CHAPTER-IV

Results
And
Discussion
CHAPTER-IV

RESULT AND DISCUSSION

Results obtained by the application of appropriate statistical techniques for the analysis of data are given and discussed in the following sections. The results of present study followed by their discussion were given as follows.

4.1 Comparison of Experimental and Control Group on at Pre-test Level.

TABLE-4

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>'t'</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exp</td>
<td>16</td>
<td>42.06</td>
<td>1.519</td>
<td></td>
<td>Not significant</td>
</tr>
<tr>
<td>Ctrl</td>
<td>16</td>
<td>41.40</td>
<td>1.935</td>
<td>1.073</td>
<td>significant</td>
</tr>
</tbody>
</table>

Table-4 reveals that there is no significant difference between the experimental and the control group of student-teachers on TAB at pre-test level. The mean values of experimental and control groups on TAB are 42.06 and 41.4 respectively. It implies that both the groups are possessing nearly the same teaching competence at primary stage. Hence, these groups are supposed to be equal with regard
to teaching ability at initial stage.

4.2 Comparison of Experimental and Control Groups on Teacher Attitude Inventory at Pre-test Level.

TABLE-5

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>'t'</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>16</td>
<td>82</td>
<td>17.608</td>
<td>0.787</td>
<td>Not significant</td>
</tr>
<tr>
<td>Control</td>
<td>16</td>
<td>76</td>
<td>24.859</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table-5 shows that there is no significant difference between Experimental and Control Groups of Student-Teachers on T.A.I. at Pre-test level (i.e. before treatment). The mean values of Experimental and Control Groups on T.A.I. are 82 and 76 respectively. It suggests that both the groups are bearing almost same attitude at primary stage.

4.3 Significance of Difference Between Experimental and Control Groups on TAB at Post-test Level.

TABLE-6

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>'t'</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>16</td>
<td>82</td>
<td>17.608</td>
<td>0.787</td>
<td>Not significant</td>
</tr>
<tr>
<td>Control</td>
<td>16</td>
<td>76</td>
<td>24.859</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table-6 presents that there is a significant difference between experimental and control groups of Student-Teachers at .01 level on TAB at post-test level. The mean values of experimental and control groups of Student-Teachers are 100.75 and 85.4 respectively. It means that the Student-Teachers of experimental group gain more teaching competence due to training through FIACS in comparison to control group who have been trained through traditional method of teaching. It implies that training of student-teachers through F.I.A.C.S. is more effective in developing the teaching competence in comparison to traditional method of teaching. The findings of this study are supported by the previous studies conducted in this direction. Flanders (1963, 1969), Amidon and Powell (1966), Simon (1967), Lohman, Ober and Hough (1967), Amidon (1967), Hanny (1967), Ishler (1967), Davidson (1968), Holcomb (1971), Pangotra (1971) and Pareek and Rao (1971)* reported effective use of feed-back based on Interaction behaviour analysis in...
modifying the teaching patterns of the pre-service or in-service teachers in the intended direction. In other words, when pre-service or in-service teachers received instruction in interaction analysis, they analyzed their own behaviors patterns, formulate direction of change, received continuous feedback about their observed teaching behavior patterns, they change their teaching behavior patterns in desired direction. This implies that the training through F.I.A.C.S. technique is an effective way of improving the teaching competence of Student-Teachers. Singh (1974) attempted to compare the F.I.A.C.S. training strategy with traditional training method. He reported that Student-Teacher trained in Flanders Interaction Analysis Category system change their verbal teaching behavior in the classroom significantly, as compared to the Student-Teacher trained in traditional way only. Hill (1966) found that training in interaction analysis did have an effect in each case which allowed the trainee teacher to increase their use of indirect behavior. Hence, it may be concluded that training in Interaction Analysis has an effect on the teaching competence of teachers. The findings of above cited studies also support the results of the present study.

4.4 Significance of Difference Between Student-Teacher of Experimental and Control Groups on Teacher Attitude Inventory at Post-Test Level.

Table-7

Showing the mean S.D. and 't' value of Experimental and Control Groups of Student-Teacher on T.A.I. at Post-test Level.

