

CHAPTER-IV

ANALYSIS OF THE DATA:
CHANGE IN TEACHER BEHAVIOURCONTENTS

- IV.1 Introduction
- IV.2 Change in I/D ratio
- IV.3 Change in i/d ratio
- IV.4 Change in categories 1 to 10
- IV.5 Effect of Feedback on category-1
- IV.6 Effect of Feedback on category-2
- IV.7 Effect of Feedback on category-3
- IV.8 Effect of Feedback on category-4
- IV.9 Effect of Feedback on category-5
- IV.10 Effect of Feedback on category-8
- IV.11 Effect of Feedback on category-9
- IV.12 Effect of Feedback on pupils' participation
- IV.13 Effect of Feedback on cells 4-4, 5-5, 8-8, and 9-9
- IV.14 Change in categories at an interval of five observations
- IV.15 Change in categories- Teacherwise

CHAPTER IV

ANALYSIS OF THE DATA:

CHANGE IN TEACHER BEHAVIOUR

IV.1 INTRODUCTION

In the previous chapter plan, procedure and tools used in this study were discussed in detail.

This chapter deals with the teacher behaviour. Class-room in a school, as a unit of interaction amongst pupils, and between the teacher and pupils, plays an important role in the growth of a child. Several methods have been devised to study teacher behaviour in the class-room more systematically.

Techniques for analysing class-room interaction are based on the notion that these reciprocal contacts between the teacher and the pupil can be perceived as a series of events which occur one after another. It means that the event of the moment influences the event to follow. The influencing event of the present moment was influenced by the preceding event.

The purposes of the interaction analysis of the teacher behaviour are as follows:

- (1) To study teaching behaviour by events that occur during class-room interaction.
- (2) To help an individual teacher to develop and control his teaching behaviour.
- (3) To discover through research how to explain the variations which occur in the chain of class-room events.

For pursuing the above mentioned purposes collection of data for teacher behaviour is extremely necessary.

In this experimental study the data pertaining to teacher behaviour was collected in the following manner.

There were two groups of teachers. One group of teachers was entrusted with the experimental group classes. They were five in number consisting of three male and two female teachers. The second group of teachers was entrusted with the control group classes. Such teachers were two in number consisting

of one male and one female teacher.

The class-room interaction training was given to only experimental group teachers and no such training was given to control group teachers.

The data for teacher behaviour was collected in two phases: (1) Before training which is known as pre-observation data. (2) After training which is known as post-observation data. In case of the control group of teachers no training was given. The same number of observations were made for both the groups.

In pre-observation data all the seven teachers of both the groups were observed five times. Each observation was of twenty minutes duration.

In post-observation data all the teachers were observed, for twenty five times having twenty minutes' duration for each observation. The observation of the experimental group teachers was made after their training.

The data so collected was tabulated in the form of 10x10 percentage matrices. The data was then

analysed in the following manner.

- I Mean and SD of I/D ratio ($I/D = \text{category } \frac{1+2+3+4}{5+6+7}$) of pre and post observations of teachers of both the groups and t-values were calculated.
- II Mean and SD of i/d ratio ($i/d = \text{category } \frac{1+2+3}{6+7}$) of pre and post observations of teachers of both the groups and t-values were calculated.
- III Average percentages of 1 to 10 categories of pre and post observations of teachers of both the groups were calculated.
- IV Average percentages of preceding and succeeding events of pre and post observations of categories (i.e. 1 to 5 and 8,9) of teachers of both the groups were calculated.
- V Average percentages of categories 1,2,3 (feedback) in relation to categories 8,9 (pupils participation) of pre and post observations of teachers of both the groups were calculated.
- VI Average percentages of relationships of events between cells 4-4, 5-5, 8-8, 9-9, of pre and post observations of teachers of both the groups were calculated.
- VII Average percentages of all the categories (i.e. 1 to 10) of teachers of both the groups at an interval of five post observations (i.e. observations 1 to 5, 6 to 10, 11 to 15, 16 to 20, and 21 to 25) were calculated.

VIII Average percentages of all the categories (i.e. 1 to 10) of pre and post observations of an individual teacher of both the groups were calculated.

IV.2 THE CHANGE IN I/D RATIO

TABLE 4.1

Mean, SD and t-values of I/D ratio of experimental and control group teachers

<u>Experimental group N=5</u>			
Observation	Mean	SD	t-value
Pre observations I/D	0.263	0.0522	4.214
Post observations I/D	3.382	1.666	
DF=8 at 0.01 level= 3.36 <u>Significant</u>			
<u>Control group N=2</u>			
Observation	Mean	SD	t-value
Pre observations I/D	0.293	0.067	0.194
Post observations I/D	0.276	0.104	
DF=2 at 0.01 level= 9.92 <u>Not significant</u>			

Table 4.1 reveals the following observations.

The t-value between the pre and post observations' I/D ratio (Indirect/Direct) in case of ^{the} control group

is 0.194 and 4.214 in case of experimental group. The t-value is not significant in the control group while it is significant at 0.01 level in the experimental group. The result supports the hypothesis:1:. The training and feedback given to the teachers of experimental group have increased their I/D ratio. It means that they have become more indirect in their behaviour than the control group teachers.

The above result was also supported by Amidon and Powell (1966), Moskowitz (1967), Zahn (1967), Simon and others (1966), Lohman, Hough and Obser (1967), Hanny (1967), Davidson (1968), Wright, Nuthall and Lawrence (1969), Holcomb (1970), Pareek and Rao (1971), Nath (1971), Jangira (1972) and Lulla (1973).

IV.3 THE CHANGE IN i/d RATIO

TABLE 4.2

Mean, SD and t-values of i/d ratio
of experimental and control group
teachers

Experimental group N=5

Observation	Mean	SD	t-value	
Pre observations i/d	0.000	0.000	4.459	DF=8 at 0.01 level = 3.36
Post observations i/d	7.623	3.82		<u>Significant</u>

Control group N=2

Observations	Mean	SD	t-value	
Pre observations i/d	0.000	0.000	0.793	DF=2 at 0.01 level = 9.92
Post observations i/d	0.214	0.382		<u>Not signi- ficant</u>

Table 4.2 reveals the following observations.

The t-value between the pre and post observations' i/d ratio (pure indirect/pure direct) in case of ^{the} control group is 0.793 and 4.459 in case of ^{the} experimental group. The t-value is not significant in ^{the} control group while it is significant at 0.01 level in the experimental group. The result supports that the teachers of the experimental group, on account of training and feedback provided to them they used categories 1,2,3 (i.e. accepts

feelings, praises, accepts ideas of students) more than categories 6,7 (i.e. directions, criticizing). It means that the behaviours of ^{the} experimental group teachers have become more democratic than that of the teachers in the control group.

IV.4 THE CHANGE IN CATEGORIES 1 to 10

TABLE 4.3

Average percentages of categories 1 to 10 of pre and post observations of experimental and control group teachers

<u>Experimental group</u> N=5						
	<u>Categories</u>					
Observations	1	2	3	4	5	
Pre observations	0.00	0.00	0.00	16.02	57.22	
Post observations	1.376	5.304	4.360	30.892	10.956	
Observations	6	7	8	9	10	Total
Pre observations	3.48	0.00	17.54	0.00	5.74	100
Post observations	1.296	0.152	35.168	3.768	6.728	100

<u>Control group</u> N=2						
	<u>Categories</u>					
Observations	1	2	3	4	5	
Pre observations	0.00	0.00	0.00	14.75	46.75	
Post observations	0.00	0.78	0.06	14.52	51.06	
Observations	6	7	8	9	10	Total
Pre observations	3.50	0.00	22.70	0.00	12.30	100
Post observations	2.88	1.04	18.42	0.02	11.22	100

