Post Orientation Phase	Block 1	3.13	3.02	0.11
	Block 2	3.49	3.30	0.19
	Block 3	3.57	3.43	0.14
	Block 4	3.74	3.51	0.23
	Block 5	3.79	3.60	0.19
	Block 6	3.82	3.54	0.28
	Block 7	3.98	3.51	0.47
	Block 8	3.99	3.55	0.44
	Block 9	3.99	3.67	0.32
	Block 10	4.05	3.55	0.50
Average		3.70	3.44	0.26

It was evident from table 4.13 that the average intensity indices of non-verbal communication for experimental group were 3.11, 3.13, 3.49, 3.57, 3.74, 3.79, 3.82, 3.98, 3.99, 3.99, 4.05 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. Similarly the same table indicated that average intensity indices of non verbal communication for control group were 3.17, 3.02, 3.3, 3.43, 3.51, 3.6, 3.54, 3.51, 3.55, 3.67, 3.55 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. Also, it was found from table 4.12 that the differences in the average intensity indices of experimental group and control group for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 were -0.06, 0.11, 0.19, 0.14, 0.23, 0.19, 0.28, 0.47, 0.44, 0.32, 0.50 respectively. The perusal of the average intensity indices of non verbal communication of both the groups indicated that the indices of both the groups increased gradually over previous blocks. Table 4.13 also revealed that the rate of increase of non verbal communication seemed to be better of experimental group than the control group. To get a clear picture of improvement of both the groups the comparative line graph is given in figure 4.13.

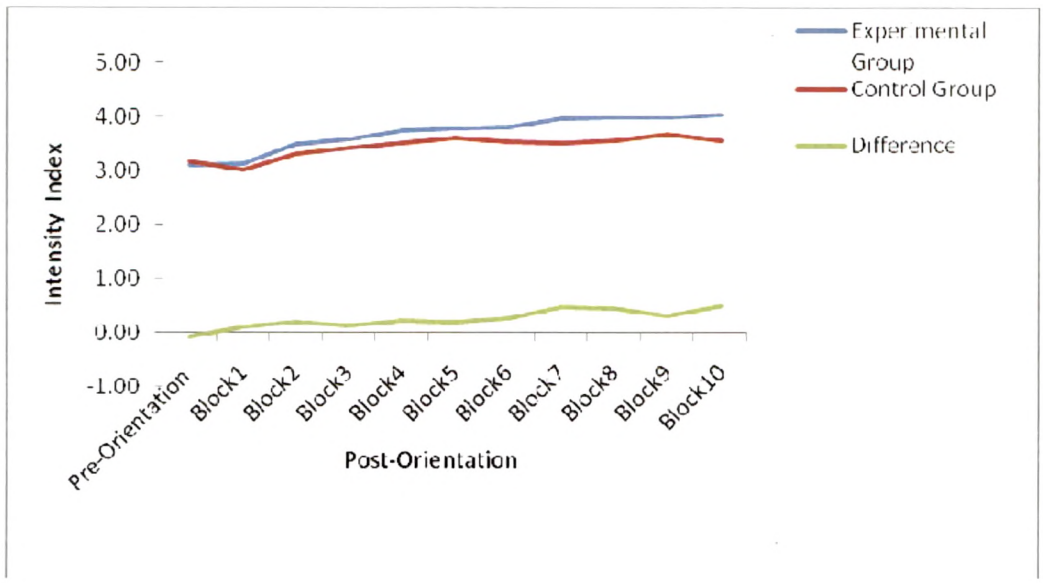

Figure 4.13 *Phase-Wise Presentation of Average Intensity Indices of Experimental Group and Control Group*

In figure 4.13, the line in blue shows the average intensity indices of non-verbal communication of experimental group, the line in red indicates the average intensity indices of non-verbal communication of control group and the line in green represents the difference in average intensity indices of non-verbal communication of experimental group and control group. From the figure 4.13 it was clearly seen that there was increase in the average intensity indices of non verbal communication of both the groups over previous blocks. Comparing both the groups it was observed that experimental group did better in comparison to the control group. Figure 4.13 and table 4.13 revealed that the use of non-verbal communication by control group (II_C = 3.17) was slightly better than experimental group (II_E = 3.12) for the pre-orientation phase in which teaching practice was carried in the simulated setting. Despite of that, the steady increase in the average intensity indices of experimental group was observed during post-orientation phase whereas, in control group the progress was not as steady as experimental group in control group. On further analysis it was found that

the progress in average intensity indices of experimental group was better in comparison to control group which is very clear from figure 4.13 and from the average intensity indices of pre-orientation phase and post-orientation phase for experimental group and control group i.e. 3.70 and 3.44 respectively which also indicated that the use of non-verbal communication by experimental group was more appropriate than the control group. This may be due to training programme on non-verbal communication.

Thus, the analysis in preceeding sections showed that the performance of experimental group was better in comparison to the control group in terms of use of non-verbal communication for all components of non-verbal communication and for all the stages of teaching. After the analysis of non-verbal commumnication of both the groups, the classroom transaction of both the groups was analyzed.

4.2 CLASSROOM TRANSACTION OF EXPERIMENTAL GROUP AND CONTROL GROUP

The classroom transaction of experimental group and control group was analyzed factor-wise and then the significance of difference in the classroom transaction of experimental group and control group was studied. The factor-wise analysis of classroom transaction is presented as follow.

Factor-wise Classroom Transaction of Experimental Group and Control Group

The classroom transaction of experimental group and control group was studied in terms of the following factors – (i) Discipline (ii) Attention of Students (iii) Interaction (iv) Interest of Students (v) Classroom Environment. The results are presented for each factor separately as follow.

MAINTENANCE OF DISCIPLINE DURING CLASSROOM TRANSACTION

The maintenance of discipline by experimental group and control group during classroom transaction was studied from pre-orientation phase to post-orientation phase. The maintenance of discipline by experimental group and control group was measured using rating scale varying from most appropriate to most inappropriate which was scored from 5 to 1 respectively. The intensity index was calculated for pre-orientation phase and post-orientation phase. The average intensity indices of maintenance of discipline by both the groups for pre-orientation phase and post-orientation phase are indicated in table 4.14.