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>'t'</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>16</td>
<td>120</td>
<td>22.05</td>
<td>30.27</td>
<td>p&lt;.05</td>
</tr>
<tr>
<td>Control</td>
<td>16</td>
<td>100</td>
<td>2.109</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Table-7 shows that there is a significant difference between experimental and control groups of Student-Teachers on T.A.I. at Post-test level. The mean scores of experimental and control groups are 120 and 100 respectively. It means that the experimental group stands at higher level on T.A.I. in comparison to control group after treatment, which suggests that student-Teacher of experimental group have more favourable attitude due to training through Flanders Interaction Analysis Category system (F.I.A.C.S.) in comparison to those of control group who have been trained through traditional method of teaching.

The studies of Hough, J.B. and Amidon, E.J. (1963)¹,

Kirk (1964), John (1965), First (1965) and Amidon (1966), conclude that the attitudes and teaching patterns of Students Teachers were influenced in positive direction by instruction in interaction analysis. John (1965) concluded that the use of interaction analysis in the instruction and supervision of students-teachers appears to be related to a positive change in the attitude towards teaching. Furst (1965) made a study to find out the effects of training in interaction analysis on the behaviour of Student-Teacher in secondary schools. He found that the Student-Teacher training in Flanders interaction analysis show statistically significant evidence of attitude inventory than those not so trained. Lohman Ober and Hough made a study entitled "A study of the effect of the pre-service training in interaction Analysis on the verbal Behaviour of students-teacher."

He found that student-teacher trained in interaction analysis used more verbal behaviour that have been found to be associated with more positive attitude towards teaching. The studies cited above support and substantiate the findings of the present

study. Hence, it may be clearly noted that training in Flanders interaction analysis category system does lead to positive attitude towards teaching.

4.5 Significance of Difference Between Gain Scores of Experimental and Control Groups on T.A.B.

Table-8

Showing Mean, S.D. and 't' value of gain scores of Experimental; and Control groups of Student-Teachers on T.A.B.

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>'t'</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>16</td>
<td>59</td>
<td>6.01</td>
<td>4.803</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td>Control</td>
<td>16</td>
<td>44</td>
<td>10.91</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The above table present that there is a significant difference between experimental and control groups of student-teacher on mean gain scores on T.A.B. The mean gain scores of experimental; and control groups are found to be 59 and 44 respectively. It shows that student-teacher of the experimental groups gain more favourable teaching competence towards teaching in comparison to their counter part who have been subjected to traditional method of teaching.

4.6 Significance of Difference between gain Scores of Experimental and Control groups of Student-Teachers on Attitude Inventory.
TABLE-9
Showing Mean, S.D. of Gain Scores and 't' value of Experimental and Control Groups of student-teacher on T.A.I.

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>'t'</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>16</td>
<td>38</td>
<td>16.29</td>
<td>2.436</td>
<td>*&lt; .05</td>
</tr>
<tr>
<td>Control</td>
<td>16</td>
<td>24</td>
<td>16.21</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The above table reveals that there is a significant difference between experimental and control groups of Student-Teachers on mean gain score on T.A.I. The mean gain score of experimental and control groups are found to be 38 and 24 respectively. It implies that experimental group gains more favourable attitude towards teaching in comparison to their counterparts who have been subjected to traditional method of training.

4.7 Significance of Difference Between Pupil’s Attitude Towards Teaching Under the Charge of Experimental and Control Groups at Pre-test Level.

TABLE-10
Showing the Mean, S.D. and 't' value of scores obtained by pupil’s on Attitude Scale Under the charge of Experimental and Control Groups of Student-Teachers.
at Pre-test Level.

\begin{tabular}{|c|c|c|c|c|}
\hline
Groups & N & Mean & S.D. & \textbf{'t'} & Significance \\
\hline
Pupils under the charge of experimental groups & 40 & 1.475 & .845 & & \\
\hline
\hline
Pupils under the charge of control group & 40 & 1.45 & .822 & & .134 significant \\
\hline
\end{tabular}

The above table shows that there is no significant difference between the pupils under the charge of experimental and control groups on their Attitude Scale. The mean values of attitude of the pupils of both the groups are 1.475 and 1.45 respectively. It suggests that both the groups are having the same attitude at primary stage.

