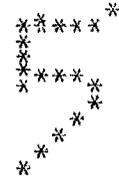


CHAPTER



INTERPRETATION OF DATA

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Change in Teacher Behaviour

1. Introduction
2. Change in I/D and i/d ratio
3. Review of Change in Category Numbers
4. Analysis of Other Interaction Variables
5. Effect of Feedback on Important Categories
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INTERPRETATION OF DATA

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CHANGE IN TEACHER BEHAVIOUR

1. Introduction

In the present investigation, one of the hypotheses is that properly planned classroom behaviour training with definite inputs will change teacher verbal behaviour. In order to verify this hypothesis, an input course of training was given to the teachers of Experimental Group 1 and teachers of Experimental Group 2. In the case of Experimental Group 1, the training was followed by regular feedback and the resultant changes were observed. Results obtained by observations have been tabulated and analysed.

2. Change in I/D and i/d Ratios

Flanders (1970) defines teacher behaviour as 'those acts of the teacher, which occur in the context of classroom interaction'. The present study has relevance to this context of teacher behaviour. As 'teacher behaviour' directly affects 'student behaviour' and brings about a

significant change, Flanders calls it 'teacher influence'. He has mentioned indirect and direct influences in his category system. Direct influence of the teacher restricts freedom of action of students to take part in 'teaching learning' process. The investigator has taken measures of teacher behaviour in terms of I/D and i/d ratios. I/D ratio indicates the proportion of indirect behaviour including content emphasis, whereas i/d ratio is content free and reflects only affective behaviour. In the present investigation, teacher behaviour (I/D and i/d) was considered as independent variable.

Table 5.1 reveals the following observations:

The 't' value between the pre and post observations of I/D ratio in case of Control Group is 0.00 only whereas it is 7.07 in case of Experimental Group 2 and 6.31 in case of Experimental Group 1. The 't' value is not significant in the Control Group while it is significant at 0.01 level in the Experimental Group 1 and Experimental Group 2. The result shows that the training given to Experimental Group 2 and the training and regular feedback given to Experimental Group 1 have increased their I/D ratios. It also shows that the feedback given to Experimental Group 1 has changed the

Table :5.1: Mean, SD and 't' Values of Pre and Post Observations of I/D and i/d Ratios of Experimental Group 1, Experimental Group 2 and Control Group Teachers

	Groups												
	Experimental G ₁					Experimental G ₂					Control Group		
	Mean	SD	't'			Mean	SD	't'			Mean	SD	't'
I/D													
Pre Obser- vation	0.0765	0.0	6.5550*			0.0711	0.0173	7.0737*			0.0590	0.01	6.0712
Post Obser- vation	2.6191	1.067	6.3060*			0.7233	0.2445				0.0805	0.01	0.0 NS
i/d													
Pre Observa- tion	0.0	0.0	3.2868*			0.2666	0.2047	2.5852**			0.1522	0.1709	0.7437 NS
Post Obser- vation	5.1429	4.14				4.7908	4.626				0.2262	0.2019	

* Significant at .01 level ** Significant at .05 level

NS Not significant

teachers' indirect behaviour. (Mean difference of pre and post observations of Experimental Group 1 is 2.5426, mean difference of pre and post observations of Experimental Group 2 is 0.6522). Therefore, it may be concluded that the teachers of the Experimental Group 1 and the Experimental Group 2 have ^{become} ~~were~~ more indirect in their behaviour than the teachers of the Control Group.

It also revealst the following observations in regard to i/d ratio.

The 't' value between the pre and post observations of i/d ratio (pure indirect / pure direct) in case of Control Group is 0.7437 whereas it is 3.2868 in case of Experimental Group 1 and 2.5852 in case of Experimental Group 2. The 't' value is not significant in the case of Control Group while it is significant at 0.01 level in the case of Experimental Group 1 and significant at 0.05 level in the case of Experimental Group 2. The result shows that the teachers of the two Experimental groups on account of the inputs (namely training given to Experimental Group 2 and training and regular feedback provided to Experimental Group 1), have used categories 1, 2, 3 (i.e. accepts feelings, praises accepts ideas of students) more than categories 6, 7 (i.e. gives directions, criticizes). It

means that the behaviours of teachers of Experimental Groups 1 and 2 have become more democratic than those of the teachers of the Control Group. Flanders (1970) opined that i/d ratio above 0.75 was reasonably good. It is also evident that the feedback given to the Experimental Group 1 has changed its indirect behaviour more than that of the Experimental Group 2 (Mean difference of pre and post observations of Experimental Group 1 is 5.1429, mean difference of pre and post observations of Experimental Group 2 is 4.5242). This change in direct behaviour of the teachers in the Experimental Groups has led to better classroom climate.

3. Review of Change in Category Numbers

All the individual matrices, prepared from pre and post observations of the teachers of Experimental Group 1, Experimental Group 2 and Control Group, were combined and master master-matrices were prepared, each for pre-observation and post observation. The grand total of the events in different categories was converted to percentages. The average percentages found in the master-master matrices were subjected to analysis.

Table :5.2: Average Percentages of Categories 1 to 10 of Pre and Post Observations
~~of Observations~~ of Experimental Group 1, Experimental Group 2 and
 Control Group Teachers

Observations	Categories											
	1	2	3	4	5	6	7	8	9	10	Total	
<u>Exptl Gr. 1(N=7)</u>												
Pre Observa- tions	0.00	0.00	0.00	5.191	63.934	3.8600	0.00	14.311	0.00	12.702	100.00	
Post Observa- tions	1.248	6.220	7.102	26.831	12.974	2.622	0.211	32.345	6.702	5.168	100.00	
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<u>Exptl Gr.2(N=7)</u>												
Pre Observa- tions	0.00	0.171	0.848	4.157	68.877	3.637	0.185	10.525	0.382	11.071	100.00	
Post Observa- tions	1.225	5.477	6.722	17.657	40.165	2.385	0.417	16.231	5.091	7.482	100.00	
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
<u>Control Group (N=7)</u>												
Pre Observa- tions	0.00	0.100	0.554	3.720	69.822	3.674	0.622	9.545	0.331	11.628	100.00	
Post Observa- tions	0.014	0.505	1.254	4.100	65.080	5.791	2.045	8.417	0.914	11.877	100.00	
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	

1.225, .2

Category 1 (Accepts feelings) :

In pre observations, category 1 (accepts feelings) was absent in all the three groups. In post observation, considerable increase of behaviour of this category was found in both the Experimental groups. The increase in Experimental Group 1 is 1.248 and Experimental Group 2 is 1.225. It means that after training and regular feedback, the teachers of both the Experimental Groups had made use of this category more than the teachers of the Control Group. It also shows that the teachers who received feedback at regular intervals used more of this category than the teachers who got only the training in teacher behaviour. In the Control Group, the occurrence of this event was insignificant during the experimental period. Teachers in the Control Group represented the typical Indian classroom interactional situation where the feelings of the students received scant attention.

Category 2 (Praises or Encourages) :

In the Experimental Group 1, initially there was hardly any occurrence of events in this category. In post observation, a significant increase in the occurrence of the event was noticed. In the Experimental Group 2 also,

there was a significant increase in the occurrence of the event but it was less than that in the Experimental Group 1. In the Control Group, the increase in the occurrence of the event was negligible. This indicates that owing to the classroom behaviour training and feedback, the teachers of the Experimental groups recognised the importance of this category.

Category 3 (Accepts or Uses Ideas of Students) :

In the Experimental Group 1, there was hardly any occurrence of events in this category in the pre-observation. But in post observation, an appreciable increase (7.102%) in the occurrence of the event was recorded. In Experimental Group 2 also, there was a significant increase (6.722) in the occurrence of this event but it was less in this group than in the Experimental Group 1. In the Control Group, the increase in the occurrence of the event is negligible (1.254%). This shows that the teachers who got training in teacher behaviour and feedback used more of this category and the teachers who received the training only also showed appreciable improvement but it was less than that of the Experimental Group 1. Owing to teacher behaviour training, teachers of the Experimental Groups recognised the importance of this category.

Category 4 (Asks Questions) :

The change under this category both for the Experimental Group 1 and the Experimental Group 2 was considerable between pre and post observations. The teachers of the Experimental Group 1 used this category more than teachers of the Experimental Group 2 (Percentages of pre and post observations of E₁ group were 5.191 and 26.831., percentages of pre and post observations of Experimental Group 2 were 4.157 and 17.657). In the Control Group the percentages of the pre observation and post observation were 3.72 and 4.10 respectively. This indicates that the teachers who were not trained in classroom teacher behaviour used this category less than that the teachers who received teacher behaviour training and regular feedback.

Category 5 (Lecturing) :

The percentage of pre observations of this category in Experimental Group 1 and Experimental Group 2 and Control Group were 63.934, 68.877 and 69.822 respectively. This reveals that the teachers of all the three groups were spending most of their time in lecturing to the students. But after the teacher behaviour training and feedback, the teachers of the Experimental Group 1 began to use less

of this category (percentage of post observation is 12.974). The teachers of the Experimental Group 2 who received teacher behaviour training only, also used less of this category (percentage of post observation is 40.165) but it is not considerably less like that of the teachers of the Experimental Group 1. This shows that regular feedback given to the teachers has had an effect on their use of this category. In the Control Group there was not a significant change (percentage of post observation is 65.08) in the use of this category. This means that the teachers' tendency for lecturing has not diminished considerably.

Category 6 (Giving Directions) :

In all the three groups the occurrence of this event is present in pre observation and percentage, in pre observation, of this category in groups E_1 , E_2 and Control Group were 3.860, 3.637 and 3.674 respectively. But in post observation, the occurrence of this event decreased in both Experimental Group 1 (6.622%) and Experimental Group 2 (2.385%). This shows that the teachers who were trained in teacher behaviour and who were given regular feedback began to use this

category less. But in the Control Group, there was an increase in the use of this category (5.791%) which is not conducive to the creation of a better classroom climate.

Category 7 (Criticizing or Justifying Authority) :

As regards this category, the teachers of all the three groups used this in post observation, which they rarely used in pre observation. When the teachers began to use categories 1, 2 and 3, a sort of conflict was going on in the minds of the pupils and as a result they tried to participate more and more in the classroom activities and at times it resulted in unison answering and hence they were required to use this category for proper functioning of the class. The teachers of Experimental Group 1 and Experimental Group 2 tried to use it rarely whereas the Control Group teachers used this and their use increased gradually. (Percentage of post observation of E_1 group is 0.211, percentage of post observation of E_2 Group is 0.417 and percentage of post observation of Control Group is 2.045).