Table 4.14 *Phase-wise and Group-wise Average Intensity Indices (For Rating 5 to 1 for Most Appropriate to Most Inappropriate Respectively) of Maintenance of Discipline during Classroom Transaction*

Phases		Average Intensity Indices of	
		Experimental Group (II_E)	Control Group (II_C)
Pre-Orientation Phase		3.60	3.70
Post Orientation Phase	Block 1	2.90	2.30
	Block 2	3.50	2.90
	Block 3	3.80	2.80
	Block 4	3.90	2.80
	Block 5	4.00	3.30
	Block 6	4.10	3.10
	Block 7	4.20	3.30
	Block 8	4.50	3.70
	Block 9	4.50	3.90
	Block 10	4.70	4.20
Average		3.97	3.30

It was evident from table 4.14 that the average intensity indices of maintenance of discipline for experimental group were 3.60, 2.90, 3.50, 3.80, 3.90, 4.00, 4.10, 4.20, 4.50, 4.50, 4.70 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. Similarly the same table indicated that average intensity indices of maintenance of discipline for control group were 3.70, 2.30, 2.90, 2.80, 2.80, 3.30, 3.10, 3.30, 3.70, 3.90, 4.20 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. The perusal of the average intensity indices of maintenance of discipline by both the groups indicated that the average intensity indices of both the groups increased gradually over previous blocks. Table 4.14 also indicated that the rate of increase of average intensity indices of maintenance of discipline over different phases of study seemed to be better in case of experimental group in comparison to the control group. To get a clear picture of improvement of both the groups the comparative graph is given in figure 4.14.

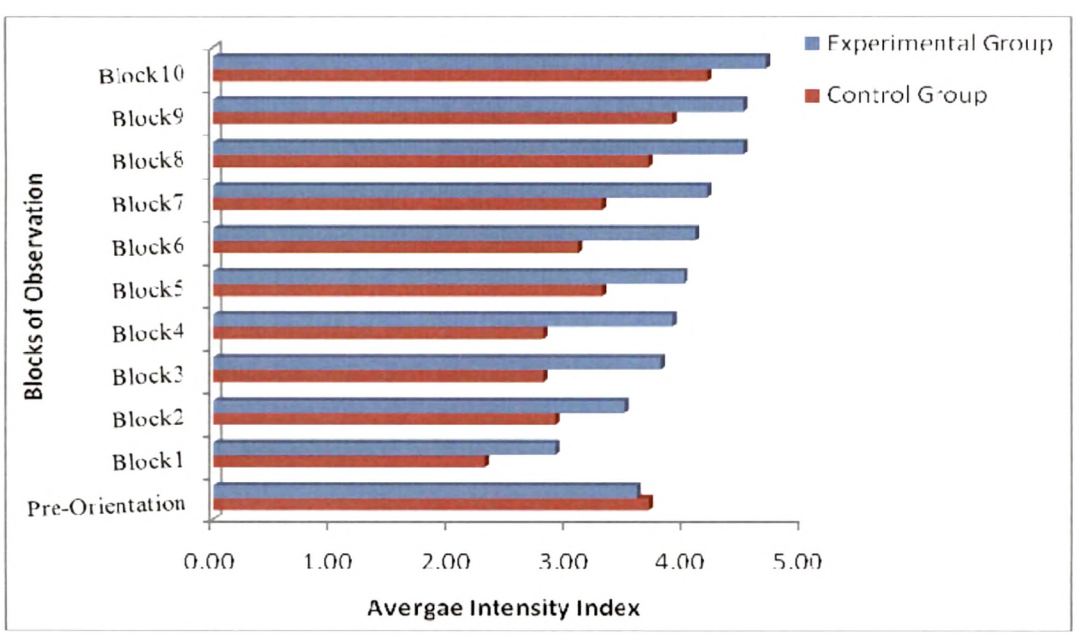

Figure 4.14 *Phase-wise and Group-wise Maintenance of Discipline during Classroom Transaction*

In figure 4.14, the horizontal bars in blue show the average intensity indices of maintenance of discipline by experimental group and the horizontal bars in red indicate the average intensity indices of maintenance of discipline by control group. From the figure 4.14 and table 4.14 it was revealed that the maintenance of discipline by control group (II_C = 3.70) was slightly better than the experimental group (II_E = 3.60) in the pre-orientation phase in which teaching practice was carried in the simulated setting. Despite of that, it was found that the progress in average intensity indices of experimental group was better in comparison to control group which is very clear from figure 4.14 and from the average intensity indices of maintenance of discipline of pre-orientation phase and post-orientation phase for experimental group and control group i.e. 3.97 and 3.30 respectively. Even intensity indices of experimental group from block 2 onwards showed the appropriate of maintenance of discipline by experimental group which also indicated the same result from average intensity indices of pre-orientation and post-orientation phase whereas, in the control group, during most of the blocks the result showed the satisfactory maintenance of discipline. From this analysis, it can be said that the maintenance of discipline was found to be more appropriate in experimental group in comparison to control group which may be due to training programme on non-verbal communication.

ATTENTION OF STUDENTS DURING CLASSROOM TRANSACTION

The attention of students when taught by experimental group and control group during classroom transaction was studied from pre-orientation phase to post-orientation phase. The attention of students when taught by experimental group and control group was measured using rating scale varying from most appropriate to most inappropriate which was scored from 5 to 1 respectively. The intensity index was

calculated for pre-orientation phase and post-orientation phase. The average intensity indices of attention of students when taught by both the groups for pre-orientation phase and post-orientation phase are indicated in table 4.15.

Table 4.15 *Phase-wise and Group-wise Average Intensity Indices (For Rating 5 to 1 for Most Appropriate to Most Inappropriate Respectively) of Attention of Students during Classroom Transaction*

Phases		Average Intensity Indices of	
		Experimental Group (II_E)	Control Group (II_C)
Pre-Orientation Phase		3.50	3.50
Post Orientation Phase	Block 1	3.10	2.40
	Block 2	3.50	2.70
	Block 3	3.40	3.00
	Block 4	3.80	2.80
	Block 5	3.80	2.80
	Block 6	3.90	3.10
	Block 7	4.10	3.20
	Block 8	4.50	3.60
	Block 9	4.50	3.60
	Block 10	4.70	4.10
Average		3.89	3.16

From table 4.15 it is evident that the average intensity indices of attention of students when taught by experimental group were 3.50, 3.10, 3.50, 3.40, 3.80, 3.80, 3.90, 4.10, 4.50, 4.50 and 4.70 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. Similarly the same table indicates that average intensity indices of attention of students when taught by control group were 3.50, 2.40, 2.70, 3.00, 2.80, 2.80, 3.10, 3.20, 3.60, 3.60, 4.10

for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. The perusal of the average intensity indices of attention of students when taught by both the groups indicated that the average intensity indices of both the groups increased gradually over previous blocks. Table 4.15 also indicated that the rate of increase of average intensity indices of attention of students over different phases of study seemed to be better when taught by experimental group in comparison to the control group. To get a clear picture of improvement of both the groups the comparative graph is given in figure 4.15.