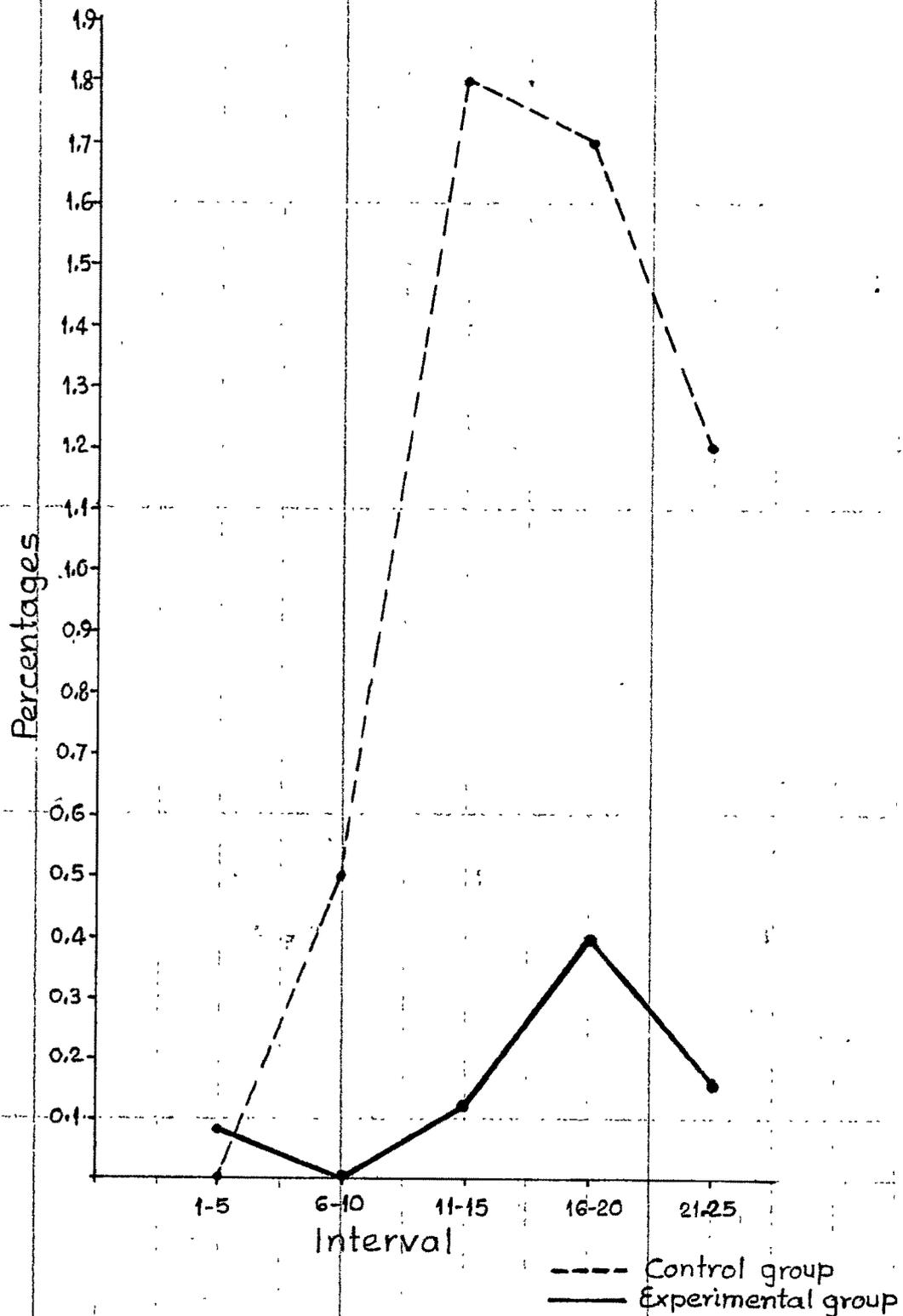
Table 4.3 reveals the following observations:

- (1) In pre-observations, categories 1, 2, 3, 7 and 9 were not found at all in both the groups. It means that the teachers of both the groups were initially direct in their behaviour. They were not using 'criticizing' category (i.e. category 7). Pupils' initiation in the class-room events was totally absent (i.e. category 9).
- (2) The percentages of post-observations of categories 1, 2 and 3 in the experimental group were 1.376, 5.304 and 4.360 respectively. It means that after training and feedback the teachers improved their class-room interaction behaviour and became more indirect, while the percentages of ^{the} control group did not show any change in category 1, but there was a negligible change in categories 2 and 3.
- (3) As regards to category 7 the teachers were required to use it in post-observation, which they were not using in pre-observation. When the teachers began to use categories 1, 2, 3 a sort of conflict was going on in the minds of pupils and as a result

GRAPH-4.1

Category-7, showing the change in percentages at an interval of five post observations (From table 4-13).

144



they participated more and more, at times it resulted into unison answering and hence the teachers were required to use category-7 for proper class functioning. The teachers thought that it was necessary to use and hence they used this category. The graph (4.1) about category-7 shows that the teachers in the experimental classes tried to use it rarely where as the control group teachers used this category with gradual increase.

The experimental group of teachers used categories 1, 2, 3, 4 more and more. They tried to provide feedback to the pupils and according to them justifiably used categories 6 and 7^{which} resulted into greater pupils' participation - categories 8 and 9, whereas in the control group the increased use of category-7 without feedback (categories 1, 2, 3) decreased pupils' participation (category-8).

(4) In category-9 little change is found in ^{the} control group but there was a considerable change of 3.768 percent in the experimental group. It means that pupils' initiation increased in the experimental group pupils due to the indirect behaviour of teachers.

(5) With respect to category-4 there was a slight amount of decrease in the percentages (14.75 % to 14.52 %) of the control group. The tendency to ask questions increased by about 15 percent in the experimental group. The change was due to training and feedback given to teachers of ^{the} experimental group.

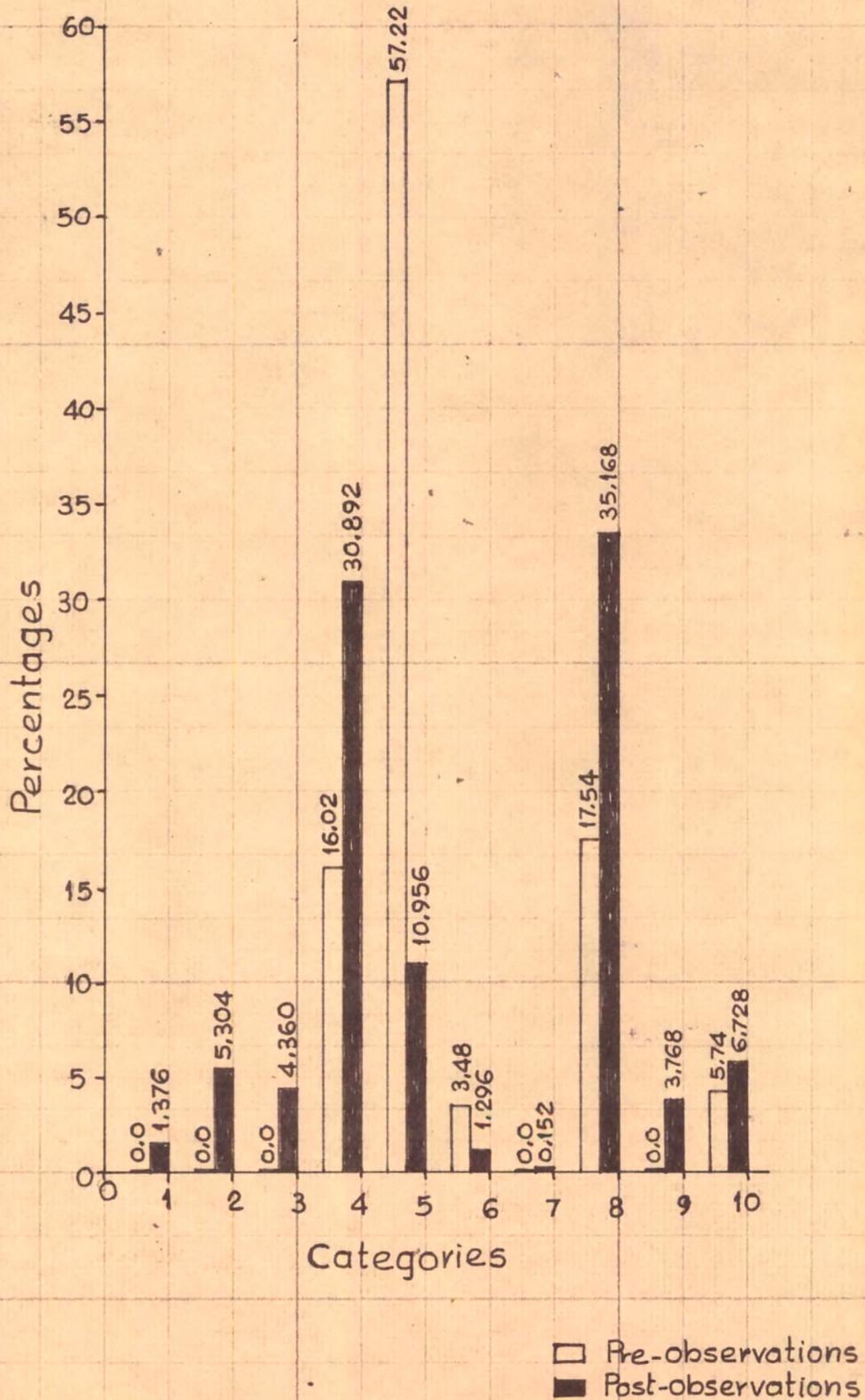
(6) In category-5 the percentage in the experimental group was 57.22 in pre-observations, but due to the training and feedback the percentages reduced to 10.956. This means that the teachers tendency for 'lecturing' decreased considerably by about 46 percent.

(7) In category-6 the direction giving tendency decreased in both the groups.

(8) In case of category-8, in the control group the pupils response decreased but the picture was quite promising in case of ^{the} experimental group. There was an increase of about 17 percent. The increase in the pupils response was due to the increase in the indirect and questioning behaviour of teachers.