The teachers of the Experimental Group 1 and Experimental Group 2 used categories 1, 2, 3 and 4 more and more. They tried to provide feedback to the pupils for

which they used categories 6 and 7 which resulted in greater pupil participation and use of categories 8 and 9, whereas in the Control Group the increased use of category 7 without feedback of categories 1, 2 and 3 decreased the pupils participation (Category 8).

Category 8 (Student Talk-Response) :

In the case of Category 8, in the Control Group the pupil response decreased but the picture was quite promising in case of Experimental Groups 1 and 2. There was an increase of about 18 percent of this category in Experimental Group 1 and an increase of about 6 percent in Experimental Group 2. The increase in the pupils response in both the Experimental Groups was due to the increase in the indirect behaviour of teachers and the use of questioning (4).

Category 9 (Student Talk - Initiation) :

In Category 9, little change (0.583 percent) was found in the Control Group but there was a considerable change of 6.702 percent in Experimental Group 1 and 4.709 percent in Experimental Group 2. It means that pupils' initiation increased due to the indirect behaviour of teachers.

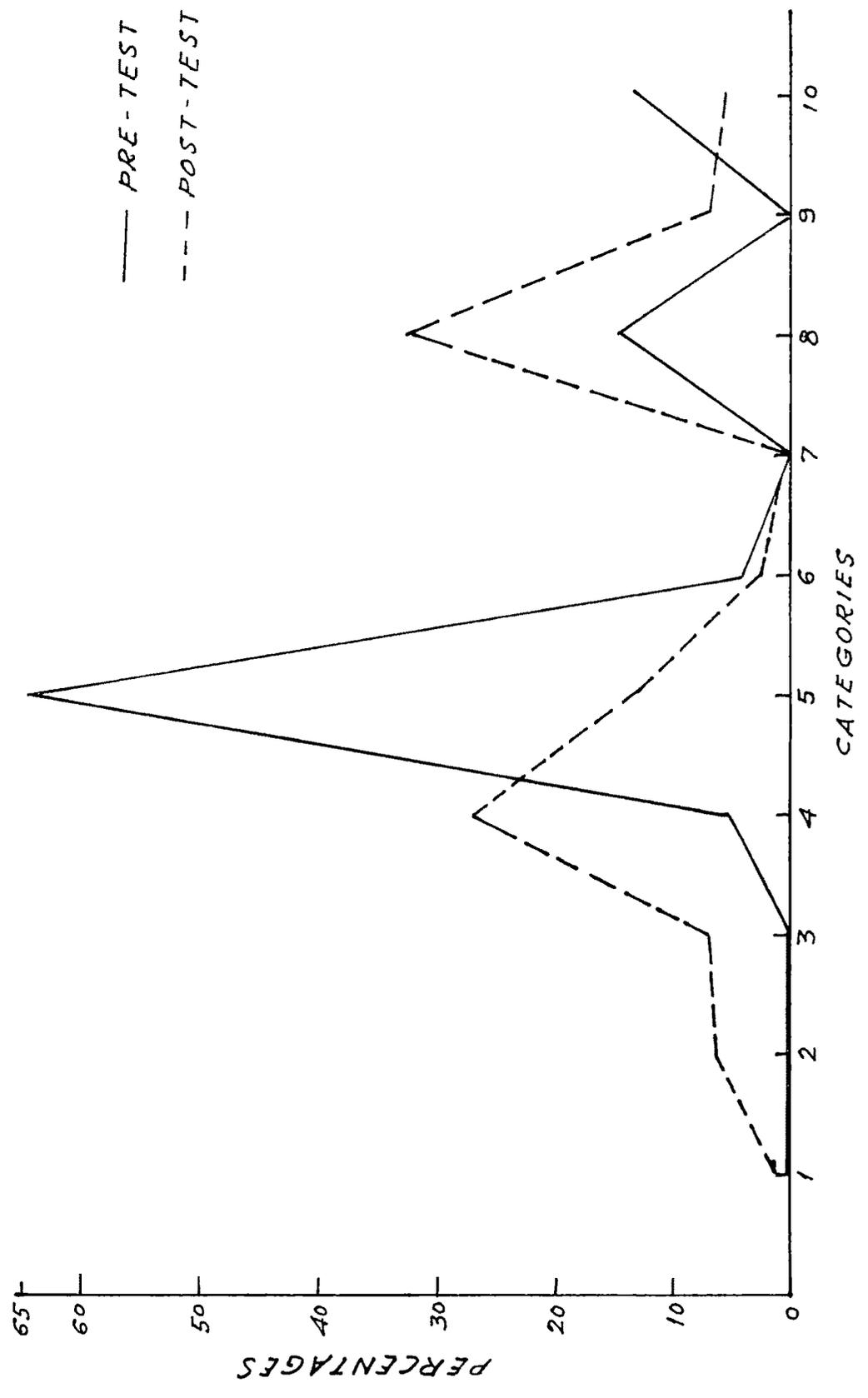
Category 10 (Silence or Confusion) :

The occurrence of this category is present in all the three groups in pre observation. But in Experimental Group 1 and Experimental Group 2, the occurrence of this event decreased in post observation. The decrease was about 7 percent in Experimental Group 1, and about 4 percent in Experimental Group 2. This change was due to the teachers' indirect behaviour. In the Control Group, little change was observed between pre and post observations. (Pre and post observation percentages were 11.628 and 11.877). (Figures on Table 5.2 are represented graphically in Graphs 1, 2 and 3).

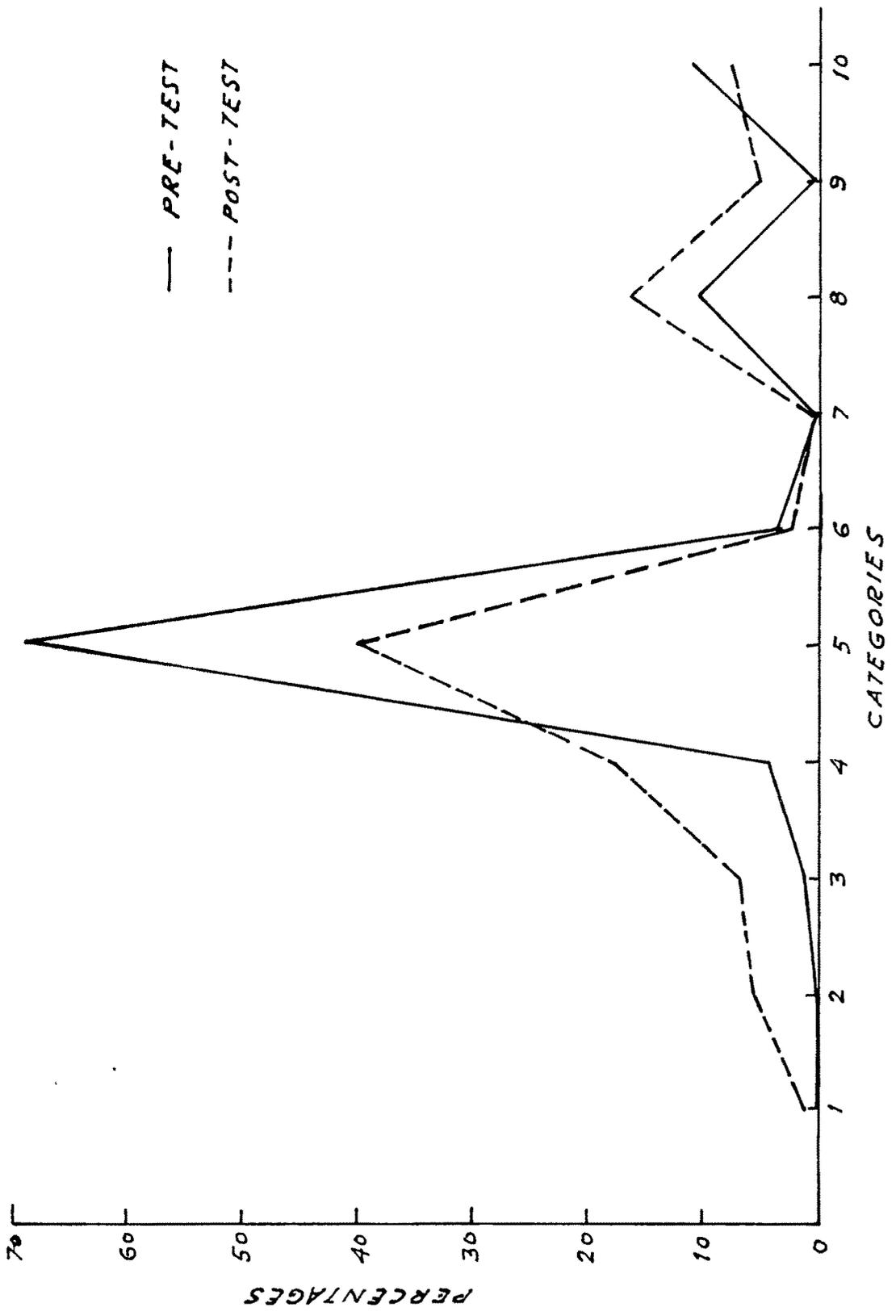
4. Analysis of Other Interaction Variables

The overall distribution of teacher talk and pupil talk will become meaningful, when an attempt is made to assess their quality. This can be accomplished by working out a few rates which provide information regarding teacher initiative, teacher response and pupil initiative. Flanders (1970) expects 'reciprocal relationships between teacher statements and pupil statements. This is, the more the teacher takes the initiative, the more likely are the pupils to respond. The more a teacher accepts the ideas of the pupils, ~~the more~~