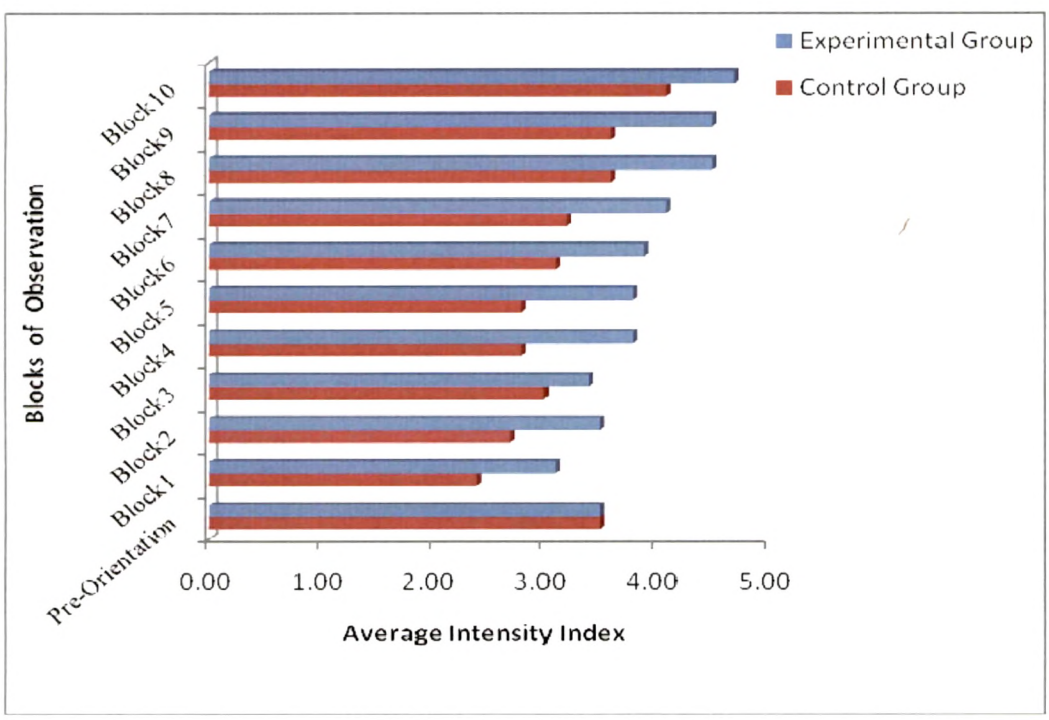

Figure 4.15 *Phase-wise and Group-wise Attention of Students during Classroom Transaction*

In figure 4.15, the horizontal bars in blue show the average intensity indices of attention of students when taught by experimental group and the horizontal bars in red

indicate the average intensity indices of attention of students when taught by control group. From the figure 4.15 and table 4.15 it was revealed that the attention of students when taught by control group (II_C = 3.50) was same as the experimental group (II_E = 3.50) in the pre-orientation phase in which teaching practice was carried in the simulated setting. It was found that the progress in average intensity indices of attention of students when taught by experimental group was better in comparison to control group which is very clear from figure 4.15 and from the average intensity indices of attention of students in pre-orientation phase and post-orientation phase for experimental group and control group i.e. 3.89 and 3.16 respectively. Even intensity indices of experimental group from block 4 onwards showed the appropriate attention of students when taught by experimental group which also indicated the same result from average intensity indices of pre-orientation and post-orientation phase whereas, in the control group, during most of the blocks the result showed the satisfactory attention of students. From this analysis, it can be said that the students were found to be more attentive when taught by experimental group in comparison to control group which may be due to training programme on non-verbal communication.

CLASSROOM INTERACTION DURING CLASSROOM TRANSACTION

The classroom interaction by experimental group and control group during classroom transaction was studied from pre-orientation phase to post-orientation phase. The classroom interaction by experimental group and control group was measured using rating scale varying from most appropriate to most inappropriate which was scored from 5 to 1 respectively. The intensity index was calculated for pre-orientation phase and post-orientation phase. The average intensity indices of

classroom interaction by both the groups for pre-orientation phase and post-orientation phase are indicated in table 4.16.

Table 4.16 *Phase-wise and Group-wise Average Intensity Indices (For Rating 5 to 1 for Most Appropriate to Most Inappropriate Respectively) of Classroom Interaction during Classroom Transaction*

Phases		Average Intensity Indices of	
		Experimental Group (II_E)	Control Group (II_C)
Pre-Orientation Phase		3.30	3.40
Post Orientation Phase	Block 1	3.00	2.70
	Block 2	3.90	3.20
	Block 3	3.90	3.10
	Block 4	3.90	3.20
	Block 5	4.10	3.40
	Block 6	4.20	3.40
	Block 7	4.40	3.70
	Block 8	4.60	3.70
	Block 9	4.70	3.90
	Block 10	4.70	4.40
Average		4.06	3.46

From table 4.16 it is evident that the average intensity indices of classroom interaction by experimental group were 3.30, 3.00, 3.90, 3.90, 3.90, 4.10, 4.20, 4.40, 4.60, 4.70, 4.70 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. Similarly the same table indicates that average intensity indices of classroom interaction by control group were 3.40, 2.70, 3.20, 3.10, 3.20, 3.40, 3.40, 3.70, 3.70, 3.90, 4.40 for pre-orientation,

Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. The perusal of the average intensity indices of classroom interaction by both the groups indicated that the average intensity indices of both the groups increased gradually over previous blocks. Table 4.16 also indicated that the rate of increase of average intensity indices of classroom interaction over different phases of study seemed to be better when taught by experimental group in comparison to the control group. To get a clear picture of improvement of both the groups the comparative graph is given in figure 4.16.