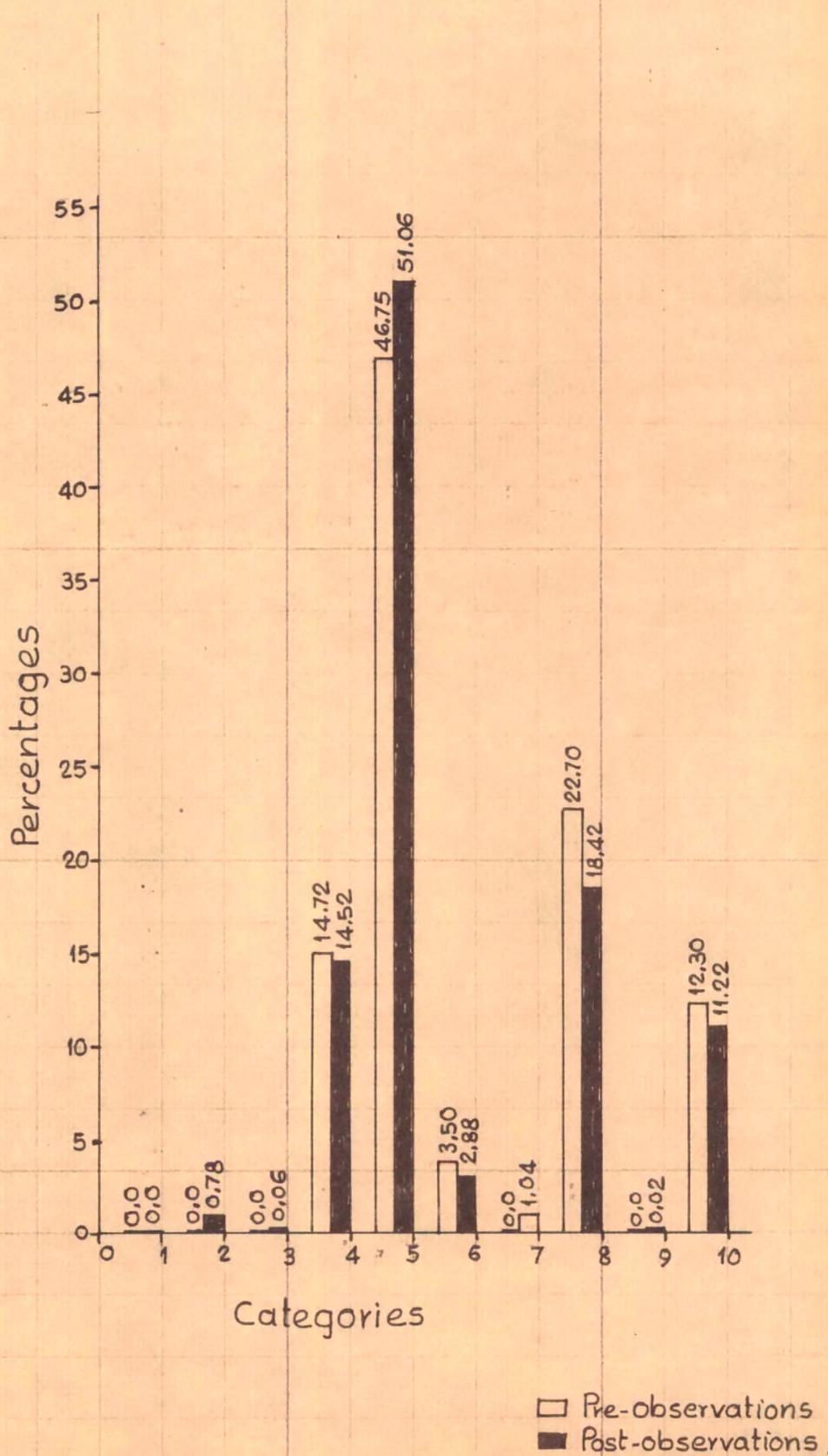
GRAPH-4.2

Percentages of categories of pre and post observations of the experimental group teachers.



GRAPH-4.3

Percentages of categories of pre and post observations of the control group teachers.



(9) In category-10 little change was observed in both the groups.

Figures of table 4.3 are represented graphically. (Graph 4.2 and 4.3)

In brief it can be stated that the teachers became more indirect, accepted the feelings of the pupils, used praise as a feedback and accepted the ideas of the pupils, as a result of training and continuous feedback for improvement given to them. The control group of teachers who did not receive training did not show significant change.

Now the teachers minimised the use of categories 6 and 7 which caused direct influence i.e. they did not criticize or give directions, as a result of which the pupils' participation (category-8) increased and pupils showed a considerable increase in their initiation in class-room participation.

IV.5 EFFECT OF FEEDBACK ON CATEGORY-1

Observations on Teachers 'Accepting Pupils' feeling'

TABLE 4.4

TABLE 4.4

CATEGORY-1 (Accepting feeling)

Average percentages of preceding and succeeding events of pre and post observations of category-1 of the experimental and control group teachers.

EXPERIMENTAL GROUP

Column-1	2	3	4	5	6	7	8	9	10	Total
Row-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.424	0.0	0.032	0.272	0.048	0.0	0.0	0.376	0.216	0.008
2	0.0	0.072								
3	0.0	0.024								
4	0.0	0.136								
5	0.0	0.032								
6	0.0	0.0								
7	0.0	0.0								
8	0.0	0.440								
9	0.0	0.248								
10	0.0	0.0								
Total	0.0	1.376								

Events succeeding →

← Events preceding

■ Pre-observations
□ Post-observations

CONTROL GROUP

Column-1	2	3	4	5	6	7	8	9	10	Total
Row-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0								
3	0.0	0.0								
4	0.0	0.0								
5	0.0	0.0								
6	0.0	0.0								
7	0.0	0.0								
8	0.0	0.0								
9	0.0	0.0								
10	0.0	0.0								
Total	0.0	0.0								

Events succeeding →

← Events preceding

P/Th
3383



It can be seen that in both the groups - experi-
mental as well as control - the teachers were not
in a habit of using 'Accepting pupils' feeling' in
their interaction. The pre-observation represent
'zero' in both the groups.

What happened to ^{the} experimental group after train-
ing with regard to category-1 ? As far as the control
group was concerned no change was observed (from 0 to
0 %), whereas in the experimental group, the increase
was from 0 to 1.376 %, a considerable increase
indeed !

Which events preceded 1 ? The pupils responded
(8) and the teacher used 'accepting pupils' feeling'
(1), the pupils' showed initiation (9) and the
teacher 'accepted the pupils' feeling' (1), the tea-
cher asked questions (4) and immediately he accepted
the pupils' feeling (1). It also happened that the
teacher accepted the pupils' feeling continuously
(1-1) for a considerable number of events (0.424 %).

What happened as a result of the teachers' use
of 'accepting pupils' feeling'? The pupils' answer
followed (8) (0.376 %), the teachers' questioning (4)
followed (0.272 %), the pupils' initiation (9)

followed (0.216).

It can be said, therefore, that as a result of training and feedback given to the experimental group of teachers, the teachers:

- used category-1 'accepting the pupils' feeling' more after training than they did before training.
- used category-1 after pupils response, after pupils' initiation and after his own questioning.
- were tempted to ask more questions as a result of which the pupils' participation and initiation increased.

This did not happen with the control group teachers.

IV.6 EFFECT OF FEEDBACK ON CATEGORY-2

Observations on Teachers 'Praise' or 'Encouragement'

TABLE 4.5

TABLE-4.5
CATEGORY-2 (Praises)

Average percentages of preceding and succeeding events of pre and post observations of category-2 of the experimental and control group teachers.

EXPERIMENTAL GROUP

		Column-2											
		1	2	3	4	5	6	7	8	9	10	Total	
Row-2	1	0.0	0.0										
	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	3	0.072	0.600	0.384	1.536	0.512	0.120	0.0	1.720	0.288	0.072	5.304	
	4	0.0	0.072										
	5	0.0	0.544										
	6	0.0	0.192										
	7	0.0	0.0										
	8	0.0	2.776										
	9	0.0	1.080										
	10	0.0	0.040										
	Total	0.0	5.304										

Events succeeding →

← Events preceding

■ Pre-observations
□ Post-observations

CONTROL GROUP

		Column-2											
		1	2	3	4	5	6	7	8	9	10	Total	
Row-2	1	0.0	0.0										
	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	3	0.0	0.20	0.0	0.0	0.0	0.0	0.0	0.58	0.0	0.0	0.78	
	4	0.0	0.0										
	5	0.0	0.0										
	6	0.0	0.0										
	7	0.0	0.0										
	8	0.0	0.58										
	9	0.0	0.0										
	10	0.0	0.0										
	Total	0.0	0.78										

Events succeeding →

← Events preceding

It can be seen that in both the groups - experimental as well as control - the teachers were not in a habit of using 'praise' or 'encouragement' in their interaction. The pre-observation represent 'zero' in both the groups.

What happened to ^{the} experimental group after training with regard to 2 ? As far as the control group was concerned a very small change from 0 to 0.78 % was observed, whereas in ^{the} experimental group the increase was from 0 to 5.304 %. A very considerable increase indeed !

Which events preceded 2 ? The pupils responded (8) and the teacher used praise (2), the pupils showed initiation (9) and the teacher used praise (2). The teacher asked questions (4) and immediately praised them. That is he used praise (2) to encourage the pupils to think about his questions (0.544 %).

What happened as a result of the teachers' use of 'praise' or 'encouragement' ? The pupils' answer (8) followed (1.720 %), the teachers questions (4) followed (1.536 %), the teachers' narration (5)

followed (0.512 %). It also happened that the teachers used considerable number of events (0.600 %) for continuous encouragements (2-2).