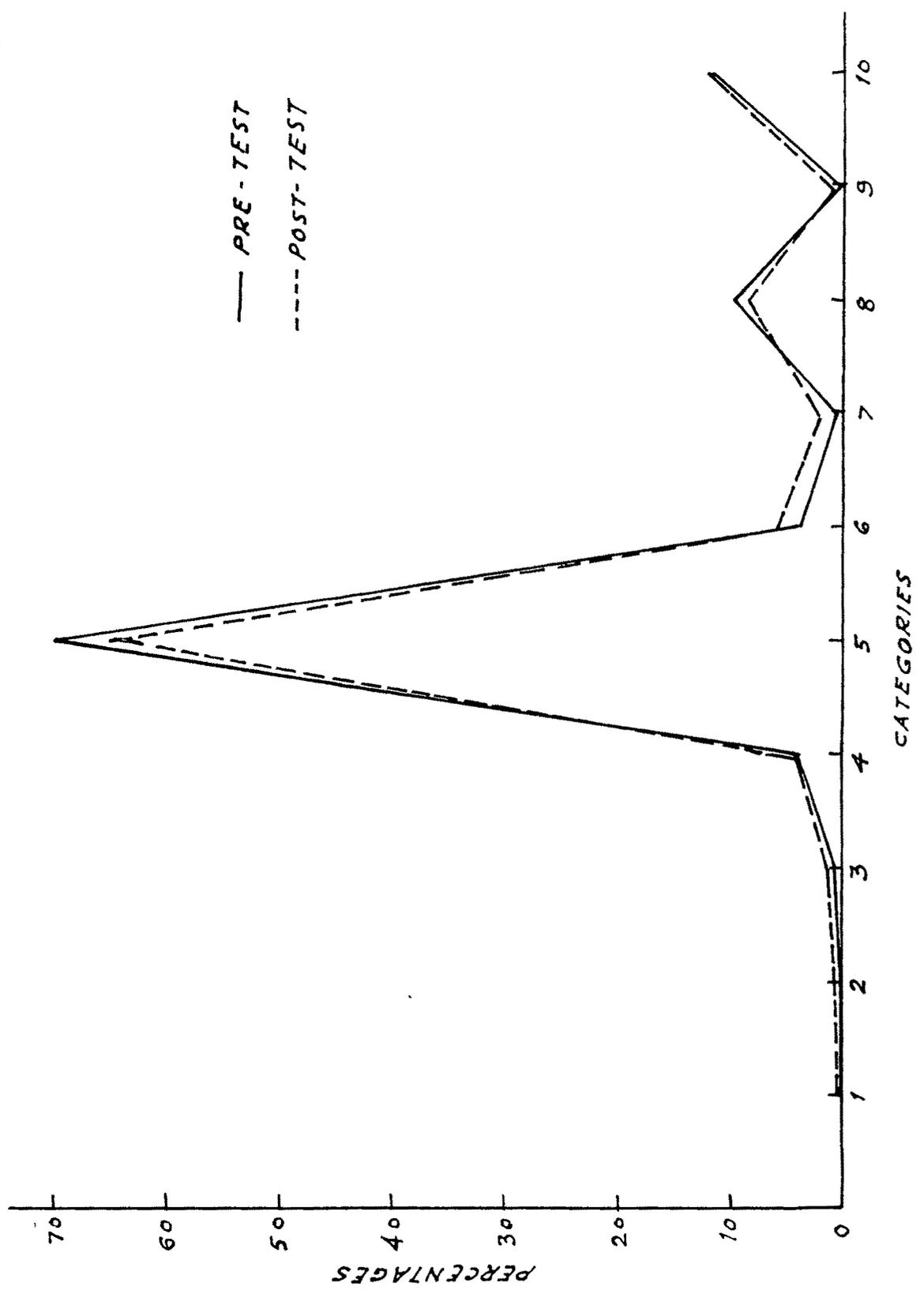
GRAPH 1: PROFILE COMPARING THE AVERAGE PERCENTAGES OF CATEGORIES
1 TO 10 OF PRE AND POST OBSERVATIONS OF EXPERIMENTAL GROUP 1



GRAPH 2: PROFILE COMPARING THE AVERAGE PERCENTAGES OF CATEGORIES 1 TO 10 OF PRE AND POST OBSERVATIONS OF EXPERIMENTAL GROUP 2



GRAPH 3: PROFILE COMPARING THE AVERAGE PERCENTAGES OF CATEGORIES
1 TO 10 OF PRE AND POST OBSERVATIONS OF CONTROL GROUP



thé more likely it is that pupils will make statements which show 'initiative'. An analysis of a few important interaction variables will discover the pattern of classroom climate.

Only seven important interaction variables were chosen and analysed as follows :

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 : TABLE 5.3 :

Percent Teacher Talk (PTT) :

This indicates the total verbal activity of a teacher in relation to the total activity of a class. This can be computed by the formula :

$$\frac{\text{Categories (1 + 2 + 3 + 4 + 5 + 6 + 7) X 100}}{\text{Total of all categories}}$$

In Experimental Group 1 and Experimental Group 2, a declining trend was noticed from pre observation to post observation. In Experimental Group 1, the decrease was about 15 percent and in Experimental Group 2, the decrease was about 3 percent. This shows that the classroom behaviour training and feedback given has lowered PTT. But in the Control Group no significant difference was observed

Table 5.3: Average Percentages of Seven Interaction Variables in Experimental Group 1, Experimental Group 2 and Control Group

Group	Observation	PPT	PPT	PSC	TQR	TRR	PIR	CCR
Experimental Gr.1	Pre	72.985	14.311	12.702	7.509	0.0	0.0	69.125
	Post	57.208	39.047	5.168	67.406	83.721	17.163	39.805
Experimental Gr.2	Pre	77.875	10.907	11.071	5.691	21.049	3.502	73.034
	Post	74.048	21.322	7.482	30.536	82.941	23.876	57.822
Control Group	Pre	78.492	9.876	11.628	5.058	13.212	3.351	73.542
	Post	78.789	9.331	11.877	5.926	18.451	9.795	69.180

between pre and post observation and the percentage of scores was also very high.

The norm for this Variable PTT established in Indian and American classrooms is approximately 68 percent. Therefore, the post observation trend of Experimental Group 1 and Experimental Group 2 was considered to be satisfactory.

Percent Pupil Talk (PPT) :

It indicates the verbal activity of pupils before a teacher in relation to the total activity of a class. This can be calculated by the formula :

$$\frac{\text{Categories (8 + 9) X 100}}{\text{Total of all categories}}$$

A considerable rise was recorded both in Experimental Group 1 and Experimental Group 2. But there was no change in Control Group between pre and post observation. The post observation result of 39.047 percent in Experimental Group 1 is higher than the norm of 19 percent for the Indian classroom and the American norm of 20 percent. But in Experimental Group 2, the post observation result of 21.322 is very close to Indian and American norms.

Silence or Confusion (PSC) :

It indicates that the observer cannot codify the activity of the classroom. This can be calculated by the formula :

$$\frac{\text{Category} \times 10 \times 100}{\text{Total of all categories}}$$

A declining trend was noticed both in Experimental Group 1 and Experimental Group 2 from pre and post observation. Indeed it was a healthy sign to have a better classroom climate. This would mean that both teachers and pupils were attentive in their respective pursuits inside the classroom. Moreover, the post observation results of both the Experimental Groups (Experimental Group 1, 5.168 percent, Experimental Group 2, 7.482 percent) were highly encouraging in view of the higher percentage of 13 and 11 of Indian and American classroom norms respectively. In the Control Group there was no change between pre and post observation results.

Teacher Question Ratio (TQR) :

This is defined as an index representing the tendency of a teacher to use questions when guiding the more

Content - oriented part of the class discussion. This can be calculated by the formula :

$$\frac{\text{Category 4} \times 100}{\text{Category (4 + 5)}}$$

In Experimental Group 1 and Experimental Group 2, a considerable rise was recorded from pre to post observation, whereas, in the Control Group the rise was negligible. A considerable rise in use of questions was noticed in Experimental Group 1 (59.897 percent) which is more than 3 times the norm 16.32 of Indian classrooms, is due to the teacher behaviour training and continuous feed back given to the teachers.

Teacher Response Ratio (TRR) :

This indicates the teachers' tendency to react to the ideas and feelings of the students. The ratio provides an index of the emotional climate in the classroom. This can be calculated by the formula :

$$\frac{\text{Categories (1 + 2 + 3)} \times 100}{\text{Categories (1 + 2 + 3 + 6 + 7)}}$$

In Experimental Group 1 and Experimental Group 2, a remarkable increase of this ratio was recorded from

pre to post observations (E_1 group, increase is 83.721 percent, E_2 group increase is 61.892 percent).

This phenomenal rise of TRR in both the groups could be attributable to the success of the classroom behaviour training and feedback. This teacher response ratio was supposed to be a determining factor to maintain better classroom climate.

Pupil Initiation Ratio (PIR) :

This indicates the proportion of pupil talk 'judged to be an act of initiation'. This can be calculated by the formula :

$$\frac{\text{Category 9 X 100}}{\text{Categories (8+9)}}$$

An appreciable increase was noticed from pre to post observation in E_1 and E_2 groups. (Increase in E_1 group is 17.163 percent, increase in E_2 group is 20.374 percent). The results recorded in the post observation were much higher than the norm 11 of Indian classrooms. In the Control Group a little increase was noticed from pre to post observation (6.444 percent).

The remarkable increase of PIR in E₁ and E₂ groups was due to the success of the teacher behaviour training and feedback. The pupil initiation ratio was also considered to be an important factor in maintaining better classroom climate.

Content Cross Ratio (CCR) :

This indicates the emphasis given to the content coverage during classroom interactions. This can be calculated by the formula :

$$\frac{\text{Categories (4+5) X 100}}{\text{Total of all categories}}$$

At the pre observation stage, CCR was very high in E₁, E₂ and Control groups. But, in the post observation stage, a considerable decrease was noticed in E₁ and E₂ groups (the decrease in E₁ group is 29.320 percent, the decrease in E₂ group is 15.212 percent). In the Control Group also there was a decrease, but it was not considerable (4.362 percent). Further, the post observation results in Experimental groups were encouraging in view of the norms of 59 and 55 respectively of Indian and American classrooms.

This decreasing trend of CCR would eventually eliminate the inactive and passive listening behaviour of students. It would pave the way for greater student participation in classroom activities. Therefore, the results obtained in CCR were found to be encouraging. It would help in maintaining better classroom climate.

5. Effect of Feedback on Important Categories

While analysing the matrices prepared according to FIAC system, certain categories had considerable influence and impact on certain other related categories. Therefore, categories 1, 2, 3, 4, 5, 8 and 9 were selected in order to analyse the effect of teacher behaviour training, feedback and re-inforcement in the case of Experimental Group 1 and the effect of teacher behaviour on Experimental Group 2. In the case of Control Group, normal classroom interaction was recorded and studied.

1. Effect of Feedback on Category 1 :

'Observation on Teachers' Accepting Pupils' Feelings' :

In order to understand the effect of teacher behaviour training and regular feedback on Experimental Group 1, teacher behaviour training on Experimental Group 2, on category 1, data were taken from master-master matrices

of E_1 , E_2 and Control groups for pre and post observation. The column 1 and Row 1 was taken to mark the events of interaction, succeeding and preceding category 1.

