CHAPTER-V

SUMMARY
CHAPTER-5

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5.1 BACKGROUND OF THE STUDY:

There are many kinds of 'good' teaching and that the concept 'good' when applied to teaching is better stated “good for what?” and “good for whom?”

The teaching practice programme, organised for Student-Teachers in most of the teacher education colleges and Departments, seems vague and does not give the Student-Teachers a precise idea of what is to be achieved by teaching practice. The teacher-educators on their part are more eager to assess the overall effectiveness of a Student-Teacher than help him to develop an effective teacher. It is recognized that each bit of teacher behaviour in the classroom has considerable influence on the student’s mind. The practice-teaching programmes of the teacher training colleges have so far laid emphasis on the content and methodology aspects of teaching. Effectiveness of teaching is to be judged to the extent, it has caused learning in child.

A number of teaching techniques are being used currently in India as well as in other countries for the modification of human behaviour. Some of these techniques include T-Group, Role-Play, Programmed learning Achievement-Motivation Training, Interaction-Analysis, Micro-Teaching etc. These techniques have become the educational innovation in the training of teachers.
We think teaching as a process by which teacher and students create a shared environment including sets of values and beliefs (agreements about what is important) which in turn color their view of reality. The 'Models of Teaching' that we choose have much to say about the kinds of realities admitted to the classroom and the kinds of life-views likely to be generated as teacher and learner work together.

We begin by challenging the idea that there is any such thing as a perfect model. We should not limit our methods to any single model, however attractive it may seem at first glance, because no 'Model of Teaching' is designed to accomplish all type of learning or to work for all learning styles. We make the assumption that there are many kinds of learning, for the most part requiring different method of instruction. We also assume that our students come to us with different learning styles, calling for different approaches if each one is to become a productive and effective learner.

The communication process of the teacher in the classroom has been found to be mainly responsible for the proper educational growth of the child, although he is also expected to direct the pupils in activities outside the classroom in order to enable them to make changes in their ways of thinking and acting. Whatever may be the effort to change the school practices, ultimately it comes down to the teacher's classroom behaviour, his teaching and the teacher-pupil interaction. The verbal interaction between the teacher and the pupil creates the climate of freedom or restriction for the pupils in the
classroom. Not much attention has been paid on studying and analyzing teachers verbal behaviour. Since the teacher exerts a great deal of influences, in terms of changes in pupil behaviours. Pupils have multidimensional personalities having different learning styles. The common implication of both these facts that the teacher should use different strategies of teaching matching the objectives of teaching and pupil's learning styles and personality dimensions. The teacher education programme in India, however, prepare the teachers for one or a few fixed way of teaching such as Herbartian method or so.

The reason for this is that an array of different teaching strategies was not available till this time which can be incorporated in training programme and thereafter in schools by teachers. Although a great deal of work was done about how pupil and man learns in areas of Educational Psychology, Social Psychology, Anthropology and other many disciplines. There was big gap between theoretical knowledge and actual teaching practices in the schools.

Bruce Joyce and Marsha Weil (1980)\(^1\) have transformed prevailing theories and theoretical knowledge into different 'Models of Teaching' which can be readily used by teachers in school settings. There is a need of time that teacher education programmes in India today should incorporate a component of training for the variety of models of teaching so that tomorrow's teachers would be more rational

and flexible in selection and use of teaching strategies suitable for pupils and needs.

The innovation, therefore, has to be first introduced at teacher-educator’s level and then at teacher-trainees level so that it would disseminate in teacher training colleges and schools in India. Simultaneously there is need to conduct research to test the workability, feasibility, efficacy of these models so that certain modifications in them can also be brought about the experience with the innovations like micro-teaching etc. Therefore the present research is planned to see the effectiveness of ‘Concept Attainment Model (C.A.M.)’ and ‘Advance Organizer Model (A.O.M.)’ in respect of student’s Achievement and their Attitudes.

5.2 THE VARIABLES AND THEIR MEANINGS:

(A) Independent Variables:

In present study, the following training strategies are considered as independent variables -

(i) Concept Attainment Model
(ii) Advance Organizer Model

(i) The Concept Attainment Model (C.A.M.):

The Concept Attainment Model (C.A.M.) was developed from the work of Jerom Bruner, Jacqueline Goodnow and George Austin. This model helps students to develop and form new concepts, with the help of teacher and students analyse their strategies of thinking.
(ii) **Advance Organizer Model:**

Advance Organizer Model was developed by David Ausubel. This model helps students to increase efficiency of information processing capacities meaningfully and relate bodies of knowledge. In this model, there is interaction between students and teacher.

(B) **DEPENDENT VARIABLES:**

The following variables were treated as dependent variables:

(i) **Effectiveness:**

It refers to the effect of particular treatment given to a subject which produces a significant change in student’s academic achievement or behaviour. This change has been observed in terms of student’s achievement and attitude towards chemistry.

(ii) **Student’s Achievement:**

The groups of Student-Teachers trained through Concept Attainment Model (C.A.M.) and Advance Organizer Model (A.O.M.) teach two different groups of pupils. The students under the charge of Experimental Group-I and Experimental Group-II is supposed to have different achievement scores in the subject. The difference between the post and pre-test scores has been taken as gain Achievement scores.