It can be said, therefore, that as a result of training and feedback given to the experimental group of teachers, the teachers:

- used 'praise' or 'encouragement' more after training than they did before training.
- used category-2 after pupils response and initiation and after his own questioning.
- were tempted to ask more questions and to link his narration and as a result of this, the pupils participation and initiation increased.

This did not happen with the control group teachers.

IV.7 EFFECT OF FEEDBACK ON CATEGORY-3

Observations on Teachers' 'accepting ideas of the pupils'

{
TABLE 4.6
}

TABLE-4.6
CATEGORY-3 (Accepting ideas of pupils) 156

Average percentages of preceding and succeeding events of pre and post observations of category-3 of the experimental and control group teachers.

EXPERIMENTAL GROUP

		Column-3											
		1	2	4	5	6	7	8	9	10	Total		
Row-3	1	0.0	0.032										
	2	0.0	0.384										
	3	0.0	0.0	↓	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
	4	0.024	0.072	↓	1.384	0.976	0.568	0.048	0.0	0.864	0.256	0.168	4.360
	5	0.0	0.408										
	6	0.0	0.264										
	7	0.0	0.024										
	8	0.0	0.008										
	9	0.0	1.584										
	10	0.0	0.192										
	Total	0.0	0.080										

↑ Events preceding ↑ Events succeeding →

■ Pre-observations
□ Post-observations

CONTROL GROUP

		Column-3											
		1	2	4	5	6	7	8	9	10	Total		
Row-3	1	0.0	0.0										
	2	0.0	0.0										
	3	0.0	0.0	↓	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
	4	0.0	0.0	↓	0.02	0.0	0.0	0.0	0.02	0.02	0.0	0.0	0.06
	5	0.0	0.0										
	6	0.0	0.0										
	7	0.0	0.02										
	8	0.0	0.02										
	9	0.0	0.0										
	10	0.0	0.0										
	Total	0.0	0.0										

↑ Events preceding ↑ Events succeeding →

It can be seen that in both the groups - experimental as well as control - the teachers were not in a habit of 'accepting ideas of the pupils' in their interaction. The pre-observation represent 'zero' in both the groups.

What happened to ^{the} experimental group after training with regard to category-3 ? As far as the control group was concerned a very small change from 0 to 0.06 % was observed, whereas in ^{the} experimental group the increase was from 0 to 4.360 %, a very considerable increase indeed !

Which events preceded 3? The pupils responded (8) and the teacher used 'accepting pupils' idea' (3), the teacher asked question (4) linking with the pupils' idea (3), and the teacher used category-3 continuously in number of events (1.384 %).

What happened as a result of the teachers 'accepting ideas of the pupils' ? The teachers' question (4) followed (0.976 %), the pupils' response (8) followed (0.864 %), and the teachers' narration (5) followed (0.568 %).

It can be said, therefore, that as ^a result of training and the feedback given to the experimental group of teachers; the teachers:

- used 'accepting ideas of the pupils' more after training than they did before training.
- used category-3 after pupils' response, after pupils' initiation and after his own questioning.
- were tempted to ask more questions and to link his narration and as a result of this, the pupils participation increased.

This did not happen with the control group teachers.

IV.8 EFFECT OF FEEDBACK ON CATEGORY-4

Observations on Teachers' 'questioning'

TABLE 4.7

TABLE-4.7
CATEGORY-4(questioning)

Average percentages of preceding and succeeding event of pre and post observations of category-4 of the experimental and control group teachers.

EXPERIMENTAL GROUP

Column-4

	1	2	3	4	5	6	7	8	9	10	Total
1	0.0	0.0	0.0	0.272							
2	0.0	0.0	0.0	1.536							
3	0.0	0.0	0.0	0.976							
Row-4	0.0	0.0	0.0	3.88	6.02	0.40	0.0	4.92	0.0	0.80	16.02
	0.136	0.544	0.408	10.708	1.560	0.088	0.0	14.472	1.288	1.688	30.892
5				4.98	4.224						
6				0.0	0.240						
7				0.0	0.008						
8				5.76	10.768						
9				0.0	0.584						
10				1.40	1.576						
Total				16.02	30.892						

Events succeeding →

← Events preceding

■ Pre-observations
□ Post-observations

CONTROL GROUP

Column-4

	1	2	3	4	5	6	7	8	9	10	Total
1	0.0	0.0	0.0	0.0							
2	0.0	0.0	0.0	0.0							
3	0.0	0.0	0.0	0.0							
Row-4	0.0	0.0	0.0	6.25	6.0	0.0	0.0	1.50	0.0	1.0	14.75
	0.0	0.0	0.0	3.06	2.06	0.14	0.0	8.10	0.0	1.16	14.52
5				2.50	4.28						
6				0.0	0.08						
7				0.0	0.0						
8				4.00	5.72						
9				0.0	0.0						
10				2.00	1.38						
Total				14.75	14.52						

Events succeeding →

← Events preceding

It can be seen that in both the groups - experimental as well as control - the teachers were in a habit of 'asking questions' in their interaction. The pre-observation represented 16.02 % and 14.75 % in experimental and control group respectively.

What happened to the experimental group after training with regard to category-4 ? As far as the control group was concerned a very small amount of decrease from 14.75 % to 14.52 % was observed whereas in ^{the} experimental group the increase was from 16.02 % to 30.892 % a very considerable increase indeed !

Which events preceded 4 ? The pupils responded (8) and the teacher asked questions (4), the teacher asked questions (4) on the basis of his narration (5), the teacher asked questions (4) after praise (2) and the teacher used category (4) continuously in number of events (10.708 %).

What happened as a result of the use of teachers questioning ? The pupils' response (8) followed (14.472 %), the teachers' narration (5) followed (1.560 %), the pupils' initiation (9) followed

(1.288 %), and a silence (10) followed (1.688 %) to allow the pupils to think.

It can be said, therefore, that as a result of training and feedback given to the experimental group of teachers, the teachers:

- used "teachers' questioning" more after training than they did before training.
- used category-4 after pupils response, after his own narration, and after praises.

As a result of this, the pupils participation increased, pupils initiation increased, the narration of the teacher decreased and the silence increased.

This did happen with control group teachers, but not to the extent as compared to the experimental group teachers.

IV.9 EFFECT OF FEEDBACK ON CATEGORY-5

Observations on Teachers' 'Narration' or 'Lecturing'

TABLE 4.8

It can be seen that in both the groups - experimental as well as control - the teacher were in a habit of 'narration' or 'lecturing' in their interaction. The pre-observation represented 57.22 % and 46.75 % in ^{the} experimental and control group respectively.

What happened to ^{the} experimental group after training with regard to category-5 ? As far as ^{the} control group was concerned a considerable amount of increase from 46.75 % to 51.06 % was observed, whereas in experimental group, there was a large amount of decrease from 57.22 % to 10.956 %. A remarkable decreased indeed !

Looking to the table of the control group, it can be seen that the percentages of the habit of continuous 'lecturing' (5-5) increased in post-observation and more than half the time (51.06 %) was devoted to 'narration' or 'lecturing' alone. Teachers 'narration' (5) restricted the pupils' response ^(%) (from 3.00 % to 1.20 %). It means that the interaction pattern was 'direct' or teacher 'dominated' in post-observation.

Which events preceded 5 in case of ^{the} experimental group ? The teacher asked question (4) and narration (5) followed this habit of lecturing on the part of

the teacher also decreased (5-5). The narration of the teacher (5) tried to clarify the students response (8).

What happened as a result of the use of 'teachers' narration or lecturing' ? The teachers' questions (4) followed the pupils' response (8) followed and the pupils' initiation followed (9).

It can be said, therefore, that as a result of training and feedback given to the experimental group of teachers, the teachers:

- decreased the use of 'teachers' lecturing' considerably after their training.
- used category-5 after teachers questioning, after pupils response and after silence or confusion.

As a result of this the pupils initiation increased.

IV.10 EFFECTS OF FEEDBACK ON CATEGORY-8

Observations on pupils' 'Response'

TABLE 4.9

TABLE-4-9
CATEGORY-8 (pupils'talk)

Averages percentages of preceding and succeeding events of pre and post observations of category-8 of the experimental and control group teachers.

EXPERIMENTAL GROUP

		Column-8										
		1	2	3	4	5	6	7	8	9	10	Total
Row-8	Pre-observations	0.0	0.0	0.0	5.76	1.80	0.20	0.0	8.38	0.0	1.40	17.54
	Post-observations	0.440	2.776	1.584	10.768	3.200	0.392	0.040	13.696	0.608	1.664	35.168
	Total	0.0	0.0	0.0	5.76	1.80	0.20	0.0	8.38	0.608	3.064	35.168
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.536	0.0	0.536
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.40	1.840	0.0	3.240
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.54	35.168	0.0	52.708
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Events succeeding →

← Events preceding

■ Pre-observations
□ Post-observations

CONTROL GROUP

		Column-8										
		1	2	3	4	5	6	7	8	9	10	Total
Row-8	Pre-observations	0.0	0.0	0.0	4.00	3.00	0.0	0.0	13.20	0.0	2.50	22.70
	Post-observations	0.0	0.58	0.02	5.72	3.58	1.04	0.20	5.66	0.0	1.62	18.42
	Total	0.0	0.58	0.02	4.00	3.00	1.04	0.20	18.86	0.0	4.12	41.12
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.00	1.54	0.0	6.54
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.70	18.42	0.0	41.12
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Events succeeding →

← Events preceding

It can be seen that in both the groups - experimental as well as control - the pupils were in the habit of 'responding' in their interaction. The pre-observation percentages were 17.54 % and 22.70 % in ^{the} experimental and control groups respectively.