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 : TABLE 5.4 :

It can be seen that in all the three groups - E_1 , E_2 and Control - the teachers were not in the habit of using 'accepting pupils' feelings' in their interaction. They scored zero in the pre observation.

What is the effect on Experimental Group 1 as a result of teacher behaviour training and regular feedback with regard to category 1 ? There was considerable increase of this category from 0 to 1.248 percent. This would mean that the change in the behaviour of the Experimental Group 1 teachers is due to teacher behaviour training and feedback.

What are the events that preceded the use of Category 1 ? Looking at the table showing the order of the greater percentage of increase, categories 8, 9 and 4 preceded. The pupils responded (category 8, 0.42 percent) and the teacher used 'accepting pupils feelings (1) ; the pupils showed initiation (9) and the teacher 'accepted the pupils feelings' (1) ; the teacher asked questions (4) and

immédiately 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 (0.336 percent).

Which event succeeded ? or, what happened immediately after category 1 ? The pupils' answer followed (Category 8, 0.422percent), the teachers' questioning (4) followed (0.132 percent).

It can be said therefore that as a result of training and feedback given to the teachers of Experimental Group 1, the teachers;

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

What events preceded ? The teachers accepted the pupils' ideas (3,0.368 percent) after accepting their feelings (1). The teachers encouraged the pupils' feelings after accepting their feelings. The teacher also used this category continuously (1-1, 0.622 percent). Encouragement of the feeling of the students received students' initiation (9, 0.062%)

and even after the students expressed their feelings, the teacher accepted their feelings.

Which event succeeded ? or, what happened immediately after category 1 ? The maximum number of events occurred in categories 3, 2 and 9. This implies that after accepting the pupils' feelings the teacher repeated the ideas of the students (3, 0.368 percent). Immediately afterwards the teacher praised the students also (2, 0.145 percent). This praise or encouragement shown to the pupils made other pupils take initiative (9, 0.062 percent). This means that pupils were inclined to initiate their ideas. Teachers liked to link 'encouraging or praising the students' by accepting their ideas.

This did not occur in the case of Control Group.

Effect of Feedback on Category 2 :

'Observations on Teachers' Encouraging or Praising Pupils' : The procedure adopted to understand the effect of feedback on Category 2 was same as the one used in the case of previous Category 1.

TABLE 5.5

It can be seen that in Experimental Group 1 the teachers were not in the habit of using 'praise' or 'encouragement' in their interaction. The pre observation represents zero.

What happened to Experimental Group 1 after training and feedback with regard to category 2 ? As far as the Control Group was concerned a very small change from 0.100% to 0.505% was observed, whereas in the Experimental Group 1, the increase was from 0% to 6.22%. A considerable increase indeed !

Which events preceded category 2 ? 'The pupils' response' (8, 3.026%) preceded the teacher use of praise (2), 'the pupils showed 'initiation' (9, 1.470%) preceded 'the teacher used praise'. The teacher asked questions (4, 0.744%) preceded, the teacher immediately praised them'. That is, he used praise (2) to encourage the pupils to think about his questions.

What happened as a result of the teachers' use of praise' or 'encouragement' ? The pupils' answers followed (1.968%) the teachers' questions (4) followed (1.748%), the teachers' narration (5) followed (0.62%). It also happened that the teachers used considerable number of events (0.684%) for continuous encouragement (2 - 2).

It can be said, therefore, that as a result of the training and continuous feedback given to the Experimental Group 1 teachers, the teachers

- used 'praise' or 'encouragement' more after training and feedback 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 their narration and as a result of this, the pupils' participation and initiation increased.

What happened to Experimental Group 2 with regard to category 2 after teacher behaviour training? The teachers were not in the habit of using 'praise' or 'encouragement' in the normal classroom interaction. The pre observation represents 0.171%. After training, the use of this category increased to 5.477%, a significant increase. This means that the change in the behaviour of Experimental Group 2 teachers is due to the teacher behaviour training.

Which events preceded the use of category 2? Categories 8 and 9 preceded category 2. This would mean that after students' response (8, 1.968%) the teachers praised and encouraged the students. Eventually this encouragement further led to students' initiative (9, 1.526%).

From this, it will be evident that teachers encouraged student talk in the classroom. The teachers also used this category continuously (2-2, 1.130%). This would mean that after receiving students' answers the teachers praised or encouraged them.

What events succeeded ? That is, what happened immediately after category 2 ? The maximum number of events were in categories 8, 9 and 3. This means that after 'praise' or 'encouragement' (2) the pupils liked to respond (8) to the teacher (1.242%). They showed initiative (9) after the teachers' praise (0.822%). The teacher accepted the ideas of the students (3) after praise (0.725%). The students were bubbling with enthusiasm because the teachers encouraged student talk (8 and 9).

Therefore, it can be said that as a result of the training given to Experimental Group 2 teachers, the teachers,

- used 'praise' or 'encouragement' after training more than they did before training,
- used category 2 after pupils' response and pupils' initiative and as a result of this, the pupils' participation increased.

Improvement towards integrative behaviour did not occur in the Control Group.

Effect of Feedback on Category 3 :

Observations on Teachers Accepting Ideas of Pupils :

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: TABLE 5.6 :
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It may be observed that in all the three groups, the teachers were using an appallingly low percentage of category 3, (using pupils 'ideas') in their normal classroom interaction. In Experimental Group 1, the pre observation represents 'zero'.

What happened to Experimental Group 1 after training and feedback with regard to category 3 ? There was an increase from 0 to 7.102% in the use of this category, a very considerable increase indeed !

Which events preceded category 3 ? The pupils responded (8) and the teacher used 'accepting pupils ideas' (3), 'the teacher asked question' (4) linking with 'the pupils' ideas' (3), 'the teacher lectured' (5) for giving explanation taking into account 'pupils ideas' (3), and the teacher used category 3 continuously (3-3) in a number of events (2.980%).

What happened as a result of the teachers 'accepting ideas of the pupils' ? The teachers' question (4) followed

(1.646%), the pupils' responses (8) followed (0.942%), and the teachers' narration (5) followed (0.788%).

It can be said, therefore, that as a result of training and continuous feedback to the Experimental Group 1 teachers, the teachers,

- used 'accepting ideas of the pupils' more after training and feedback 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.

What happened to Experimental Group 2 teachers after teacher behaviour training with regard to category 3 ? The total percentage of using category 3 rose from 0.848% to 6.722%. The increase in the Experimental Group 2 is quite considerable as compared with previous observation and this change is due to teacher behaviour training.

Which events preceded the use of category 3 ? The teachers accepted pupils ideas after their answers (8, 2.346%), subsequently used category 2 to praise or encourage the students (2, 0.725%). This eventually led to student initiative (9,952%), meaning thereby, that the teachers

encouraged student participation in the classroom. The teachers also used this category continuously 3-3(2.448%).

What happened immediately after category 3? After teachers' acceptance of pupils' ideas (3), the pupils liked to respond (8) to the teacher (1.112%). Immediately after the students' response, the teachers gave them direction (6, 0.886%). Though using category 6 is considered to be authoritarian on the part of the teachers, in this context, the teachers used in a more affable manner, by addressing the pupils by name which would develop better classroom climate. Another point observed in this context is that the normal practice was to give direction to students to occupy their seats after giving an answer. Again, after accepting the pupils' ideas they began to narrate the lesson (5, 0.646%). This would mean that the teachers made use of pupils' ideas in linking his narrations.

The Experimental Group 2 teachers showed a significant amount of increase in their use of category 3 as a result of teacher behaviour training.

No significant change was observed in Control Group.

Effect of Feedback on Category 4 :

'Observation on Teachers' Questioning' :

∴TABLE 5.7 ∴

It can be seen that in all the three groups - E_1 , E_2 and Control - the teachers were in the habit of 'asking the questions' in their interaction. The pre observation represented 5.191%, 4.157%, and 3.720% in E_1 , E_2 and Control groups respectively.

What happened to Experimental Group 1 after training and regular feedback with regard to Category 4 ? As far as the Control Group was concerned, a very small amount of increase from 3.720% to 4.100% was observed whereas in Experimental Group 1, the increase was from 5.191% to 26.831%, a very significant increase.

Which events preceded category 4 ? The pupils responded (8, 9.418%) and the teacher asked questions (4) ; the teacher asked questions (4) on the basis of his narration (5, 3.728%); the teacher asked questions (4) after accepting pupils' ideas (3, 1.646%) and the teacher used category 4 continuously (4-4) in a number of events (8.422%).

What happened as a result of the use of teachers' questioning ? The pupils' response (8) followed (12.664%), the teachers' narration (5) followed (1.522%), the pupils' initiation (9) followed (1.485%) and silence (10) followed (1.202%) to set the pupils thinking.

It can be said therefore, that as result of training and feedback given to Experimental Group 1 teachers, the teachers

- used 'teachers questioning' more after training and feedback than they did before training.
- used category 4 after pupils' response, after his own narration, and after accepting pupils' ideas. As a result of this, the pupils' participation increased, pupils' initiation increased, the narration of the teachers decreased and the silence increased.

What happened to Experimental Group 2 after teacher behaviour training with regard to category 4 ? There was a considerable increase in the use of this category from 4.157% to 17.657%.

Which events preceded the use of category 4 ? The pupils responded (8, 4.344%) and the teacher asked questions (4) ; the teacher asked questions (4) on the basis of his narration (5, 4.242%) and silence (10, 0.566%) preceded to set the pupils thinking.

Which events succeeded ? or what happened immediately after category 4 ? The pupils response (8) followed (6.122%), the pupils initiation (9) followed (1.344%), the teacher's narration (5) followed (1.222%) and silence (10) followed (0.976%) to give time for the pupils to think.

This means that the teachers asked more questions after pupils response, his own narration and after pupils initiation. The total increase in the use of this category in Experimental Group 2 is due to teacher behaviour training.

This did not happen with the Control Group teachers.

Effect of Feedback on Category 5 :

'Observation on Teachers' 'Narration' or 'Lecturing'

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 :TABLE 5.8:
 :.....:

It may be observed that in all the three groups, teachers were in the habit of talking or lecturing as evident from the pre observation. This would mean that all the three groups of teachers were using category 5 to the maximum of total classroom interaction.

What happened to Experimental Group 1 as a result of training and feedback ? They used only 12.974% by reducing more than 50% in the use of category 5. The decrease was quite considerable in view of their greater use of this category before the training and regular feedback. The Control Group remained almost in its previous position. This would mean that the change in the behaviour of Experimental Group 1 teachers was due to teacher behaviour training and feedback.