4.8 Significance of Difference Between Pupils Attitude Towards Teaching Under the Charge of Experimental and Control Groups Post-test Level.

\begin{table}[h]
\begin{tabular}{|c|c|c|c|}
\hline
\textbf{TABLE-11} \\
\hline
Showing the Mean, S.D. and \textbf{'t'} values of scores obtained by pupils on Attitude Scale under the charge of Experimental and Control Groups of Student-Teachers at Post-test Level. \\
\hline
\end{tabular}
\end{table}
The above table presents that there is a significant difference between the pupils under the charge of experimental and control groups on their attitude towards teaching. The mean values of attitude scores of both the groups are 16.825 and 9.525 respectively. It shows that the pupils who were taught by experimental group develop more favourable attitude towards teaching training in comparison to their counterparts. It means that F.I.A.C.S. is comparatively more effective for student-teaching.

4.9 Significance of Difference Between the Achievement Scores of Pupils Under the Charge of Experimental and Control Groups at Pre-test Level.

Table-12

Showing the Mean, S.D. and 't' value of Pupil's on Achievement Score Under the Charge of Experimental and Control Groups of Student -Teachers at Pre-test Level.
The above table presents that there is no significant difference between pupils under the charge of experimental and control groups on Achievement Score. The mean values of achievement scores obtained by pupils of both the groups are 2.075 and 1.95 respectively. It shows that pupils of both the groups stood equally good when they were evaluated on self made Achievement-Test of social science before coaching stage (i.e. pre-test level) In India, Lulla T.P. (1974) concluded that the pupils who were taught by the teachers trained in flanders Interaction Analysis Category System, using indirect behaviour scored higher in achievement test of various subject than their counterparts studying under the teachers who were not given any training.

Flanders (1965) predicts higher student-achievement and less dependence when teacher uses indirect approach rather than direct approach.

4.10 Significance of Difference Between the Achievement Scores of Pupil's Under the Charge of Experimental and Control Groups at Post-Test Level.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>S.D.</th>
<th>'t'</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pupils under the charge of experimental group.</td>
<td>20.42</td>
<td>12.16</td>
<td>11</td>
<td>p &lt; .01</td>
</tr>
<tr>
<td>Pupils under the charge of control group.</td>
<td>9.55</td>
<td>12.19</td>
<td>1</td>
<td>p &lt; .01</td>
</tr>
</tbody>
</table>

The above table presents that there is a significant difference between the pupils under the charge of experimental and control groups of Student-Teachers on Achievement Score. The means of Achievement Score of pupils under the charge of experimental and

control groups are 20.425 and 9.55 respectively. It means that pupils taught by the Student-Teachers of the experimental group achieve more in comparison to the pupils who were taught by the Student-Teachers of the control group meaning thereby that the teaching through Flanders Interaction Analysis Category System results in more learning on the part of students (pupils).

4.11 Major Findings:

From the above discussion of the results concerning the effect of Student-Teachers through F.I.A.C.S. training may be summarized as follows.

1. The Student-Teachers of the experimental group gain more teaching competence due to training through F.I.A.C.S. in comparison to those of the control group who have been trained through traditional method of teaching.

2. The Student-Teachers of experimental group gain more favourable attitude due to training through Flanders Interaction Analysis Category System in comparison to those of the control group who have been trained through traditional method of teaching.

3. The pupils who were taught by the
experimental group show more favourable attitude towards teaching in comparison to the pupils who were taught by control group.

4. The pupils under the charge of experimental group of Student-Teachers achieve higher score on an Achievement-Test in comparison to the pupils who were kept under the charge of control group. It means that the teaching through Flanders Interaction Analysis Category System results in more learning on the part of students (pupils).