What happened to the experimental group after the training with regard to category-8 ? As far as the control group was concerned the decrease from 22.70 % to 18.42 % was observed whereas in ^{the} experimental group the increase was from 17.54 % to 35.168 %. A very considerable increase indeed !

This also means that the pupils got more opportunity to respond.

Which events preceded 8 ? The pupils responded (8) and the teacher asked question (4)., the pupils responded (8) and the teacher used 'praises' (2); the pupils responded (8) and the teacher 'accepted the ideas of pupils ~~4~~ (3); the pupils responded (8) and the teacher accepted the feelings (1). It means that the teacher used categories 1, 2, 3 and 4 prior to pupils' response.

What happened as a result of the pupils 'response' ? The teachers' questions (4) followed (10.768 %); the teachers' praises (2) followed (2.776 %); the teachers' 'accepted the pupils' idea' (3) followed (1.584); the teachers' 'accepted the feelings' (1) followed (0.449 %). It also happened that the pupils responded continuously (13.693 %).

It can be said, therefore, that as a result of training and feedback given to the experimental group of teachers, the pupils:

- responded more after the training given to the teachers than they did before training.
- responded after teachers' questions, after teachers' praises, after teacher accepting feelings and after teacher's acceptance of the pupils' ideas.

As a result of pupils' response the teachers began to praise, accept feeling, accept pupils' idea and ask questions.

The pupils of the experimental group showed a considerable increase because of the training and feedback given to the teachers of the experimental group.

TABLE-4-10
CATEGORY-9 (Pupils' Initiation)

Average percentages of preceding and succeeding events of pre and post observations of category-9 of experimental and control group teachers.

EXPERIMENTAL GROUP

		Column-9										
		1	2	3	4	5	6	7	8	10	Total	
Row-9	Pre-observations	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Post-observations	0.248	1.080	0.192	0.584	0.224	0.0	0.0	0.536	0.760	0.144	3.768
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.128	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.768	0.0

Events succeeding →

← Events preceding

■ Pre-observations
□ Post-observations

CONTROL GROUP

		Column-9										
		1	2	3	4	5	6	7	8	10	Total	
Row-9	Pre-observations	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Post-observations	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.02	0.0	0.02
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.02	0.0

Events succeeding →

← Events preceding

IV.11 EFFECTS OF FEEDBACK ON CATEGORY-9

Observations on pupils' 'Initiation'

TABLE 4.10

It can be seen that in both the groups - experimental as well as control - the pupils were not in a habit of using initiation in their interaction. The pre-observation represents 'zero' in both the groups.

What happened to ^{the} experimental group after training with regard to category-9 ? As far as the control group was concerned a very small change from 0.0 % to 0.02 % was observed, whereas in ^{the} experimental group, the increase was from 0.0 % to 3.768 %. A very considerable increase indeed !

Which events preceded-9 ? The teacher 'accepted pupils' feeling' (1) and the pupils' showed 'initiation (9), the teacher used 'praise' (2) and the pupils showed 'initiation' (9), the teacher 'accepted pupils'

ideas' (3) and the pupils showed 'initiation' (9), the teacher asked 'questions' (4) and the pupils showed 'initiation' (9), the teacher 'lectured' (5) and the pupils showed 'initiation' (9) and the pupils 'responded' (8) and the pupils showed 'initiation' (9). This means that when the teacher used 'accept feeling' (0.216 %); 'praise' (0.288 %); 'accepting pupils idea' (0.256 %); 'asked question' (1.288 %); 'lectured' (0.224 %) and the pupil 'responded' (0.608 %) and immediately the pupils showed 'initiation'. The pupils showed initiation continuously (9-9) in considerable events (0.760 %).

What happened as a result of the pupils 'initiation' ? The teachers' 'accept feelings' (1) followed the teachers' 'praise' (2) followed, the teachers' 'accept ideas' (3) followed, the teachers' 'question' (4) followed, the teachers' 'narration' (5) followed, the pupils 'response' (8) followed.

It can be said, therefore, that as a result of training and feedback given to the experimental group of teachers, the pupils:

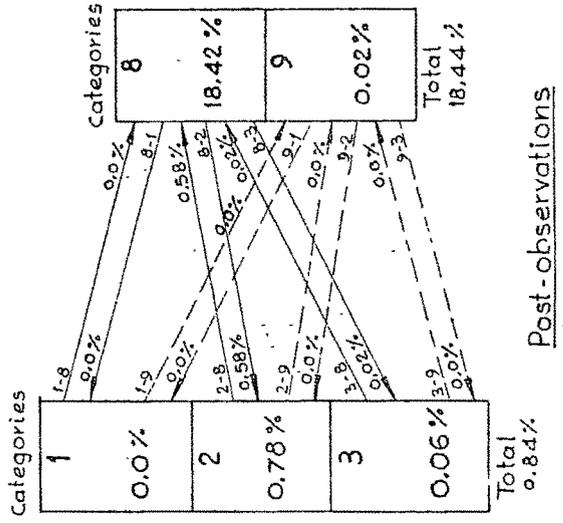
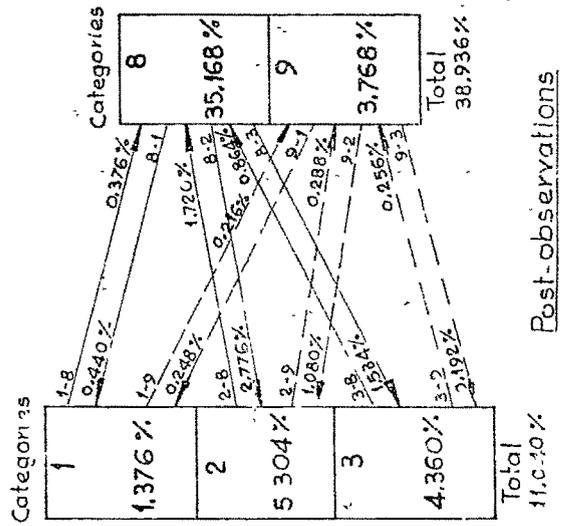
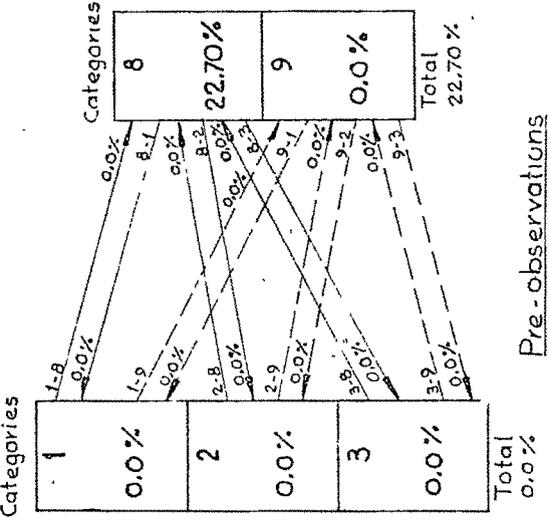
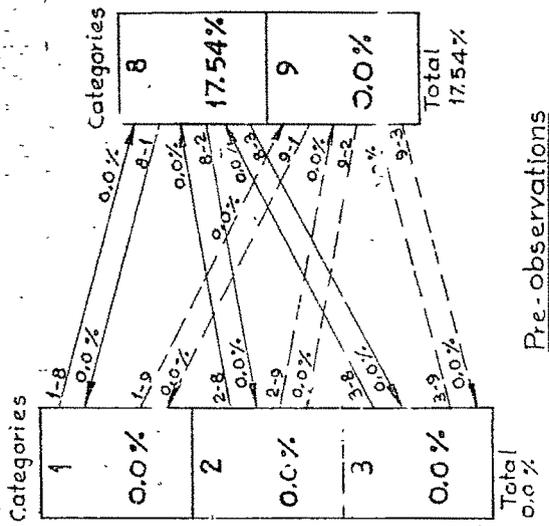
- showed initiation after the training given to the teachers than before the training of teachers.

TABLE-4-11

CATEGORIES-1,2,3 → 8,9
 Average percentages of categories 1,2,3, in relation to categories 8,9, of pre and post observations of the experimental and control group teachers.

EXPERIMENTAL GROUP

CONTROL GROUP



- showed category-9, after teachers' 'accept feelings', 'praises', 'accept ideas', 'ask questions', 'narration' and pupils 'response'.

As a result of this the teachers like to link 'accept feelings', 'praises', 'accept ideas', 'narration' and the pupils' also linked their 'responses'.

This did not happen so much with the control group teachers.