Which events preceded the use of category 5 ? The teachers asked question (4) and narration (5) followed; this habit of lecturing on the part of the teacher decreased and a good sign was noticed. The habit of continuous lecturing on

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

Which events succeeded ? While lecturing the teachers asked questions (4, 3.728%) to develop their narration. The pupils responded (8, 3.462). The teacher again used narration and subsequently silence (10, 0.966%) indicated that along with lecturing teachers began to use the black board or to exhibit teaching aids. However, the declining trend in category 10 was considerable.

A significant reduction in the use of category 5 could very well be attributed to classroom behaviour training and feedback.

What happened to Experimental Group 2 teachers after training with regard to category 5 ? There was a significant decrease from 68.877% to 40.165% in the use of category 5. It can also be observed that the percentages of the habit of continuous lecturing (5-5) decreased from 61.263% to 34.696%.

Which events preceded category 5 ? Categories 10, 4 and 3 preceded. After doing black board work or exhibiting some teaching aids, the teachers developed their talk. The teacher asked questions (4). The teachers' use of category (3),

using the ideas of students while lecturing was a constructive behaviour pattern of the teachers. The increase in the use of students' ideas (3, 0.580%) and link them in narrating the lesson is due to teacher behaviour training.

What happened as a result of the use of 'teachers' narration or lecturing' ? The teachers question (4) followed (4.242%), the pupils response (8) followed (0.340%), the teachers' accepted pupils' ideas (3, 0.284%).

It can be said therefore, that as a result of training to Experimental Group 2, the teachers use of lecturing (5) decreased considerably.

The Control Group remained almost in its previous position.

Effects of Feedback on Category 8 :

Observation on Pupils' 'Response'

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: TABLE 5.9 :
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It may be observed that in all the three groups - E_1 , E_2 and Control - the pupils were in the habit of

'responding' in their interaction. The pre observation percentages were 14.311%, 10.525%, and 9.545% in E₁, E₂ and Control Groups respectively.

What happened to Experimental Group 1 after training and feedback with regard to the use of category 8? A considerable increase from 14.311% to 32.345% was observed. This means that the pupils got more opportunity to respond.

Which events preceded category 8? The pupils responded (8) and the teacher asked question (4), the pupils responded (8) and the teacher narrated the lesson (5) using pupils response (8), and the teacher encouraged pupils to give out their views (2), the pupils responded (8) and the teacher accepted the pupils ideas (3). This means, the student's response was more in view of praise and accepting the ideas of students.

Which events succeeded? That is, what happened immediately after pupils 'response'? The teacher's question (4) followed (9.362%), the teacher's narration (5) followed (4.968%), the teachers' praise (2) followed (2.165%). It also happened that the pupils responded continuously (11.474%).

It can be said, therefore, that as a result of training and feedback given to Experimental Group 1 teachers, the pupils, responded more after the training and feedback given to the teachers than they did before training.

What happened to Experimental Group 2 after teacher behaviour training ? After the training a considerable increase from 10.525% to 16.231% was recorded by Experimental Group 2. This would mean that the change was due to teacher behaviour training given to teachers of Experimental Group 2.

Which events preceded the use of category 8 ? The teachers questioned (4) and the students responded (8). Then the teachers began to praise (2), (1.222%) the students. Moreover, the teachers habit of accepting ideas of students (3, 0.546%) gave an increasing trend in this category 8. This means, the students response was more in view of praise and accepting the ideas of students.

Which events succeeded ? The teacher's question (4) followed (6.400%). After students' response (8) the teacher praised (2), the students (1.442%) and accepted

the ideas (3), of the students (1.122%). In this cycle of events the students response was more in relation to categories 2 and 3.

The above trend did not occur in the case of the Control Group. Therefore, it was evident that the training had a considerable effect over the Experimental Groups 1 and 2 teachers.

Effect of Feedback on Category 9 :

Observations on Pupils' 'Initiation'

.....
 : TABLE 5.10 :

It can be seen that in all the three groups - E_1 , E_2 and Control Groups - the pupils were not in the habit of using 'initiation' in their interaction. The pre observation percentage is negligible in all the three groups.

What happened to Experimental Group 1 after training and feedback with regard to category 9 ? An increase from 0.0% to 6.702% was observed in Experimental Group 1, a very considerable increase indeed !

Which events preceded category 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 'accepting feelings' (0.416%), 'praise' (0.598%), 'accepting pupils' ideas (0.538%), asked questions (2.984%), lectured (0.464%) and the pupils 'responded' (0.918%) and immediately the pupils showed 'initiation'. The pupils showed initiation continuously (9-9) in considerable events (0.562%).

What happened as a result of the pupils 'initiation' ? The teachers' 'accept feeling' (1) followed (0.488%), the teachers' 'praise' (2) followed (2.888%), the teachers' 'accepting ideas' (3) followed (0.292%), the teachers' 'question' (4) followed (0.886%), the teachers' 'narration' (5) followed (0.464%), the pupils' 'response' (8) followed (0.840%).

It can be said therefore, that as a result of training and feedback given to Experimental Group 1 teachers, the pupils,

- showed initiation more after the training given to the teachers than before the training of teachers,
- showed initiation (category 9) after teachers 'accept feelings', 'accept ideas', 'ask questions', 'narration' and the pupils also linked their responses.

What happened to Experimental Group 2 as a result of the training ? They used 5.091 percent of category 9. The increase is considerable looking at pre observation. This means that change in the behaviour of the teachers of Experimental Group 2 was due to the teacher behaviour training.

Which events preceded the use of category 9 ? Looking at the table in order of ~~the~~ greater percentage of increase, categories 5, 2 and 3 preceded. This would mean that the teacher received the students' initiative (9) while lecturing (5), (1.214%). Immediately after student's initiative (9) the teacher encouraged the students (2), (0.844%). Moreover, the teacher used the ideas of the students (3, 0.488%). This type of positive encouragement given to the students made them use this category continuously (9-9), (2.102%). This would

mean that the teacher made use of students' initiative in linking his narration.

Which events succeeded category 9 ? After students initiation (9) the teachers praised the students (2, 1.086%). Then the students responded (8, 0.736%). The teacher taking advantage of students response asked questions (4, 0.380%) and the students showed initiation (9). This means that pupils were more eager to initiate talk with the teachers and the teachers' liked to encourage the students.

This did not happen with the Control Group. The Experimental Group 1 showed a significant increase in category 9 as a result of the training and regular feedback. The Experimental Group 2 also showed a significant increase in the use of category 9 as a result of the training given but the increase was more in Experimental Group 1. This means that feedback given to the teachers after each observation had a considerable effect on their teaching.

6. Interrelation Between Categories 1, 2, 3 and Categories 8 and 9.

According to FIAC system, category 1 (accepts feelings), category 2 (praises or encourages) and

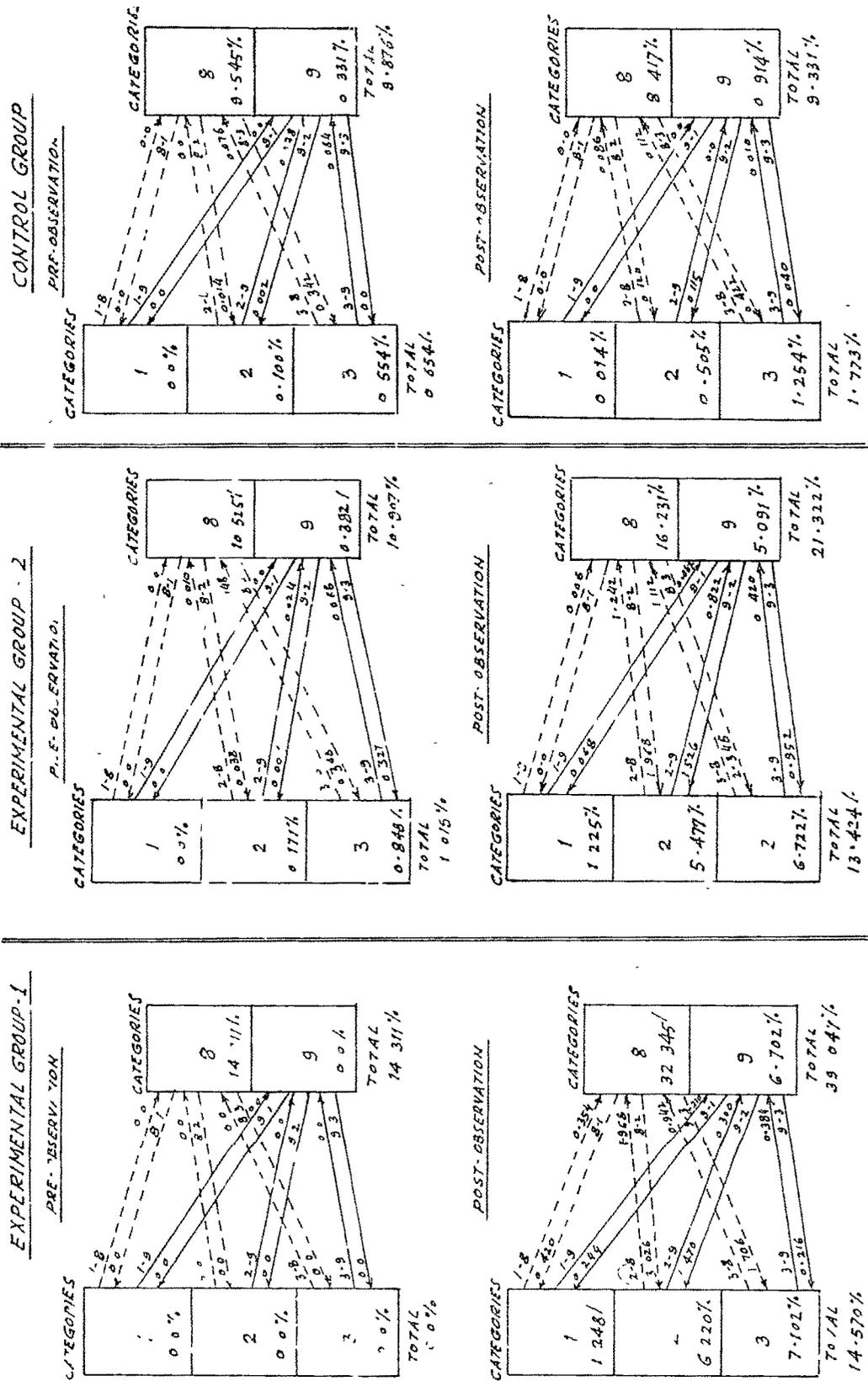
category 3 (accepts ideas) represent positive reinforcement to classroom interaction. Category 8 (student response) and category 9 (student initiative) represent pupil participation (verbal) in the total classroom interaction. The normal expectation of the interrelation between the categories responsible for positive reinforcement and the categories for pupil activity will be a determining factor for the prevalence of a better classroom interaction. The increase in the use of categories 1, 2 and 3, on the part of the teachers, will change the behaviour pattern of teachers from authoritarian to integrative. One of the major aims of classroom behaviour training and feedback is to change the teacher behaviour towards integrative. Therefore, an analysis of the interaction between categories 1, 2 and 3 and categories 8 and 9 will throw more light on the change in teacher behaviour.