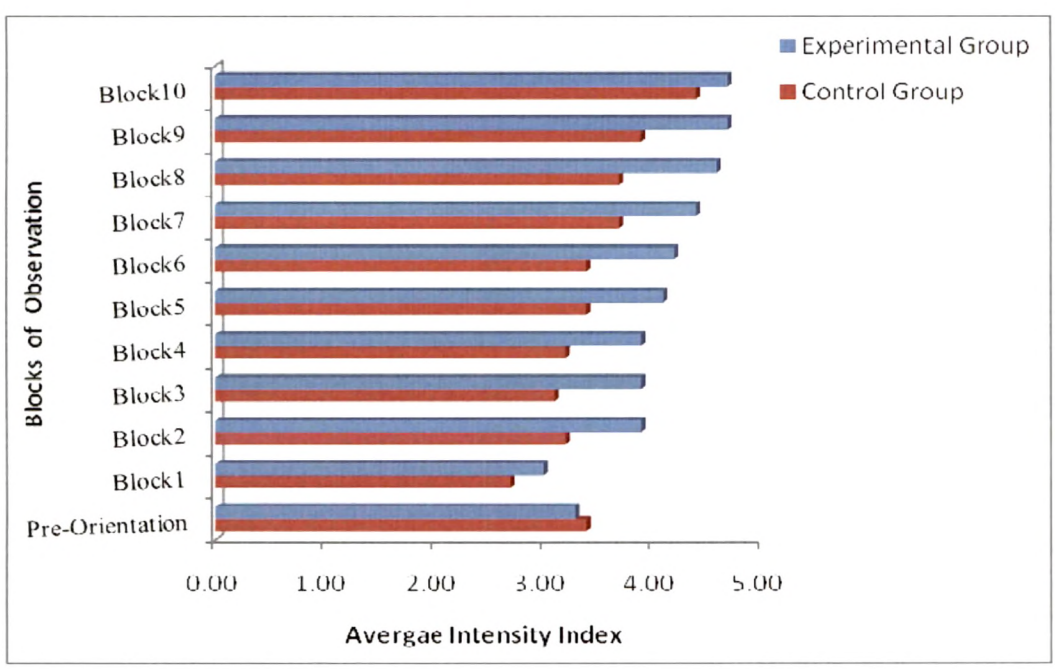

Figure 4.16 *Phase-wise and Group-wise Classroom Interaction during Classroom Transaction*

In figure 4.16, the horizontal bars in blue show the average intensity indices of classroom interaction by experimental group and the horizontal bars in red indicate the average intensity indices of classroom interaction by control group. From the

figure 4.16 it was clearly seen that there was increase in the average intensity indices of classroom interaction by both the groups over previous blocks. From the figure 4.16 and table 4.16 it was revealed that the classroom interaction by control group (II_C = 3.40) was slightly better than the experimental group (II_E = 3.30) in the pre-orientation phase in which teaching practice was carried in the simulated setting. Despite of that, it was found that the progress in average intensity indices of experimental group was better in comparison to control group which is very clear from figure 4.16 and from the average intensity indices of classroom interaction in pre-orientation phase and post-orientation phase for experimental group and control group i.e. 4.06 and 3.46 respectively. Even intensity indices of experimental group from block 2 onwards showed the appropriate classroom interaction by experimental group which also indicated the same result from average intensity indices of pre-orientation and post-orientation phase whereas, in the control group, during most of the blocks the result showed the satisfactory classroom interaction. From this analysis, it can be said that the classroom interaction was found to be more appropriate in experimental group in comparison to control group which may be due to training programme on non-verbal communication.

INTEREST OF STUDENTS DURING CLASSROOM TRANSACTION

The interest of students when taught by experimental group and control group during classroom transaction was studied from pre-orientation phase to post-orientation phase. The interest of students when taught by experimental group and control group was measured using rating scale varying from most appropriate to most inappropriate which was scored from 5 to 1 respectively. The intensity index was calculated for pre-orientation phase and post-orientation phase. The average intensity

indices of interest of students when taught by both the groups for pre-orientation phase and post-orientation phase are indicated in table 4.17.

Table 4.17 *Phase-wise and Group-wise Average Intensity Indices (For Rating 5 to 1 for Most Appropriate to Most Inappropriate Respectively) of Interest of Students during Classroom Transaction*

Phases		Average Intensity Indices of	
		Experimental Group (II_E)	Control Group (II_C)
Pre-Orientation Phase		3.30	3.50
Post Orientation Phase	Block 1	2.90	2.50
	Block 2	3.30	2.60
	Block 3	3.50	2.70
	Block 4	3.60	2.80
	Block 5	3.70	2.70
	Block 6	4.10	2.90
	Block 7	4.10	3.00
	Block 8	4.20	3.40
	Block 9	4.60	3.60
	Block 10	4.70	4.00
Average		3.82	3.06

From table 4.17 it was evident that the average intensity indices of interest of students when taught by experimental group were 3.30, 2.90, 3.30, 3.50, 3.60, 3.70, 4.10, 4.10, 4.20, 4.60, 4.70 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. Similarly the same table indicates that average intensity indices of interest of students when taught by control group were 3.50, 2.50, 2.60, 2.70, 2.80, 2.70, 2.90, 3.00, 3.40, 3.60, 4.00 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7,

Block 8, Block 9 and Block 10 respectively. The perusal of the average intensity indices of interest of students when taught by both the groups indicated that the average intensity indices of both the groups increased gradually over previous blocks. Table 4.17 also indicated that the rate of increase of average intensity indices of interest of students over different phases of study seemed to be better when taught by experimental group in comparison to the control group. To get a clear picture of improvement of both the groups the comparative graph is given in figure 4.17.

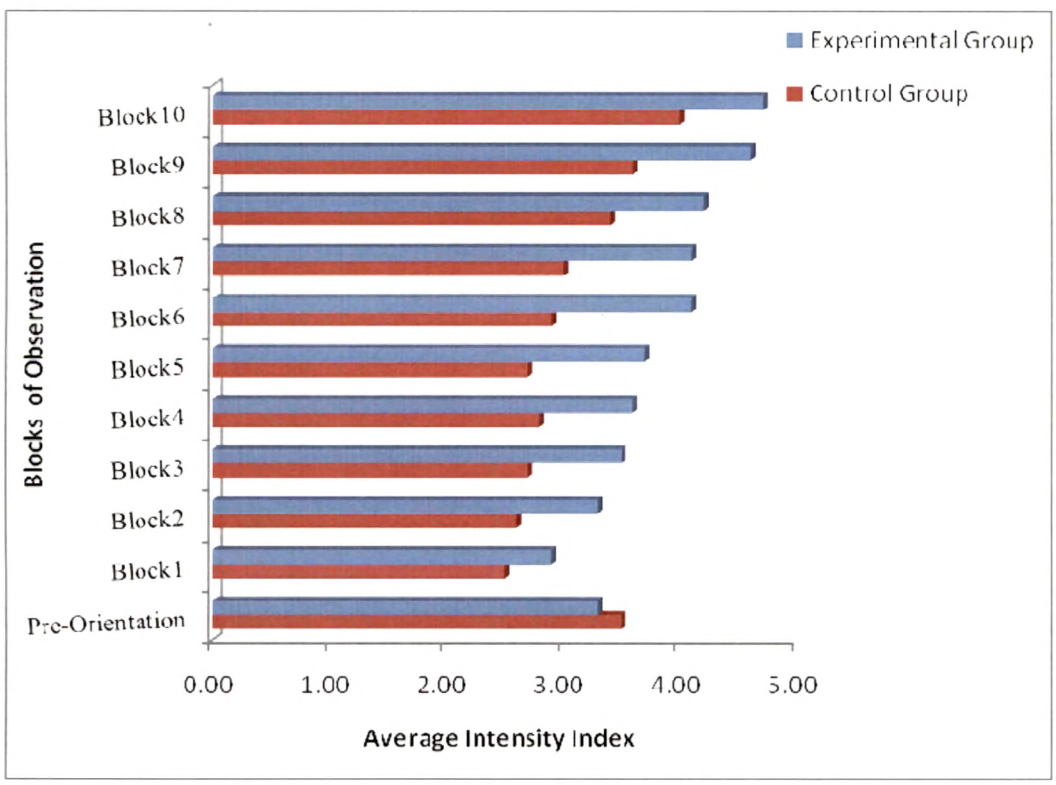

Figure 4.17 *Phase-wise and Group-wise Interest of Students during Classroom Transaction*