4.12 The Conclusion and Implication:

The present study has helped to seek the answers to the questions put as objectives of the study. The answers have educational implications for the Teacher-Training Colleges in particular and education in general. In the light of the objectives the conclusions with their educational implications are given below:

On the basis of the data regarding class-room verbal behaviour of Student-Teachers, there is enough evidence to infer that the Student-Teachers, given the treatment of FIACS training gained significantly more teaching competence as compared to the Student-Teachers who have been trained through
Hence, for a pre-service teacher training programme, introduction of training through FIACS as a class-room activity needs consideration by employing the FIACS training strategy in programme of teacher education. It may be possible to improve teaching by practising certain phases of teaching. For practice through FIACS the following may be included:

(i) Using more and more acts of praising and encouraging the students for more participation. (ii) Use of accepting and building ideas of the students. (iii) Use of questioning with the intent that pupils will answer (iv) Use of less lecturing directing and criticizing. As a result of the training the indirect/direct influence ratio of experimental group may increase the indirect behaviour. Experimentation may be taken up in a few training colleges, by way of orienting in Flanders Interaction Analysis Category System as well as by using it in practice-teaching programme, which may bring more awareness among the Student-Teachers about their class-room teaching behaviour. Flanders Interaction Analysis Category System like other techniques is an assessment technique which requires some practice. The Student-Teachers trained in interaction analysis may apply it
either to their own lesson after it has been duly observed by the supervisor or some other colleagues. It is an objective tool which involves the observer, in detailed analysis, to identify the kinds of interaction that takes place in the classroom. This technique of quantifying the qualitative aspects of verbal communication may be used as a training technique. Apparently, teachers have a great interest in and need for objective information about their own patterns of influence, how patterns match their intentions and whether the differences they expected from different patterns did or did not occur. Hence there is a possibility that interaction analysis can contribute to teacher education.

Obviously, the point of usability of Flanders Interaction Analysis Category System follows the conclusion that the use of FIACS has shown more promising results in the modification of teaching behaviour of the Student-Teachers in the classroom.

It is found that the pupils under the charge of experimental group (trained through FIACS) achieved higher score on an Achievement Test in comparison to the pupils who were kept under the charge of Student-Teachers who were trained through traditional method of teaching. The study provides a
model to evaluate teacher education programmes in terms of subsequent teaching performance of Student-Teachers and links it to pupil's performance, which is the ultimate goal of teacher-education. Turner (1971) and Rosenshine (1971) also point out the need for this type of work to validate our teacher education programmes.

The present study helps teaching in two ways. Firstly, it tells the teachers how to modify their teaching behaviour. Secondly, it provides a configuration of teaching behaviour patterns that appears to be related to better pupil's outcome. For example, they know that if their behaviour patterns conform to indirectness and flexibility of influence in the classroom, pupil's achievement improves.

4.13 Suggestions for Further Researches:—

The findings of the present study have provided knowledge about improving teaching competence and teacher effectiveness to a limited extent. Some further researches may be taken to test whether Flanders Interaction Analysis Category System may be used as supervisory technique to improve the student teaching practices.

As evident from the present study, it touches only very limited aspects. The exhaustive study will have to be made if the challenge of teaching is to be met adequately. Some of the problems and directions of research are indicated below:

1. Systematic study to evaluate effectiveness of the FIACS strategy in the prevalent programmes of teacher education in terms of pupils outcomes (pupil- achievements and their attitude) may be taken up by various teachers training colleges on different samples.

2. This study and studies reviewed earlier have neither explored nor identified all the relationships between different interaction variables (I/D, i/d, TRR, TQR etc) and educational outcomes. Probably, more correlational study generating new hypotheses and controlled experiments to validate or
reject the generated hypotheses will have to be taken up. A comparative study to validate or reject effectiveness of FIACS as a supervisory tool in comparison to conventional programme of supervision. A further study may also be taken up to compare the effectiveness of FIACS vis-a-vis Micro-Teaching Technique as a supervisory tool in teachers training practices. The present study had pre-service teachers as the sampling unit. It will be worthwhile to initiate a few studies based on in-service teachers. This may provide further insight to the problem.

The present study has only included Student-Teachers who had offered Social Study as their teaching subjects. It is worthwhile to undertake further research on Student-Teachers offering other teaching subjects.

The last suggestion is the need for replication of the present study. If the results of this study are to be generalized and passed on to the institutions of teachers training, the validity of the study has to be established through replications. It is hoped that the present study will encourage, stimulate and even provoke researches to take up more and more study in the area of teacher-education in the 21st century.