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 : TABLE 5.11 :
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The Table 5.11 reveals the following observations :

There was a remarkable positive change in the total percentage of categories 1, 2, 3 and categories 8 and 9 in the Experimental Group 1 and the Experimental Group 2 between pre and post observations. The increase was

AVERAGE PERCENTAGES OF CATEGORIES 1, 2, 3 IN RELATION TO CATEGORIES 8, 9 OF PRE AND POST OBSERVATIONS OF EXPERIMENTAL GROUP 1, EXPERIMENTAL GROUP 2 AND CONTROL GROUP TEACHERS



14.570 percent and 24.736 percent for E₁ and 12.405 percent and 10.415 percent for E₂, but in the Control Group the increase in the percentage of categories 1, 2, 3 was only 1.119 percent. Regarding categories 8 and 9 there was a fall of 0.545 percent. The considerable increase in the indirect behaviours was the result of training and feedback given to Experimental Group 1 teachers which also resulted in the higher percentage of pupils' response and initiation. A similar increase was found in Experimental Group 2 also which received training only but the increase was less, compared to Experimental Group 1.

- * Practically no relationship was observed between categories 1, 2, 3 and 8 and 9 in the pre and post observations of Control Group teachers because they were direct in their behaviours.
- * Similarly no relationship was observed between categories 1, 2, 3 and 8 and 9 in the pre observations of the Experimental Group 1 and the Experimental Group 2.
- * In post observations of Experimental Group 1 the following relationships were observed :
 1. Praises by teachers after pupils' response was by 3.026 percent (8-2).
 2. Teachers' praise for pupils' response was 1.968 percent (2-8).

3. Teachers' 'accepted the ideas of the pupils' was followed by pupils' response by 1.706 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.

In post observations of Experimental Group 2 the following relationships were observed.

1. Praises by teachers after pupils response was by 1.968 percent (8-2).
 2. Teachers praise for pupils response was followed by teachers' 1.243 percent (2-8).
 3. Teachers accepted the ideas of the pupils was followed by 2.346 percent (8-3).
 4. A positive relationship was also observed in 3-8, 2-9, 9-2, 3-9 and 9-3.
 5. Not a significant relationship was observed in 1-8, 8-1, 8-1, 1-9 and 9-1.
7. Interrelation Between Cells 4-4, 5-5, 8-8 and 9-9

The observations have been presented in the Table 5.12 on the next page. The Table 5.12 reveals that :

AVERAGE PERCENTAGES OF EVENTS BETWEEN CELLS 4-4, 5-5, 8-8 AND 9-9 OF PRE AND POST OBSERVATIONS OF EXPERIMENTAL GROUP 1, EXPERIMENTAL GROUP 2 AND CONTROL GROUP TEACHERS

TABLE 5.12

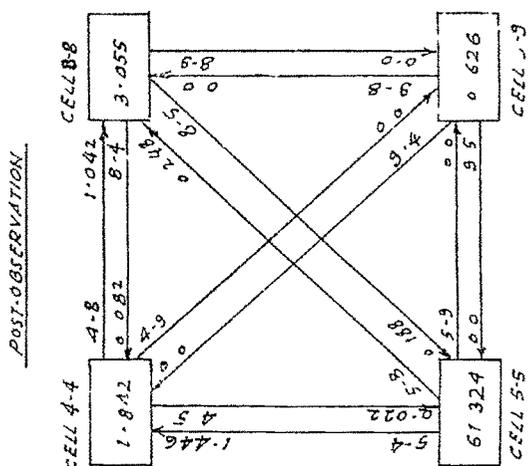
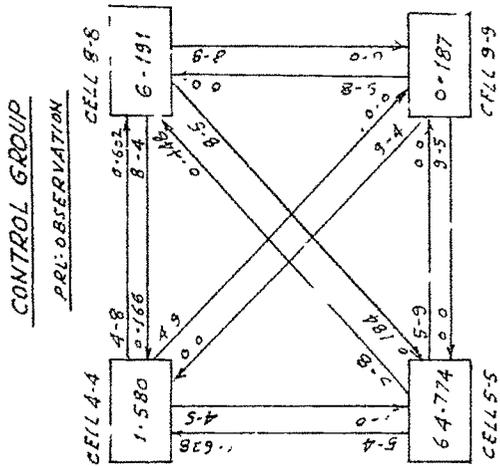
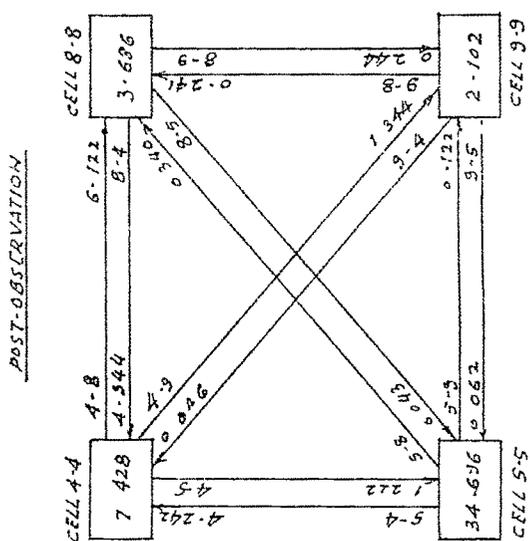
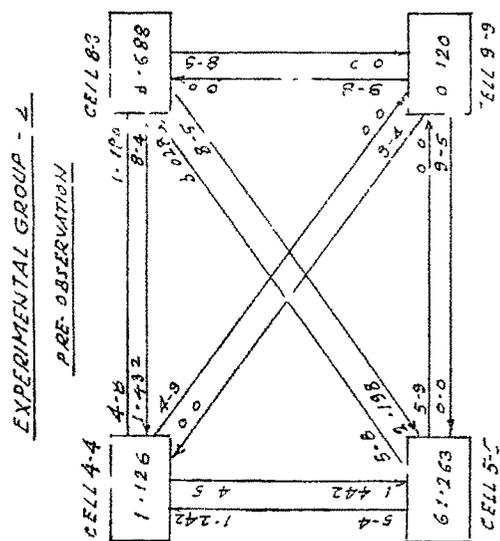
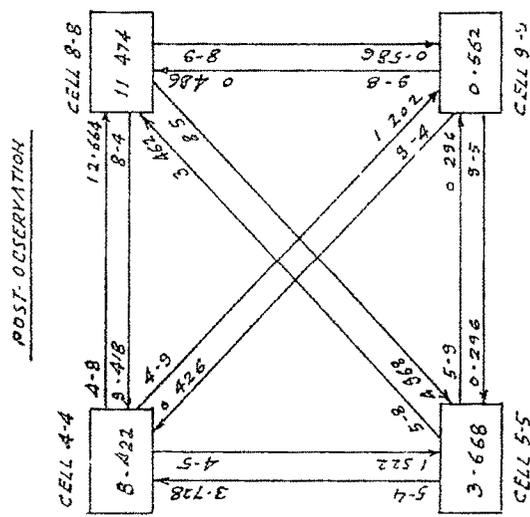
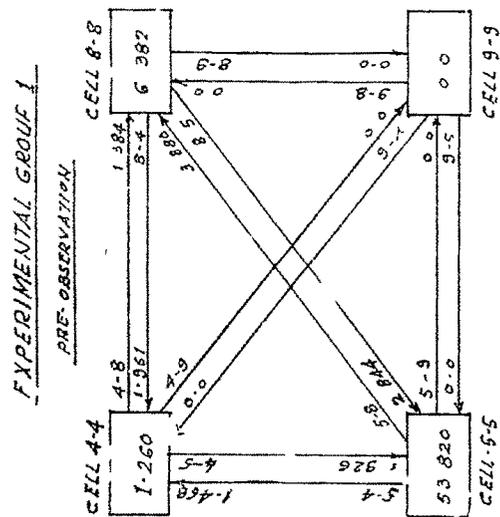


Table :5.12: Observations

Experimental Group 1	Experimental Group 2	Control Group
(1) Differences in the percentages of pre and post observations between different cells (Steady State)		
* <u>Teacher's questioning (cell 4-4) increased by 7.162 percent</u>	* <u>Teacher's questioning (cell 4-4) increased by 6.302 percent</u>	* <u>Teacher's questioning (cell 4-4) increased by 0.262 percent</u>
* <u>Corresponding effect was also observed in pupils' response (cell 8-8) by a rise of 5.092 percent.</u>	* <u>A negligible decrease was observed in pupils' response (cell 8-8) by 0.002 percent</u>	* <u>A considerable decrease was observed in pupils' response (cell 8-8) by 3.136 percent</u>
* <u>A considerable decrease in teachers' lecturing (cell 5-5) was observed by 50.152 percent.</u>	* <u>A considerable decrease in teachers' lecturing (cell 5-5) was observed by 26.567 per cent.</u>	* <u>A negligible increase in teachers' lecturing (cell 5-5) was observed by 3.450 percent.</u>
* <u>Pupils initiation (cell 9-9) was observed by an increase of 0.562 per cent.</u>	* <u>Pupils' initiation (cell 9-9) was observed by an increase of 1.982 percent</u>	* <u>Pupils' initiation (cell 9-9) was observed by an increase of 0.439 percent.</u>
(2) Differences in the percentages of pre and post observation events between cells go clockwise		
* <u>Teachers questioning responded to by pupils' (4-8) increased by 11.280 percent.</u>	* <u>Teachers questioning responded to by pupils (4-8) increased by 4.938 percent.</u>	* <u>Teachers questioning responded to by pupils (4-8) slightly increased by 0.390 percent</u>

(Continued...)