IV.12 EFFECT OF FEEDBACK ON PUPILS' PARTICIPATION

TABLE 4.11

Table 4.11 reveals the following observations:

- (1) There was a remarkable positive change in the total percentages of categories 1, 2, 3 and categories 8, 9 in the experimental group between pre and post observations was 11.04 percent and 21.39 percent respectively, but in the

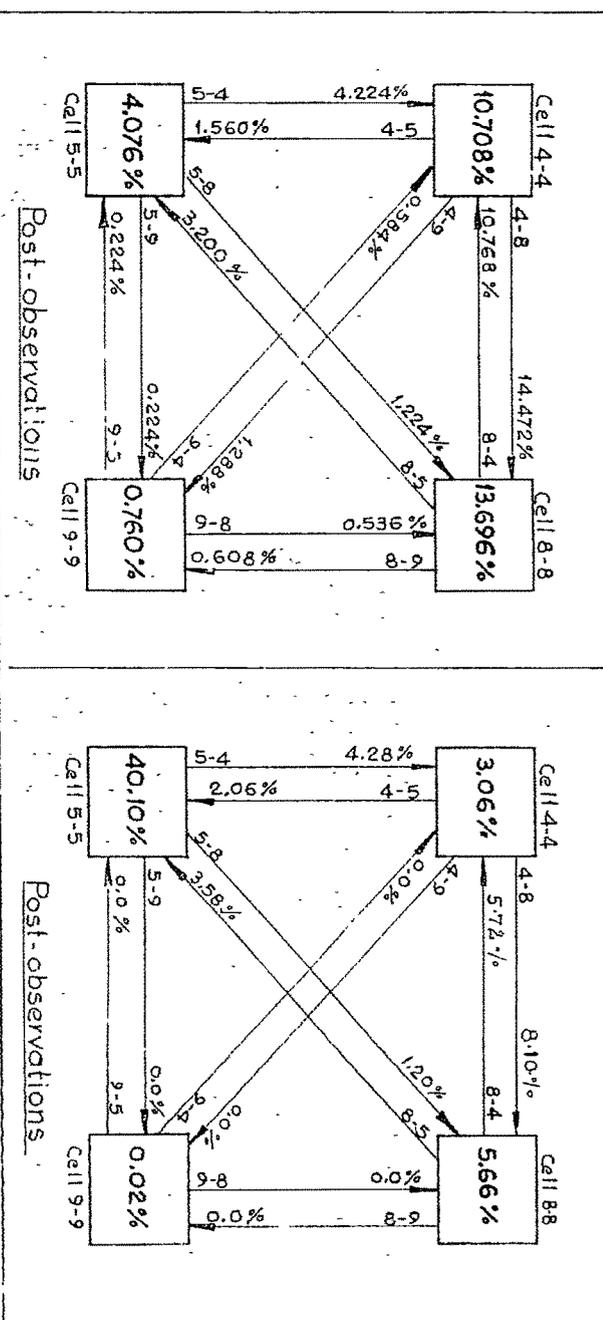
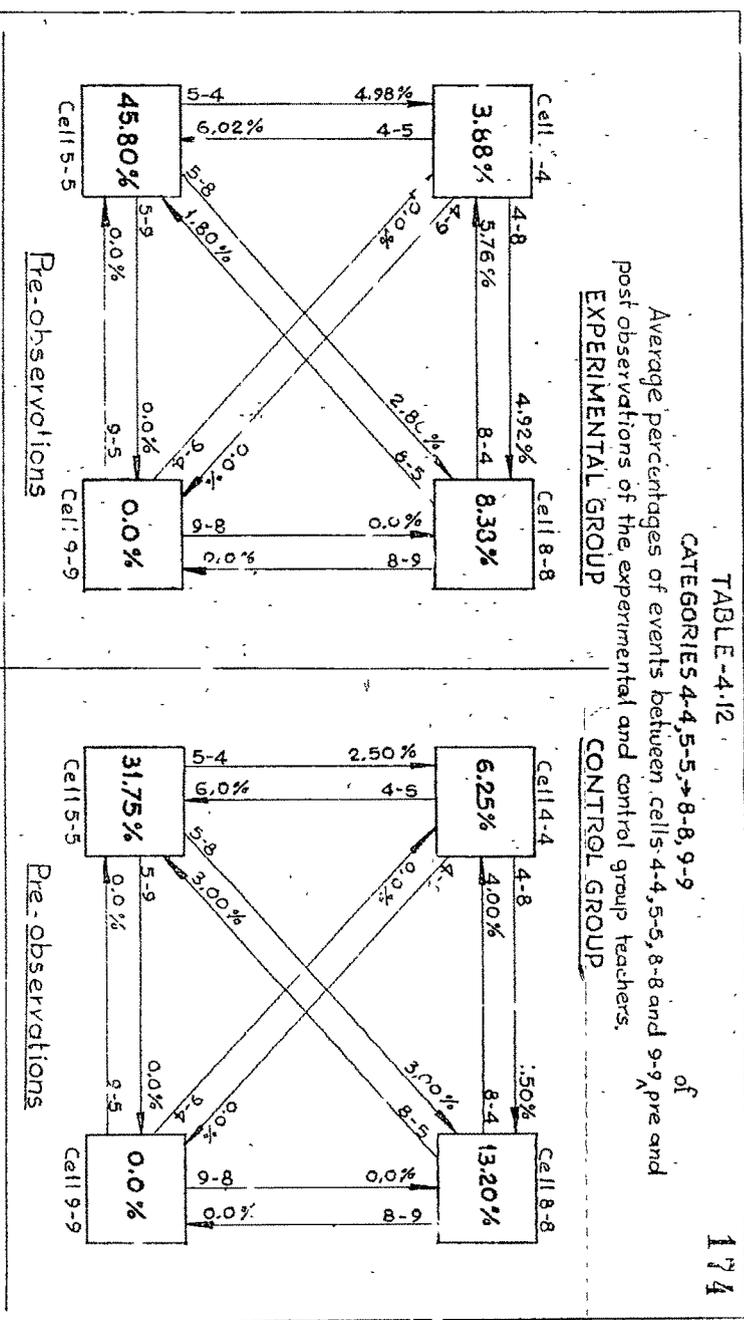
control group the increase in the percentage of categories 1, 2, 3 was only 0.84 percent. Regarding the total percentages of categories 8, 9 there was a fall of 4.26 percent. The increase in the indirect behaviour was the result of training and feedback given to experimental group teachers which also resulted into the higher percentage of pupils' response and initiation.

- (2) Practically no relationship was observed between categories 1, 2, 3 and 8, 9 in the pre and post observations of ^{the} control group teachers because they were direct in their behaviours.
- (3) Similarly no relationship was observed between categories 1, 2, 3 and 8, 9 in the pre-observations of the experimental group.
- (4) In post-observations of ^{the} experimental group the following relationships were observed:
 - 1) praises by teachers after pupils response was by 2.776 percent (8-2).
 - 2) pupils' responses were followed by teachers' praises by 1.720 percent (2-8).

TABLE 4.12

CATEGORIES 4-4, 5-5, 8-8, 9-9

Average percentages of events between cells 4-4, 5-5, 8-8 and 9-9 pre and post observations of the experimental and control group teachers.



- 3) teachers accepted the ideas of the pupils were followed by pupils' response by 1.584 percent (8-3).
- 4) A positive relationship was also observed in 1-8, 8-1, 3-8, 1-9, 9-1, 2-9, 9-2, 3-9, and 9-3.

IV.13 EFFECT OF FEEDBACK ON CELLS 4-4, 5-5, 8-8 AND 9-9

TABLE 4.12

Table 4.12 reveals the following observations:

- (1) Differences in the percentages of pre and post observations between different cells (steady state)

The Experimental group	The Control group
(1) Teachers' questioning (cell 4-4) has <u>increased</u> by 6.82 percent.	(1) Teachers' questioning (cell 4-4) has <u>decreased</u> by 3.19 percent.
(2) Corresponding effect was also observed in pupils response (cell 8-8) by a rise of 5.31 percent.	(2) Corresponding effect was also observed in pupils response (cell 8-8) by a decrease of 7.54 percent.
(3) A considerable <u>decrease</u> in teachers' lecturing (cell 5-5) was observed by 39.73 percent.	(3) A remarkable <u>increase</u> in teachers' lecturing (cell 5-5) was observed by 7.35 percent.
(4) Pupils initiation (cell 9-9) was observed by an increase of <u>0.760</u> percent.	(4) A little amount of pupils initiation (cell 9-9) was also increased by <u>0.02</u> percent.

- (2) Differences in the percentages of pre and post observations events between different cells go clock-wise
-

The Experimental group	The Control group
(4) Teachers' questioning was responded by pupils (4-8) was increased by about <u>10 percent</u> .	(1) Similar effect was also observed by only <u>6.6 percent</u> .
(2) In case of pupils' initiation after response (8-9) was <u>increased</u> by 0.608 percent.	(2) <u>No such</u> change was observed at all.
(3) Pupils initiation followed by lecturing (9-5) showed an <u>increase</u> of 0.224 percent.	(3) <u>No such</u> change was observed at all.
(4) The habit of questioning immediately after lecturing (5-4) was <u>decreased</u> only by 0.76 percent.	(4) Similar habit was <u>increased</u> by a considerable amount of 1.78 percent.