In figure 4.17, the horizontal bars in blue show the average intensity indices of interest of students when taught by experimental group and the horizontal bars in red indicate the average intensity indices of interest of students when taught by control

group From the figure 4.17 it was clearly seen that there was increase in the average intensity indices of interest of students when taught by both the groups over previous blocks. From the figure 4.17 and table 4.17 it was revealed that the interest of students when taught by control group (II_C = 3.50) was better than the experimental group (II_E = 3.30) in the pre-orientation phase in which teaching practice was carried in the simulated setting. Despite of that, it was found that the progress in average intensity indices of experimental group was better in comparison to control group which is very clear from figure 4.17 and from the average intensity indices of interest of students in pre-orientation phase and post-orientation phase for experimental group and control group i.e. 3.82 and 3.06 respectively. Even intensity indices of experimental group from block 3 onwards showed that the students were more interested during classroom transaction when taught by experimental group which also indicated the same result from average intensity indices of pre-orientation and post-orientation phase whereas, in the control group, during most of the blocks the result showed the satisfactory interest of students. From this analysis, it can be said that the students were found to be more interested when taught by experimental group in comparison to control group which may be due to training programme on non-verbal communication.

CLASSROOM ENVIRONMENT DURING CLASSROOM TRANSACTION

The classroom environment during classroom transaction by experimental group and control group was studied from pre-orientation phase to post-orientation phase. The classroom environment during classroom transaction by experimental group and control group was measured using rating scale varying from most appropriate to most inappropriate which was scored from 5 to 1 respectively. The

intensity index was calculated for pre-orientation phase and post-orientation phase. The average intensity indices of classroom environment during classroom transaction by both the groups for pre-orientation phase and post-orientation phase are indicated in table 4.18.

Table 4.18 *Phase-wise and Group-wise Average Intensity Indices (For Rating 5 to 1 for Most Appropriate to Most Inappropriate Respectively) of Classroom Environment during Classroom Transaction*

Phases		Average Intensity Indices of	
		Experimental Group (II_E)	Control Group (II_C)
Pre-Orientation Phase		3.30	3.50
Post Orientation Phase	Block 1	2.90	2.10
	Block 2	3.30	2.70
	Block 3	3.50	2.70
	Block 4	3.70	2.60
	Block 5	3.50	2.90
	Block 6	4.20	2.80
	Block 7	4.00	2.90
	Block 8	4.30	3.20
	Block 9	4.50	3.50
	Block 10	4.60	3.90
Average		3.80	2.98

From table 4.18 it was evident that the average intensity indices of classroom environment during classroom transaction by experimental group were 3.30, 2.90, 3.30, 3.50, 3.70, 3.50, 4.20, 4.00, 4.30, 4.50, 4.60 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. Similarly the same table indicates that average intensity indices

of classroom environment during classroom transaction by control group were 3.50, 2.10, 2.70, 2.70, 2.60, 2.90, 2.80, 2.90, 3.20, 3.50, 3.90 for pre-orientation, Block 1, Block 2, Block 3, Block 4, Block 5, Block 6, Block 7, Block 8, Block 9 and Block 10 respectively. The perusal of the average intensity indices of classroom environment during classroom transaction by both the groups indicated that the average intensity indices of both the groups increased gradually over previous blocks. Table 4.19 also indicated that the rate of increase of average intensity indices of classroom environment over different phases of study seemed to be better when taught by experimental group in comparison to the control group. To get a clear picture of improvement of both the groups the comparative graph is given in figure 4.18.

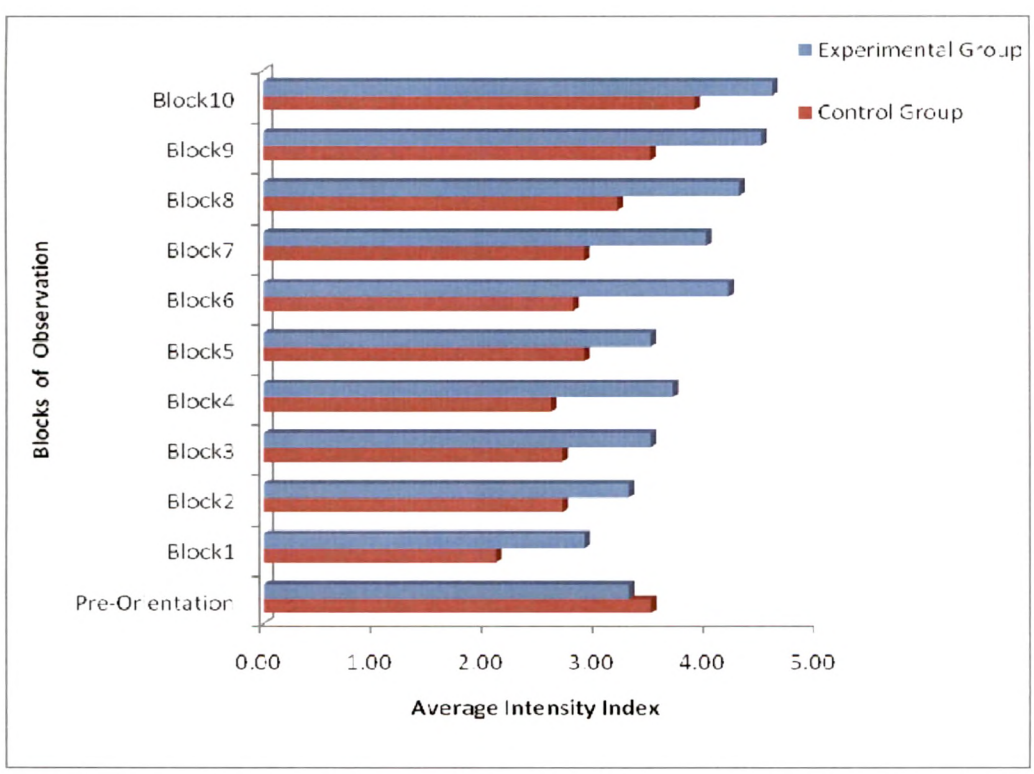

Figure 4.18 *Phase-wise and Group-wise Classroom Environment during Classroom Transaction*