(Table 5.12 continued)

Experimental Group 1	Experimental Group 2	Control Group
* Pupils initiation after response (8-9) <u>increased</u> by 0.586 percent	* Pupils initiation after response (8-9) <u>increased</u> by 0.244 percent	* No such change was observed at all
* Pupils initiation followed by lecturing (9-5) showed an <u>increase</u> of 0.296 percent	* Pupils initiation followed by lecturing (9-5) showed a <u>very slight increase</u> of 0.062 percent.	* No such change was observed at all.
* The habit of questioning immediately after lecturing (5-4) <u>increased</u> by 2.260 percent.	* The habit of questioning immediately after lecturing (5-4) <u>increased</u> by 3.000 per cent.	* Similar habit <u>decreased</u> by 0.182 percent
(3) Differences in the percentages of pre and post observation events between different cells go anti-clock wise.		
* Significant change in the events of questioning immediately after pupils' response (8-4) <u>increased</u> by 7.457 percent.	* Considerable change in the events of questioning immediately after pupils' response (8-4) <u>increased</u> by 2.912 percent.	* Similar habit <u>decreased</u> by 0.084 percent.
* Percentage of lecturing after questioning (4-5) <u>decreased</u> by 0.404 percent	* Percentage of lecturing after questioning (4-5) <u>decreased</u> by 0.220 percent	* Percentage of lecturing after questioning (4-5) <u>slightly increased</u> by 0.022 percent
* Though little, but a positive behaviour of pupils' initiation after lecturing (5-9) was observed by 0.296 percent.	* Though little but a <u>positive</u> behaviour of pupils' initiation after lecturing (5-9) was observed by 0.122 percent.	* No such change was observed at all

(Continued...)

(Table 5.12 continued...)

Experimental Group 1	Experimental Group 2	Control Group
<p>* Change was observed in pupils response after initiation (9-8) by an <u>increase of 0.486 percent.</u></p>	<p>* Change was observed in pupils response after initiation (9-8) by an <u>increase of 0.241 percent.</u></p>	<p>* No such change was observed at all.</p>
<p>(4) Differences in the percentages of pre and post observation events between cells go diagonally</p>		
<p>* Pupils' response after lecturing (5-8) <u>decreased by 0.418 percent.</u></p>	<p>* Pupils' response after lecturing (5-8) <u>decreased by 2.688 percent</u></p>	<p>* Pupils' response after lecturing (5-8) <u>decreased by 0.200 percent</u></p>
<p>* Lecturing after pupils' response (8-5) <u>increased by 2.124 percent.</u></p>	<p>* Lecturing after pupils' response (8-5) <u>decreased by 2.155 percent</u></p>	<p>* Lecturing after pupils' response (8-5) <u>slightly increased by 0.004 percent</u></p>
<p>* Considerable change of pupils initiation after teachers' questioning (4-9) was noticed by an <u>increase of 1.202 percent.</u></p>	<p>* Considerable change of pupils initiation after teachers questioning (4-9) was noticed by an <u>increase of 1.344 percent.</u></p>	<p>* No such change was noticed at all.</p>
<p>* Pupils' initiation inquired by teachers through questioning (9-4) <u>increased by 0.426 percent.</u></p>	<p>* Pupils' initiation inquired by teachers through questioning (9-4) <u>increased by 0.046 percent.</u></p>	<p>* No such inquiry on the part of teachers was observed.</p>

A detailed study of the diagram reveals the following major observations for Experimental Group 1 :

- * A positive increase in the events of teachers' questioning, pupils' response and pupils' initiation.
- * An accountable decrease in teachers lecturing.
- * A remarkable positive change in events, teachers' questioning - pupils' response - teachers' questioning.
- * An important positive change in events, teachers' questioning - pupils' initiation.

The above mentioned changes are the result of the teacher behaviour training and regular feedback given to the teachers of Experimental Group 1.

A detailed study of the diagram reveals the following major observations for Experimental Group 2.

- * A positive increase in the events of teachers' questioning, and pupils initiation.
- * A considerable decrease in teachers' lecturing.
- * A remarkable positive change in events - teachers' questioning - pupils response - teachers' questioning
- * An important positive change in events, teachers' questioning - pupils initiation.

The above mentioned changes are the result of teacher behaviour training given to the teachers of Experimental Group 2.

No such remarkable change was observed in the Control Group.

8. Analysis of Master Matrices of Individual Teachers of Experimental Group 1, Experimental Group 2 and Control Group

According to FIAC system an individual or master matrix will serve as the mirror of teaching. The change in teacher behaviour will be revealed by the matrices. Therefore, an analysis was attempted to bring out the nature of change in teacher behaviour, and total percentage of events that happened in each category was tabulated and given in Table 5.13 (a), (b) and (c) on the following pages. The same reveals the following observations :

Category 1 :

All the seven teachers of the Experimental Group 1 more or less showed a tendency of accepting the feeling of pupils, but teacher 5's was maximum (2.40 percent) and teacher 6's was minimum (0.20 percent). The teachers 1, 2 and 4 were almost equal while the teacher 3 was less than teachers 1, 2 and 4 in this behaviour. Teacher 7 was nearer to teacher 5 in

Table :5.13: (a) Average Percentages of Categories 1 to 10 of Pre and Post Observations of the Teachers of Experimental Group 1, Experimental Group 2 and Control Group.

Teacher No.	Observation	Categories										Total
		1	2	3	4	5	6	7	8	9	10	
EXPERIMENTAL GROUP 1												
1	Pre	0.00	0.00	0.00	4.76	61.52	3.00	0.00	15.26	0.00	15.46	100.00
	Post	1.08	2.46	9.70	16.80	18.98	1.44	0.20	38.64	6.08	4.62	100.00
2	Pre	0.00	0.00	0.00	5.10	59.40	4.46	0.00	19.14	0.00	11.90	100.00
	Post	1.20	7.60	8.40	22.64	8.86	1.12	0.12	37.44	7.50	5.12	100.00
3	Pre	0.00	0.00	0.00	6.10	61.94	2.76	0.00	16.10	0.00	13.10	100.00
	Post	0.74	6.70	4.48	29.42	10.80	1.30	0.12	33.88	7.12	5.44	100.00
4	Pre	0.00	0.00	0.00	4.96	61.10	3.44	0.00	18.80	0.00	11.70	100.00
	Post	0.96	6.30	4.76	31.46	8.56	2.60	0.04	32.78	6.34	6.20	100.00
5	Pre	0.00	0.00	0.00	4.90	68.56	3.24	0.00	12.84	0.00	10.46	100.00
	Post	2.40	4.24	4.48	32.62	9.96	3.00	0.40	31.42	6.84	4.64	100.00
6	Pre	0.00	0.00	0.00	5.40	68.16	5.30	0.00	8.64	0.00	12.50	100.00
	Post	0.20	7.60	9.30	26.20	24.60	4.70	0.40	24.80	6.80	5.40	100.00
7	Pre	0.00	0.00	0.00	5.12	66.86	4.82	0.00	9.40	0.00	13.80	100.00
	Post	2.16	8.64	8.60	28.68	9.06	4.20	0.20	27.46	6.24	4.76	100.00

Table 5.13: (b) Average Percentages of Categories 1 to 10 of Pre and Post Observations of the Teachers of Experimental Group 1, Experimental Group 2 and Control Group

Teacher No.	Observation	Categories										Total
		1	2	3	4	5	6	7	8	9	10	
<u>EXPERIMENTAL GROUP 2</u>												
1	Pre	0.00	0.00	1.70	3.24	64.08	3.76	0.00	14.30	0.12	12.80	100.00
	Post	1.84	1.86	5.36	27.46	30.30	2.44	0.30	15.76	5.06	9.62	100.00
2	Pre	0.00	0.00	1.24	3.90	64.48	4.00	0.10	14.64	1.24	10.40	100.00
	Post	0.46	3.46	8.50	23.16	29.44	3.64	0.24	19.20	3.04	8.86	100.00
3	Pre	0.00	0.00	2.20	5.34	61.30	4.86	0.00	13.76	0.62	11.92	100.00
	Post	0.74	5.40	10.40	15.50	33.30	3.48	0.76	19.50	4.26	6.66	100.00
4	Pre	0.00	0.00	0.00	5.30	73.58	3.24	0.00	8.12	0.00	9.76	100.00
	Post	2.16	8.70	7.60	14.46	43.88	0.74	0.12	12.46	3.68	6.20	100.00
5	Pre	0.00	1.20	0.80	2.70	62.70	4.20	1.20	14.00	0.70	12.50	100.00
	Post	0.80	7.50	6.74	15.36	40.80	3.48	0.30	22.60	6.82	5.60	100.00
6	Pre	0.00	0.00	0.00	4.80	78.14	2.40	0.00	3.42	0.00	10.24	100.00
	Post	2.24	7.30	4.46	16.20	51.72	0.50	0.20	12.44	7.36	7.58	100.00
7	Pre	0.00	0.00	0.00	3.82	77.36	3.00	0.00	5.44	0.00	9.88	100.00
	Post	0.34	4.12	4.00	11.46	51.72	2.42	1.00	11.66	5.42	7.86	100.00

Table :5.13: (c) Average Percentage of Categories 1 to 10 of Pre and Post Observations of the Teachers of Experimental Group 1, Experimental Group 2 and Control Group

Teacher No.	Observation	Categories										Total
		1	2	3	4	5	6	7	8	9	10	
		CONTROL GROUP										
1	Pre	0.00	0.00	0.00	3.62	69.64	4.30	1.74	9.44	0.00	11.26	100.00
	Post	0.00	0.54	0.08	4.88	63.34	7.26	1.74	9.20	1.40	11.56	100.00
2	Pre	0.00	0.00	0.00	4.00	73.92	3.40	0.00	7.68	0.00	11.00	100.00
	Post	0.00	0.20	0.04	5.50	61.88	7.32	1.94	6.54	1.96	14.62	100.00
3	Pre	0.00	0.50	0.00	5.50	62.28	3.46	1.20	14.00	0.82	12.24	100.00
	Post	0.00	0.32	1.42	4.96	58.00	7.00	3.12	11.50	1.72	11.96	100.00
4	Pre	0.00	0.00	1.24	2.96	63.04	4.30	1.42	14.82	1.00	11.22	100.00
	Post	0.00	0.58	2.62	3.00	60.28	5.86	2.36	14.80	0.04	10.46	100.00
5	Pre	0.00	0.20	1.64	3.00	66.86	4.00	0.00	9.20	0.50	14.60	100.00
	Post	0.10	1.24	0.06	3.48	66.06	3.24	1.20	8.96	1.20	14.46	100.00
6	Pre	0.00	0.00	0.00	3.84	75.30	3.30	0.00	5.84	0.00	11.72	100.00
	Post	0.00	0.46	2.96	3.92	72.52	3.46	1.76	4.00	0.08	10.84	100.00
7	Pre	0.00	0.00	1.00	3.12	77.72	2.96	0.00	5.84	0.00	9.36	100.00
	Post	0.00	0.20	1.60	2.96	73.48	6.40	2.20	3.92	0.00	9.24	100.00

this behaviour. On the whole all the teachers were indirect in their behaviour in post observations but were not accepting the feeling at all in pre observation. This proves that the classroom behaviour training and regular feedback changed the behaviour of Experimental Group 1 teachers as far as the category 1 was concerned.