- (3) Difference in the percentages of pre and post observation events between different cells go anti-clockwise
-

The Experimental Group	The Control Group
(1) Remarkable change in the events of questioning immediately after pupils response (8-4), was <u>increased</u> by 5.0 percent.	(1) Similarly a <u>feeble</u> change was observed by 1.72 percent.
(2) Percentage of lecturing after questioning was decreased by about <u>4.46</u> percent (4-5).	(2) Similar effect was also observed by <u>3.94</u> percent.

contd...

The Experimental group	The Control group
(3) Though little, but a <u>positive</u> behaviour of pupils initiation after lecturing (5-9) was observed, by 0.224 percent.	(3) <u>No change</u> was observed at all.
(4) Change was observed in pupils response after initiation (9-8) by an <u>increase</u> of 0.536 percent.	(4) <u>No change</u> was observed at all.

(4) Differences in the percentages of pre and post observation events between cells go diagonally

The Experimental group	The Control group
(1) Pupils response after lecturing was <u>decreased</u> (5-8). (1.58%)	(1) Similar effect was also observed. (1.80%)
(2) Lecturing after pupils response was increased by 1.4 percent (8-5).	(2) Similar effect was also increased but by only 0.56 percent.
(3) An important and accountable change of pupils initiation after teachers' questioning was noted (4-9) by an <u>increase</u> of 1.288 percent.	(3) <u>No such change</u> was noticed at all.
(4) Pupils initiation was <u>inquired</u> by teachers through questioning (9-4) was <u>increased</u> by 0.584 percent.	(4) <u>No such inquiry</u> on the part of teachers was observed.

A detailed study of the diagram reveals the following major observations, for the experimental group.

- (1) A positive increase in the events of teachers' questioning, pupils response and pupils initiation were observed.
- (2) An accountable decrease in teachers' lecturing was observed.
- (3) A remarkable positive change in events, teachers' questioning \longrightarrow pupils response \longrightarrow teachers' questioning, was observed.
- (4) An important positive change in events, teachers' questioning \longrightarrow pupils initiation, was also observed.
- (5) The above mentioned changes are the result of the training and regular feedback given to the teachers of the experimental group.

No such remarkable change was observed in the control group.

TABLE 4.13

Average percentages of all categories (1 to 10) of teachers of the experimental and control group, at an interval of five post observations (1 to 5, 6 to 10, 11 to 15, 16 to 20, 21 to 25)

EXPERIMENTAL GROUP TEACHER

Intervals	<u>Categories</u>										Total
	1	2	3	4	5	6	7	8	9	10	
1-5 (1)	0.16	4.24	4.68	28.66	16.86	1.72	0.08	32.88	2.24	8.48	100.00
6-10 (2)	0.76	5.44	4.96	25.76	15.88	2.32	0.00	32.24	4.08	7.56	100.00
11-15 (3)	1.76	4.56	4.56	32.32	10.16	0.92	0.12	35.08	4.12	6.40	100.00
16-20 (4)	1.84	5.92	3.64	33.32	6.24	0.88	0.40	37.84	3.76	6.16	100.00
21-25 (5)	2.36	6.36	3.96	33.40	6.64	0.64	0.16	36.80	4.64	5.04	100.00

CONTROL GROUP TEACHER

Intervals	<u>Categories</u>										Total
	1	2	3	4	5	6	7	8	9	10	
1-5 (1)	0.00	0.00	0.00	11.3	58.2	0.4	0.0	13.8	0.0	16.3	100.00
6-10 (2)	0.00	0.7	0.1	14.5	57.6	2.4	0.5	17.8	0.0	6.4	100.00
11-15 (3)	0.00	1.2	0.00	16.1	46.0	3.4	1.8	21.0	0.1	10.4	100.00
16-20 (4)	0.00	0.6	0.1	14.1	49.0	3.9	1.7	19.0	0.0	11.6	100.00
21-25 (5)	0.00	1.4	0.1	16.6	44.5	4.3	1.2	20.5	0.0	11.4	100.00

IV.14 THE CHANGE IN CATEGORIES AT AN INTERVAL OF FIVE OBSERVATIONS

Table 4.13 reveals the following observations:

This table will be interpreted on the basis of the following criteria:

- 1) Increasing percentages of the categories 1, 2, 3, 4, 8 and 9.
- 2) Decreasing percentages of categories 5, 6, 7 and 10.

Regarding the percentages of the categories: 1, 2, and 3 in the control group little amount of rise was shown viz. 1.4 percent and 0.1 percent in category 2 and 3 respectively. It means that the teachers are more indirect in their behaviours. On the contrary, a considerable tendency of increasing the percentages was exhibited and maintained throughout the experiment by the teachers of ^{the} experimental group. Of course in category 3 in the experimental group the maximum percentage 4.96 was at second interval (6-10). On the whole an indirect behaviour was sustained during the period of experiment.

Regarding category-4, a general trend of increasing the questioning behaviour was observed in both the groups; but the percentages in the initial stage of the

experiment in ^{the} experimental group was much higher (28.66 %) than the control group (11.3 %). It means that questioning on the part of teachers of the experimental group was at a higher percentage. In the initial stage of the experiment the teachers of the control group were much more at a higher percentage (58.2) than the experimental group (16.86 %) with reference to category-5. Still however, a tendency of decreasing percentage of lecturing by teachers was observed in both the groups, except in the 4th interval (16-20) in case of control group.

Regarding category-6 a consistent and continuous decrease in the direct behaviour on the part of the teachers of the experimental group was shown throughout the period of experiment. The reverse was the condition with respect to the control group teachers i.e. they were more direct - direction giving; though the percentages of ^{the} experimental group in the initial stage was higher than the control group.

With respect to category-7, in both the groups a general tendency of increasing criticizing behaviour was observed, but the percentages are more in the control group than in the experimental group. In ^{the} experimental group the minimum percentage was 0.0 and maximum percen-

tage was 0.40 as compared to ^{the} control group having 0.0 and 1.8 percent. This means that the teachers of the control group were about four times more direct in their behaviour than the experimental group teachers at maximum level.

Regarding category-8 percentages of pupils response was generally increasing in both the groups, but an important and remarkable difference was in the initial stage. The initial percentage of the experimental group teachers was 32.88 as against control group teachers which was only 13.8 percent. The maximum rise in the percentage was 37.84 and 21.0 in the experimental and the control group respectively.

A small amount of positive change in category-9 was shown by the control group teachers only once, while, the teachers of the experimental group showed a considerable amount of positive change. The change was maintained throughout the experiment, by the experimental group. This means that pupils initiation was not only maximum but also maintained during the period of the experiment.

Regarding category-10, a general tendency of decreasing the percentage of 'silence or confusion' was observed in teachers of both the groups. The groups differed much from each other in the initial percentage i.e. 8.48 and 16.3 percent in experimental and control group respectively. In the control group in the earlier period there was a fall in the percentage of 'confusion' state but than it increased again upto 11.6 percent.

From the above discussion, it can be concluded that direct behaviour was decreasing in the experimental group and the indirect behaviour was decreasing in the control group.

Secondly, pupils talk was increasing in the experimental group as compared to the control group.

Lastly, events of silence of confusion was less in the experimental group than in the control group.

Training and feedback given to the teachers of the experimental group has changed the behaviour from direct to indirect i.e. from autocratic to democratic.

In the preceding pages the behaviour of the teachers of both the groups is discussed from various angles. Now in the succeeding pages an individual teacher of both the groups will be discussed separately. The table 4.14 contain average percentages of pre and post observations categorywise.

IV.15 THE CHANGE IN CATEGORIES-TEACHERWISE

TABLE 4.14

Table 4.14 reveals the following observations.

Category:1:

All the five teachers of the experimental group more or less showed a tendency of accepting the feeling of pupils, but teacher 1 was maximum (2.24 percent) and teacher 2 was minimum (0.48 percent). The teacher 3 and 4 were almost equal while the teacher 5 was more than the teacher 3 and 4 in this behaviour. On the whole, all the teachers were indirect in their behaviour in post observations but were not ~~accepting~~ accepting the feeling at all in pre-observations.

Neither in the pre nor in the post observations the teacher 6 and 7 of the control group showed such behaviour i.e. they remained more or less as they were.

Category:2:

All the five teachers of the experimental group showed no tendency of praising the pupils in their pre-observations. In the post observations the maximum amount of praising tendency was shown by the teacher 5 (i.e. 8.80 percent) while the minimum percent (1.52) was of teacher 3. The rest of the teachers 1, 2 and 4 were in between the two teachers 5 and 3.

It is concluded that all the five teachers of the experimental group were found to be indirect in their behaviour in post observations.

A little amount (1.0 and 0.56 percent) of behaviour, (Praises) as compared to ^{the} experimental teachers, was shown by the control group teachers 6 and 7 in post observations. In pre-observations their behaviour was found to be nil. It means that they were

more direct than indirect in their behaviour as compared to experimental group teachers.