In figure 4.18, the horizontal bars in blue show the average intensity indices of classroom environment during classroom transaction by experimental group and the horizontal bars in red indicate the average intensity indices of classroom environment during classroom transaction by control group From the figure 4.18 and table 4.18 it was revealed that the classroom environment during classroom transaction by control group ($II_C = 3.50$) was better than the experimental group ($II_E = 3.30$) in the pre-orientation phase in which teaching practice was carried in the simulated setting. Despite of that, it was observed that the progress in average intensity indices of experimental group was better in comparison to control group which is very clear from figure 4.18 and from the average intensity classroom environment in pre-orientation phase and post-orientation phase for experimental group and control group i.e. 3.80 and 2.98 respectively. Even intensity indices of experimental group from block 3 onwards showed that the classroom environment was better by experimental group which also indicated the same result from average intensity indices of pre-orientation and post-orientation phase whereas, in the control group, during most of the blocks the result showed the satisfactory classroom environment of students. From this analysis, it can be said that the classroom environment was found to be more appropriate during classroom transaction by experimental group in comparison to control group which may be due to training programme on non-verbal communication.

Comparative Change in Classroom Transaction of Experimental Group and Control Group

The comparative change in classroom transaction by experimental group and control group was studied from pre-orientation phase to post-orientation phase. The results are presented in table 4.19.

Table 4.19 *Average Intensity Indices (For Rating 5 to 1 for Most Appropriate to Most Inappropriate Respectively) of Classroom Transaction by Experimental Group and Control Group*

S.No.	Factor	Average Intensity Indices of Experimental Group (II_E)	Control Group (II_C)
1.	Discipline	3.97	3.30
2.	Attention of Students	3.89	3.16
3.	Classroom Interaction	4.06	3.46
4.	Interest of Students	3.82	3.06
5.	Classroom Environment	3.80	2.98
	Average	3.91	3.19

It was indicated from table 4.19 that the average intensity indices for maintenance of discipline, attention of students, classroom interaction, interest of students and classroom environment were 3.97, 3.89, 4.06, 3.82 and 3.80 respectively for classroom transaction by experimental group and the average intensity indices for maintenance of discipline, attention of students, classroom interaction, interest of students and classroom environment were 3.30, 3.16, 3.46, 3.06 and 2.98 respectively

for classroom transaction by control group. The average of these indices was 3.91 for experimental group and was 3.19 for control group. The average difference in average intensity indices of experimental group and control group was 0.72. The table also reflected that the average intensity indices for all the factors of classroom transaction were more than the average intensity indices of classroom transaction for control group. Figure 4.19 revealed the clear picture of the comparative change in classroom transaction by experimental group and control group.

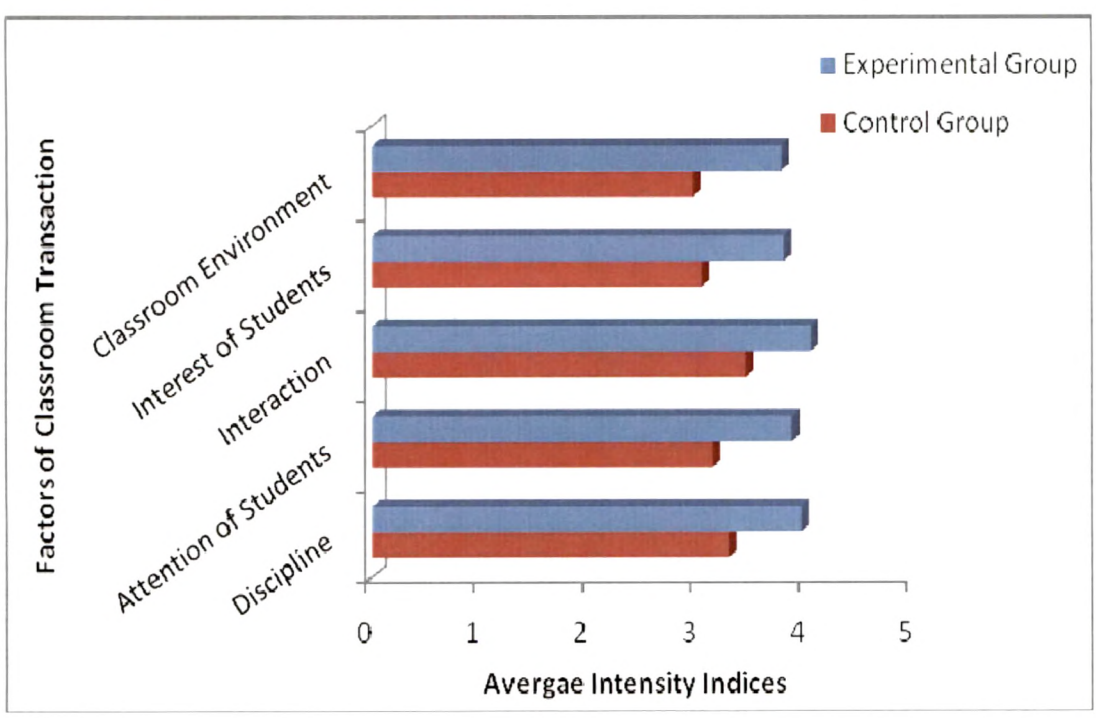

Figure 4.19 Average Intensity Indices of Factors of Classroom Transaction of Experimental Group and Control Group

The blue bars in the figure 4.19 represent the average intensity indices of factors of classroom transaction by experimental group and the red bars represent the average intensity indices of factors of classroom transaction by experimental group. It

was observed from figure 4.19 that the classroom transaction by experimental group was better than the classroom transaction by control group. However, it cannot be concluded from this analysis that whether the difference in classroom transaction of experimental group and control group was significant. In order to know the significance of difference in classroom transaction by experimental group and control group, statistical technique was used.

Significance of Difference in Classroom Transaction by Experimental Group And Control Group

The significance of difference in classroom transaction by experimental group and control group was determined by non-parametric statistic, Mann-Whitney U- test. The non-parametric statistic was used for this analysis as the assumptions of parametric statistic did not match for the present data. Hence, in order to know whether the difference in the classroom transaction by experimental group and control group was significant or not, Mann-Whitney U-test was used. The variables and their values calculated for this test are shown in table 4.20.