In Experimental Group 2 also, all the seven teachers showed a tendency of accepting the feeling of pupils, but teacher 6 was maximum (2.24 percent) and teacher 7 was minimum (0.34 percent). Teachers 4 and 1 were nearer to the maximum, teacher 2 was nearer to minimum and teachers 3 and 5 were in-between the maximum and the minimum in this behaviour. On the whole all the teachers were indirect in their behaviour in their post observations but were not accepting the feeling at all in pre observations. This improvement in teacher behaviour with regard to category 1 was due to teacher behaviour training given to them.

Neither in the pre nor in the post observations, the teachers except No. 5 of the Control Group showed such behaviour i.e. they remained more or less as they were. Teacher 5 showed a negligible increase of 0.10 percent.

Category 2 :

All the seven teachers of the Experimental Group 1 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 7 (8.64 percent) while the minimum percent (2.46) was by teacher 1. The rest of the teachers 2, 3, 4, 5 and 6 were in between the two teachers 7 and 1. It is concluded that all the seven teachers of the Experimental Group 1 were found to be indirect in their behaviour in post observations.

In Experimental Group 2, all the teachers except teacher 2, were not in the habit of using this category in their normal classroom interaction during the pre observation. But during the post observation, all the Experimental Group 2 teachers made use of this category more and the range was between 1.86 percent and 8.70 percent. This shows that the teachers of the Experimental Group 2 gained their knowledge of making use of positive reinforcement in classroom interaction, from their classroom behaviour training.

A little amount (between 0.20 and 1.24 percent) of this behaviour (praises) as compared to Experimental Groups

of teachers was shown by the Control Group teachers in post observations. It means that they were more direct than indirect in their behaviour as compared with teachers of Experimental Groups 1 and 2.

Category 3 :

In Experimental Group 1, all the seven teachers were not in a habit of accepting the ideas of their pupils in their pre observations. In post observations teacher 1 exhibited the maximum percent of teacher behaviour (9.70 percent) and an equal amount of behaviour was shown by teachers 6, 2 and 7, while the teachers 3 and 5 were minimum in such behaviour (4.48 percent). Teacher 4 was nearer to teachers 3 and 5. It means that all the seven teachers of the Experimental Group 1 were more indirect than direct in their dealings with the pupils.

In Experimental Group 2, some of the teachers were using this category 3 within a range of 0.80 percent to 2.20 percent. During the post observations a considerable increase in the use of this category was seen in the Experimental Group 2, the range being 4.00

percent to 10.40 percent. Teachers 2, 4 and 5 were more or less found to be equal in such behaviour (8.50%, 7.60%, 6.74%). This means that Experimental Group 2 teachers became indirect through teacher behaviour training.

An increase ranging from 0.04 percent to 2.96 percent of such behaviour was shown by the teachers of the Control Group. This shows that they were direct in their behaviour.

Category 4 :

All the seven teachers of the Experimental Group 1 were more or less found to be equal in the use of this category in their pre observations (ranging between 4.76 percent and 6.10 percent). During the post observations, Experimental Group 1 teachers used this category within a range of 16.80 percent to 32.62 percent. This shows that Experimental Group 1 teachers understood the frequent use of this category and its positive relationship with better classroom interactions. This knowledge was gained by them through training and regular feedback.

In Experimental Group 2, all the teachers were found to be more or less equal in the use of this category in their pre observations. In the post observations, teacher 1 showed a maximum percent (27.46 percent) of the use of

this category and teacher 7 showed a minimum percent (11.46 percent). Teacher 2 was nearer to maximum and all the others were more or less equal. In general all the teachers showed an increasing tendency of questioning in their post observations but the increase is less when compared to Experimental Group 1 teachers.

The teachers of the Control Group also showed an increasing tendency of questioning while teachers 3 and 7 showed a decreasing tendency in their post observations. Their pre observations were found to be more or less equal.

Category 5 :

Regarding category 5, all the teachers of the Experimental Group 1 were using this category during the pre observations within a range of 59.40 percent to 68.56 percent. During the post observation, a remarkable decrease was seen in the use of this category, the maximum decrease being 24.60 percent and the minimum decrease being 8.56 percent. This general decreasing tendency of lecturing exhibited by all the teachers of the Experimental Group 1 was due to teacher behaviour

training and regular feedback given to them.

All the teachers of the Experimental Group 2 were using this category within a range of 61.30 percent to 78.14 percent. A general decrease was exhibited by all the teachers in their post observations ranging between 29.44 percent and 51.72 percent. This means that they became more indirect than direct in the post observations.

In the Control Group there was a negligible decrease in the use of this category and it shows that they remained direct in their behaviour.

Category 6 :

The difference in the percentages of pre and post observations was maximum (about 3.34 percent) in teacher 2 and was minimum (0.24 percent) in teacher 5 of the Experimental Group 1. The rest of the teachers 1, 3, 4, 6 and 7 were in between the teachers 2 and 5. In general all the teachers of the Experimental Group 1 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.

The difference in the percentage of pre and post observations was maximum (2.50 percent) in teacher 4 and was

minimum (0.36 percent) in the teacher 2 of the Experimental Group 2. The rest of the teachers 1, 3, 5, 6 and 7 were in between the teachers 4 and 2. In general, all the teachers of the Experimental Group 2 showed a tendency of decreasing the direction giving behaviour, but the decrease was less compared to Experimental Group 1 teachers.

In the Control Group, teacher 5 showed a decreasing tendency while others showed an increasing tendency in the use of giving directions. It can be concluded that the Control Group teachers were more direct than indirect.

Category 7 :

All the Experimental Group 1 teachers showed an increase in the criticizing behaviour. The maximum increase (0.40 percent) was exhibited by the teachers 5 and 6 the minimum (0.04 percent) increase was shown by teacher 4. In general, all the teachers showed a slight increase in the use of this category.

In Experimental Group 2 also, all the teachers showed an increase in the criticizing behaviour. The

maximum (1.0 percent) increase was exhibited by teacher 7 and minimum (0.12 percent) increase was shown by teacher 4. In general, all the teachers showed an increase in the use of this category but the increase was more than that of the Experimental Group 1 teachers.

Similar tendency of increasing criticizing behaviour was also observed in the Control Group teachers. However, the overall increase was less in Experimental Group 1 and Experimental Group 2 than in the Control Group.

Category 8 :

All the teachers of the Experimental Group 1 were using this category during the pre observation within a range of 8.64 percent to 19.14 percent. In the post observation, there was a remarkable increase ranging from 24.80 percent to 38.64 percent. In general, an increasing tendency of pupils' response was exhibited in the case of classes handled by all the teachers of the Experimental Group 1.

In Experimental Group 2, all the teachers were using this category in the pre observation ranging from

3.42 percent to 14.64 percent. In the post observation there was an increase ranging from 11.66 percent to 22.60 percent. Though these teachers exhibited a general increase in the use of this category, the increase was less when compared to Experimental Group 1 teachers.

A remarkable decreasing tendency in pupils' response was noticed in the case of classes handled by the teachers of the Control Group unlike that of Experimental Groups.

Category 9 :

A general tendency of increasing pupils' initiation was observed in case of all the seven teachers of the Experimental Group 1 but maximum increase (7.50 percent) was shown by teacher 2 and a minimum increase (6.08 percent) was shown by teacher 4. The percentages of the rest of the teachers 3, 4, 5, 6 and 7 were lying in between the percentages of the teachers 2 and 1. This considerable increase in the use of pupils' initiation was due to classroom behaviour training and feedback.

An increasing tendency in the use of pupils' initiation was observed in all the teachers of the Experimental Group 2 in post observation. The maximum (7.36 percent) was shown

by the teacher 6 and the minimum (3.04 percent) was shown by the teacher 2. In general all the teachers of the Experimental Group 2 exhibited an increasing tendency in the use of this category.

A small amount of increase in the use of this category was shown by all the teachers of the Control Group except teacher 7. The average increase in the behaviour of pupils' initiation was less in the case of the Control Group than in the case of the Experimental Groups.

Category 10 :

All the teachers of the Experimental Groups were widely using this category in their pre observation. In post observation the teacher 1 showed a maximum decrease of 10.84 percent and a minimum decrease of 5.50 percent was shown by teacher 4. All the teachers in general showed a decreasing tendency in the use of this behaviour.

In Experimental Group 2, all the teachers used this category within a range of 9.76 percent to 12.80 percent. In post observation, there was a general decrease in the use of this category ranging from 5.60 percent to 9.62 percent.

In the Control Group, the teachers 3, 4, 5, 6 and 7 showed a slight decrease in the percentage while the teachers 1 and 2 showed an increase in the percentage.

9. Discussion

From the above detailed discussion, it is evident that

- * There is a positive change in the use of categories 1, 2, 3, 4 and there is a decrease in the use of categories 5 and 6 and a little amount of increase in the use of category 7 was observed in all the teachers of the Experimental Group 1 and the Experimental Group 2. This leads to an increase in the indirect behaviour of the teachers in both the groups.
- * An increase was also noted in the use of categories 8 and 9 which led to an increase in pupils' talk in Experimental Group 1 and Experimental Group 2.
- * It is also observed that an increase in percentages in categories 1, 2, 3, 4 and decrease in categories 5 and 6 and an increase in category 7 were more in Experimental Group 1 than in Experimental Group 2.
- * In the Control Group such positive changes were not observed. Hence the behaviour of the teachers were more direct.

Summing up in Brief

- * As a result of the teacher behaviour training and regular feedback, the teachers changed their behaviour in the Experimental Group 1.
 - * As a result of the teacher behaviour training, the teachers changed their behaviour in the Experimental Group 2.
 - * The change is more in the Experimental Group 1 than in the Experimental Group 2 and this difference is due to the regular feedback given to the Experimental Group 1 teachers.
 - * The change is not the same, in all the teachers of the Experimental Group 1 and Experimental Group 2 as they had their own acculturation, habits etc.
 - * The change shows more of indirect behaviour trend in E_1 and E_2 groups, which was the purpose of the experiment.
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