Category:3:

All the five teachers of the experimental group in their pre-observations were found neutral toward the behaviour of accepting ideas of the pupils. In post-observations teacher 3 exhibited the maximum percent of behaviour (5.12) and about an equal amount of behaviour was shown by the teacher 2, while the teacher 4 was minimum in such behaviour (2.44 percent). Rest of the teachers 1 and 5 were more or less found to be equal in such behaviour (4.76 and 4.48 percent). It means that all the five teachers of the experimental group were more indirect than direct in their dealings with the pupils.

A feeble amount (0.04 and 0.08 percent) of such behaviour was shown by the teachers 6, 7 of the control group in post-observations, while in pre-observations no such behaviour was exhibited. This is an indication of their being ~~direct~~ more

direct than indirect.

Category:4:

Questioning behaviour of the teacher 3 of the experimental group in the post-observation was found maximum (32.62 percent), while the teacher 1 was minimum (28.66 percent). Their pre-observations percentages were 15.5 and 16.8 respectively. Rest of the experimental group teachers 2, 4 and 5 were found to be in between the two (teacher 1 and 3), in the post-observations. In pre-observations all the teachers were found to be more or less equal. In general all the teachers showed an increasing tendency of questioning in their post-observations.

The teacher 7 of the control group also showed a tendency of increasing questioning while teacher 6 showed a decreasing tendency in the post-observations. Their pre-observations were found more or less equal.

Category:5:

The difference in the percentages of pre and post observations was found maximum of about 51 per-

cent in teacher 4 and minimum of about 40 percent in teacher 1 of the experimental group. The rest of the teachers 2, 3 and 5 were in between the teachers 4 and 1. Still however a general tendency of decreasing lecturing was exhibited by all the teachers of the experimental group i.e. they were more indirect than direct in the post-observations.

In ^{the} control group both the teachers ⁶ and 7 showed an increasing tendency of lecturing i.e. becoming more direct than indirect as compared to experimental group.

Category:6:

The difference in the percentages of pre and post observations was maximum (about 3.3 percent) in the teacher 1 and was minimum (about 0.8 percent) in the teacher 5 of the experimental group. The rest of the teachers 2, 3 and 4 were in between the teacher 5 and 1. In general all the teachers of the experimental group showed a tendency of decreasing the direction giving behaviour. Hence it can be concluded that they were decreasing the

direct behaviour and increasing the indirect one.

In the control group, teacher 6 showed an increasing tendency while teacher 7 showed a decreasing tendency. On the whole a decreasing tendency was exhibited, but not to the extent showed by the experimental group. Hence as compared to the experimental group, ^{the} control group behaviour was more direct than indirect.

Category:7:

All the teachers of the experimental group showed an increase in the criticizing behaviour. The maximum increase (0.20 percent) was exhibited by the teachers 2, 3 and 4 and minimum (0.04 percent) increase was shown by teacher 5. The percentage of teacher 1 was in between the percentages of the teacher 5 and 2, 3 and 4.

Similar tendency of increasing criticizing behaviour was also observed in the control group teachers 6 and 7. Still however an overall increase was less in ^{the} experimental group than in the control group.

Teachers of both the groups showed an increasing tendency of category 6 and 7 but in ^{the} control group teachers categories 1, 2 and 3 were feeble as compared to ^{the} experimental group hence an overall behaviour of control group teachers was more direct than indirect unlike experimental group.

Category:8:

The difference in the percentages of pre and post observations of the experimental group teachers the maximum increase in pupils response behaviour was shown by teacher 2 (24.3 percent) while the minimum increase (8.8 percent) was shown by teacher 1. Rest of the teachers 3, 4 and 5 were in between the teachers 5 and 1. In general an increasing tendency of pupils response was exhibited by all the teachers of the experimental group.

A remarkable decreasing tendency in pupils response was shown by both the teachers of the control group unlike experimental group.

Category:9:

A general tendency of increasing pupils initiation was observed in case of all the five teachers of the experimental group but maximum increase (6.08 percent) was shown by teacher 5 and minimum increase (2.08 percent) was shown by teacher 2. The percentages of the rest of the teachers 1, 3 and 4 were lying in between the teachers 2 and 5.

A ^{le} feebl~~e~~ amount of increase was shown by teacher 6 in the control group. Still however, the average increase in the behaviour of pupils initiation was less in the control group than the experimental group.

Category:10:

Regarding 'silence' or 'confusion', the teacher 5 showed the maximum decrease of about 7 percent and the minimum decrease of 0.0 percent was shown by teacher 3 of the experimental group. Rest of the teachers 1, 2 and 4 have shown an increasing tendency.

In the control group teacher 6 showed a decrease in the percentage while the teacher 7 showed an

increase in the percentage.

From the above detailed discussion, it is evident that there is a positive change in categories 1, 2, 3, 4 and there is a decrease in category 5 and 6 and a little amount of increase in category 7 were observed in all the teachers of the experimental group. This leads to an increase in the indirect behaviour of the teachers.

An increase was also noted in categories 8 and 9 which lead to an increase in pupils talk in ^{the} experimental group.

In the control group such positive changes were not observed hence the behaviour of teachers were more direct.

Hence to summarize in brief the observations:

- (1) as a result of the training the teachers changed their behaviour in the experimental group.
- (2) of course, the change is not the same, in all the teachers of the experimental group, as they had their own acculturation, habits etc.
- (3) the change shows more of indirect behaviour trend, which was the purpose of the experiment.

The findings of the present study regarding modifying teacher behaviour through training and feedback is also supported by the following Indian and abroad studies:

Roy B. (1970), in the study- changing teacher behaviour through feedback, found the following major results:

- (i) In all the four feedback strategies the improvement was fairly high about sixty percent.
- (ii) Pupils observation and teachers' self-rating feedback were most important things in the teaching-learning situation.

Desai D.B. (1970), in his study- changing teacher behaviour through training in FIACS observed that:

- (i) The teachers behaviour can be modified with the help of FIACS.
- (ii) The pupils showed a very clear preference and liking for indirect influence of teachers which leads them to their involvement.

Pareek and Rao (1971) in their study of V grade teachers of Delhi, to modify their class-room behaviours by providing ten days training in interaction analysis, found that the teachers of the experimental group modified their behaviour patterns from direct to indirect and maintained them consistently for six months.

Nath (1971), in his experimental study of pre and post training observations reported that experimental group teachers talked less and they had higher i/d ratio and higher pupils initiation than the control group which was not trained for FIACS.

Jangira (1972), employed pre-test post-test control group design study. Experimental group teachers received a training of eight weeks in FIACS. The major findings were:

- (i) The training did change the behaviour patterns of student-teachers.
- (ii) The experimental group teachers scored significantly higher on class-room interaction variables than the control group.

Pangotra (1972), in his experimental study has revealed the following major findings:

- (i) Teachers trained in FIACS, praised or encouraged pupil actions or behaviour more than the teachers of the control group did.
- (ii) The trained teachers accepted, clarified, developed compared or summarised idea suggested by pupils more than the control group teachers.
- (iii) The trained teachers gave less directions, commands or orders with which a pupil was expected to comply.
- (iv) Trained teachers elicited more pupils initiation and more indirect talk than the teacher of the control group did.
- (v) The experimental group teachers increased the tendency to question and decreased lecturing.

Lulla (1973) in her experimental study found that:

- (i) Indirect behaviour of the teacher can be increased by giving training.
- (ii) The positive correlations for indirectness ranged from 0.21 to 0.41.
- (iii) The positive correlations for use of praise ranged from 0.142 to 0.49.
- (iv) The positive correlations for use of pupils idea ranged from 0.05 to 0.40.

Singh (1974) revealed that student teachers trained in FIACS changed their verbal teaching behaviour in the class-room significantly (at 0.01 level).

Flanders (1963), investigated the effects of training in an inservice project found that training programme was more effective in producing change in behaviour in most of the teachers.

Amidon and Powell (1966) conducted an experiment on teachers found that:

- (i) The student teachers who knew FIACS talked less, and they were more indirect than the teachers of the control group.
- (ii) Supervisors trained in FIACS used less direct influence than their counterparts.

Hough and Ober (1967) conducted an experiment of two years duration having five different treatments found that subjects to whom FIACS was taught were found to use ~~significantly~~ significantly more verbal behaviours related to higher achievement and more positive student attitudes towards their teachers and school.

Hany (1967) reports that pre-service teachers taught FIACS use desirable behaviours that affect class-room climate.

Lohman, Ober and Hough (1967) conducted a control group experiment on 30 student teacher trained in FIACS found that experimental group teachers used more indirect behaviour than the control group teachers and sustained the behaviour for four to twelve months.

Moskowitz (1967) conducted an experiment with co-operating teachers and student-teacher trained in FIACS found that:

- (i) Both the types of teachers who were trained used significantly more indirect teaching patterns than untrained teachers.
- (ii) Co-operating teachers who were trained were more indirect than their counterparts.

Davidson (1968) conducted an experiment providing feedback based on FIACS to teachers modify their influence in the class-room such that children's critical thinking developed and corresponding fall

in non-productive thinking was observed.

Holcomb (1971) improved attitudes of the student teachers through kinescopic observation of their teaching behaviour and providing feedback on the same.

In the next chapter analysis of the data regarding pupils' performance will be discussed.