Table 4.20 *Group-wise Total Number of Scores (N), Sum of Ranks (R) and Obtained Value of Mann-Whitney Coefficient (U_{obt}) for Classroom Transaction*

Group	Total Number of Scores *(N)*	Sum of Ranks *(R)*	Mann-Whitney Coefficient *(U_{obt})*
Experimental Group	10	137	18*
Control Group	10	73	
Total	20		

* Significant at 0.05 level

It was observed from table 4.20 that the obtained value of Mann-Whitney Coefficient U is 18. The value is significant for classroom transaction of total number of student-teachers of experimental group (ten) and total number of student-teachers of control group (ten), at 0.05 level of significance. Thus it can be said that the difference between experimental group and control group in terms of classroom transaction was found to be significant. It is also reflected from table 4.20 that the sum of ranks of classroom transaction of experimental group is much greater than the control group for classroom transaction. This indicated that the classroom transaction of experimental group is much better than the classroom transaction of control group. The better classroom transaction of experimental group in comparison to control group may be due to better use of non-verbal communication by experimental group than the control group which in turn may be due to training programme on non-verbal communication.

Reaction of Experimental Group Towards Training Programme

The reaction of B.Ed. student teachers of experimental group was studied to know their reactions towards the training programme on non-verbal communication. The results are shown in the form of intensity index of ratings of each item of the reaction scale in the table 4.21.

Table 4.21 *Average Intensity Indices (For Rating 5 to 1 for Strongly Agree to Strongly Disagree Respectively) of Reaction of Experimental Group Towards Training Programme on Non-Verbal Communication for 25 Items of Reaction Scale*

S.No.	Items	SA	A	N	D	SD	Average Intensity Indices
1	Created awareness of non-verbal skills which were unknown to you.	6	4	0	0	0	4.6
2	Helped you in better Classroom Management	6	4	0	0	0	4.6
3	Brought positive specific changes in you.	2	8	0	0	0	4.2
4	Transformed in you the use of these skills as your second nature.	0	8	2	0	0	3.8
5	Convinced you to use all the non-verbal skills.	3	6	1	1	0	4.1
6	Convinced you to still refine these skills.	4	5	1	0	0	4.3
7	Helped you to perfect the use of non-verbal skills already known to you.	5	4	1	0	0	4.4
8	Helped you to get more time for instruction when you use non-verbal skills.	2	7	1	0	0	4.1
9	Helped you to stay away from non-verbal cues that can hinder learning.	3	5	2	0	0	4.1
10	Improved your ability to deal with difficult students.	5	4	1	0	0	4.4
11	Helped you to make teaching more lively.	4	5	1	0	0	4.3
12	Improved your communication skills.	5	5	0	0	0	4.5
13	Enabled you to interpret non-verbal behaviour of students.	3	4	3	0	0	4.0
14	Made you feel more teacher responsibility.	2	6	2	0	0	4.0
15	Helped you to make teaching more student-centered.	4	5	1	0	0	4.3
16	Increased awareness of your effect on students.	2	6	2	0	0	4.0
17	Enabled you to improve relationship with students in the classroom.	4	5	1	0	0	4.3
18	Made you better teacher.	6	4	0	0	0	4.6
19	Helped you to encourage student participation.	4	5	1	0	0	4.3
20	Enabled you to be better receiver of non-verbal cues sent by students.	1	7	2	0	0	3.9
21	Enabled you to make teaching-learning process more structured.	2	3	3	2	0	3.5
22	Enabled you to make learning a joyful experience.	5	4	1	0	0	4.4
23	Enabled you to send positive non-verbal messages assisting in instructional reinforcement.	3	5	2	0	0	4.1
24	Enabled you to catch attention of learners.	3	6	1	0	0	4.2
25	Enabled you to check inattentive learners.	6	3	1	0	0	4.5
	Over all Reaction	3.6	5.1	1.2	0.1	0	4.2

Table 4.21 represented 25 items of reaction scale used in the present study to measure the reaction of student teachers of experimental group towards training programme on non-verbal communication. The same table also showed the intensity indices of reactions of experimental group for each item of the reaction scale. It was revealed from the table that the intensity index for all items was above 3. The statement-wise analysis of reaction scale as observed from table 4.21 is as follow.

1. The reaction against the statement – 'Created awareness of non verbal skills which were unknown to you' showed that six students strongly agreed and four students agreed to this statement. The average intensity indices also indicated that students showed more than agreeing reaction for this statement which shows the positive and high reaction for this statement.
2. It was observed from the reaction against the statement – 'Helped you in better Classroom Management' that six students strongly agreed and four students agreed to this statement. The average intensity indices also indicated that students showed more than agreeing reaction for this statement which shows the positive and high reaction for this statement.
3. The reaction against the statement – 'Brought positive specific changes in you' indicated that two students strongly agreed and eight students agreed to this statement. It was evident from the average intensity indices also that, students showed more than agreeing reaction for this statement which shows the positive and high reaction for this statement.
4. The reaction against the statement – 'Transformed in you the use of these skills as your second nature' reflected that eight students agreed and two students were neutral to this statement. The average intensity indices also indicated that students

showed more than agreeing reaction for this statement which shows the positive reaction for this statement.

5. It was found from the reaction against the statement – 'Convinced you to use all the non verbal skills' that three students strongly agreed, six students agreed and one student was neutral to this statement. The average intensity indices also indicated that students showed more than agreeing reaction for this statement which shows the positive high reaction for this statement.
6. The reaction against the statement – 'Convinced you to still refine these skills' showed that four students strongly agreed, five students agreed and one student was neutral to this statement. The average intensity indices also indicated that students showed more than agreeing reaction for this statement which shows the positive and high reaction for this statement.
7. The reaction against the statement – 'Helped you to perfect the use of non verbal skills already known to you' revealed that five students strongly agreed, four students agreed and one student was neutral to this statement. The average intensity indices also indicated that students showed more than agreeing reaction for this statement which shows the positive and high reaction for this statement.
8. It was observed from the reaction against the statement – 'Helped you to get more time for instruction when you use non verbal skills' that two students strongly agreed, seven students agreed and one student was neutral to this statement. The average intensity indices also indicated that students showed more than agreeing reaction for this statement which shows the positive and high reaction for this statement.
9. The reaction against the statement – 'Helped you to stay away from non verbal cues that can hinder learning' revealed that three students strongly agreed, five

students agreed and two students were neutral to this statement. The average intensity indices also reflected that students showed more than agreeing reaction for this statement which shows the positive reaction for this statement.

10. The reaction against the statement – 'Improved your ability to deal with difficult students' point out that five students strongly agreed, four students agreed and one student was neutral to this statement. Also, the average intensity indices indicated that students showed more than agreeing reaction for this statement which shows the positive and high reaction for this statement.
11. It was found from the reaction against the statement – 'Helped you to make teaching more lively' that four students strongly agreed, five students agreed and one students were neutral to this statement. The average intensity indices also reflected that students showed more than agreeing reaction for this statement which shows the positive and high reaction for this statement.
12. The reaction against the statement – 'Improved your communication skills' showed that five students strongly agreed and five students agreed to this statement. It was also evident from the average intensity indices that students showed more than agreeing reaction for this statement which shows the positive and high reaction for this statement.
13. It was observed from the reaction against the statement – 'Enabled you to interpret non-verbal behaviour of students' that three students strongly agreed, four students agreed and three students were neutral to this statement. The average intensity indices also indicated that students showed more than agreeing reaction for this statement which shows the positive reaction for this statement.
14. The reaction against the statement – 'Made you feel more teacher responsibility' showed that two students strongly agreed, six students agreed and two were neutral

to this statement. The average intensity indices also indicated that students showed more than agreeing reaction for this statement which shows the positive and high reaction for this statement.

15. The reaction against the statement – 'Helped you to make teaching more student-centered' showed that four students strongly agreed, five students agreed and one student was neural to this statement. The average intensity indices also reflected that students showed more than agreeing reaction for this statement which shows the positive and high reaction for this statement.
16. The reaction against the statement – 'Increased awareness of your effect on students' showed that two students strongly agreed, six students agreed and two students were neutral to this statement. The average intensity indices also indicated that students showed more than agreeing reaction for this statement which shows the positive reaction for this statement.
17. The reaction against the statement – 'Enabled you to improve relationship with students in the classroom' showed that four students strongly agreed, five students agreed and one student was neutral to this statement. The average intensity indices also indicated that students showed more than agreeing reaction for this statement which shows the positive and high reaction for this statement.
18. The reaction against the statement – 'Made you better teacher' showed that six students strongly agreed and four students agreed to this statement. It was also clear from the average intensity indices that students showed more than agreeing reaction for this statement which shows the positive and high reaction for this statement.
19. It was observed from the reaction against the statement – 'Helped you to encourage student participation' that four students strongly agreed, five students

agreed and one was neutral to this statement. The average intensity indices also indicated that students showed more than agreeing reaction for this statement. which shows the positive and high reaction for this statement.

20. The reaction against the statement – 'Enabled you to be better receiver of non verbal cues sent by students' showed that one student strongly agreed and seven students agreed and two students were neutral to this statement. The average intensity indices also indicated that students showed more than agreeing reaction for this statement which shows the positive reaction for this statement.
21. It was found from the reaction against the statement – 'Enabled you to make teaching-learning process more structured' that two students strongly agreed, three students agreed, three students were neutral and two students disagreed to this statement. The average intensity indices also indicated that students showed more than agreeing reaction for this statement which shows the positive reaction for this statement.
22. The reaction against the statement – 'Enabled you to make learning a joyful experience' showed that five students strongly agreed, four students agreed and one student was neutral to this statement. The average intensity indices also reflected that students showed more than agreeing reaction for this statement which shows the positive and high reaction for this statement.
23. It was clear from the reaction against the statement – 'Enabled you to send positive nonverbal messages assisting in instructional reinforcement' that three students strongly agreed, five students agreed and two students were neutral to this statement. The average intensity indices also indicated that students showed more than agreeing reaction for this statement which shows the positive and high reaction for this statement.

24. The reaction against the statement – 'Enabled you to catch attention of learners' showed that three students strongly agreed, six students agreed and one student was neutral to this statement. The average intensity indices also indicated that students showed more than agreeing reaction for this statement which shows the positive and high reaction for this statement.
25. The reaction against the statement – 'Enabled you to check inattentive learners' showed that six students strongly agreed, three students agreed and one student was neutral to this statement. The average intensity indices also indicated that students showed more than agreeing reaction for this statement which shows the positive and high reaction for this statement.

It can be observed from the above analysis that out of 25 statements, for all the statements reaction was found to be more than agreeing (as reflected from overall reaction) which showed the experimental group had positive reaction towards training programme which also indicated effectiveness of training programme on non-verbal communication.

4.4 Major Findings of the Study

On the basis of the analysis and interpretation of the data the major findings drawn for the present study are presented as follow.

1. The components of non-verbal communication used in classroom teaching as identified by literature review and observation of class room interaction of secondary school teachers were kinesics, facial expressions, proxemics, chronemics, paralinguistics, posture, artifacts and oculesics.

2. The findings related to non-verbal communication of the experimental group and the control group as observed in the present study indicated the following points.

   (i) The use of non-verbal communication for classroom transaction by experimental group was better in comparison to control group for all the components of non-verbal communication.

   (ii) The use of non-verbal communication for classroom transaction by experimental group was better in comparison to control group in all the stages of teaching i.e., introduction stage, presentation stage and revision stage.

3. The results also indicated that the classroom transaction of experimental group was significantly better in comparison to control group in terms of maintenance of discipline, interest and attention of students, classroom interaction and classroom environment.

4. The reaction of the student-teachers of experimental group on the training programme of non-verbal communication, revealed that the programme on non-verbal communication helped them

   - for better classroom management,
   - to get more time for instruction by using non verbal skills,
   - to stay away from non verbal cues that can hinder learning,
   - to make teaching more lively,
   - to interpret non-verbal behaviour of students,
   - to make teaching more student-centered,
   - to improve relationship with students in the classroom,
   - to make learning an joyful experience,

- to be better receiver of non verbal cues sent by students,
- to encourage student participation,
- to send positive nonverbal messages assisting in instructional reinforcement,
- to catch attention of learners,
- to check inattentive learners

The student-teachers of experimental group also reported that the programme on non-verbal communication created awareness of non verbal skills which were unknown to them, convinced them to still refine those skills, improved their ability to deal with difficult students, improved their communication skills, and increased awareness of their effect on students.

Thus, it was interpreted from the findings of the study that the use of non-verbal communication by experimental group was better than the control group for all the components of non-verbal communication and for all the stages of teaching. The findings related to classroom transaction revealed that the classroom transaction by experimental group was better than the classroom transaction by control group. The difference in the classroom transaction of experimental group and control group was found to be statistically significant and the classroom transaction of experimental group was better than the control group. Also, the student-teachers of experimental group revealed in their reactions towards training programme that the training programme on non-verbal communication helped them to improve their classroom transaction. These findings are discussed in chapter V.