Hence, the gain Achievement scores of the students has been taken as a dependent variable (criterion variable).
(iii) **Student’s Attitude (Reaction of Students):**

The Attitudes of student’s under the charge of Experimental Group I and Experimental Group II are taken as dependent variables.

The difference (change) of Pre and Post test scores on Attitude scale was considered as next criterion variable.

**5.3 OBJECTIVES OF THE STUDY:**

The objectives of the present study may be presented as follows:

1. To study the effect of Concept Attainment Model on the Opinion (Reaction) of Student-Teachers.

2. To study the effect of Concept Attainment Model on Student-Teachers in respect of their Teaching Effectiveness.

3. To study the effect of Advance Organizer Model on the Opinion (Reaction) of Student-Teachers.

4. To study the effect of Advance Organizer Model on Student-Teachers in respect of their Teaching Effectiveness.

5. To study the effectiveness of training of Student-Teachers in Concept Attainment Model (C.A.M.) vis-a-vis Advance Organizer Model (A.O.M.) as a means of improving pupil’s Achievement.

6. To study the effectiveness of training of Student-Teachers in Concept Attainment Model (C.A.M.) vis-a-vis Advance
Organizer Model (A.O.M.) as a means of changing pupil’s Attitude towards Models.

5.4 HYPOTHESES:

In order to fulfill the objectives of the study following null hypotheses have been formulated:

1. The Student-Teachers trained through Concept Attainment Model do not change their Opinion (Reaction) towards the model as measured through concerning Reaction Scale.

2. Student-Teachers, trained through Concept Attainment Model (C.A.M.) do not improve their teaching effectiveness as measured through Teacher Rating Scale (T.R.S.).

3. The Student-Teachers trained through Advance Organizer Model do not change their Opinion (Reaction) towards the model as measured through concerning Reaction Scale.

4. Student-Teachers, trained through Advance Organizer Model do not improve their teaching effectiveness as measured through Teacher Rating Scale (T.R.S.).

5. There is no significant difference between pupil’s achievement under the charge of Student-Teachers trained through Concept Attainment Model (C.A.M.) and pupil’s achievement under the charge of Student-Teachers trained by Advance Organizer Model.

6. There is no significant difference in the Attitude of pupils taught by Student-Teachers trained in Concept Attainment Model.
(C.A.M.) and the Attitudes of pupils taught by Student--Teacher trained by Advance Organizer Model (A.O.M.).

5.5 METHOD AND PROCEDURES:

5.5.1 Research Method:

Keeping in view the objectives of the study the experimental method was employed to conduct the research. For this experiment, Pre-Test, Post-Test parallel group design was executed. The Experimental Group-I and Experimental Group II were matched on variables of age, sex, intelligence, socio-economic status, qualifications and method subject etc.

5.5.2 The Population and Sample:

All the Student-Teachers of B.Ed. training course of different Indian Universities form the population of the study. The 16 Student-Teachers were drawn from the B.Ed. students of Tilak Dhari Training College, Jaunpur, U.P. in the session 2001-2002 to conduct the present experiment. Two groups each comprising the eight Student-Teachers were matched on age, sex, intelligence, educational qualifications and method subject etc.

The pupils of class IX were taken from Tilak Dhari Singh Inter College, Jaunpur (U.P.) for the experiment at coaching level.

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5.5.3 The Research Design:

**DESIGN OF THE STUDY**

<table>
<thead>
<tr>
<th>ORIENTATION PHASE</th>
<th>Experimental Group-I (E₁) (Student-Teachers) N=8</th>
<th>Experimental Group-II (E₂) (Student-Teachers) N=8</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE-TEST</td>
<td>1. Pre-test of Experimental group-I on Theory Checkup of C.A.M. (Indore)</td>
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<td></td>
<td>2. Pre-test of Experimental group-II by Theory Checkup of Advance Organiser (Self-constructed)</td>
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<tr>
<td>POST-TEST</td>
<td>1. Post-test of Experimental group-I by Theory Checkup of C.A.M. (Indore)</td>
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<tr>
<td></td>
<td>2. Post-test of Experimental group-II by Theory Checkup of Advance Organiser Model (Self-constructed)</td>
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<tr>
<td>Phase</td>
<td>Experimental Group-I (E₁) (Student-Teachers)</td>
<td>N=8</td>
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<tr>
<td><strong>Pre-Test</strong></td>
<td>1. Administration of concerning Reaction Scales on both groups.</td>
<td></td>
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<td></td>
<td>2. Administration of Teacher Rating Scale (T.R.S.) on both the groups.</td>
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<tr>
<td><strong>Treatment</strong></td>
<td>(a) Demonstration of C.A.M. for Experimental Group-I (three lessons) (D₁+D₂+D₃)</td>
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<td></td>
<td>(b) Peer-Practice Feed-Back in Quadro (PPF) of C.A.M. PPF₁+PPF₂+PPF₃...</td>
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<td></td>
<td>Pre-test on First two PPF's (i.e. PPF₁+PPF₂) by T.A.G. will be done during treatment.</td>
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<td>Post-test on last two PPF's (i.e. PPF₉+PPF₁₀) will be done by T.A.G.</td>
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<td><strong>Post-Test</strong></td>
<td>1. Administration of concerning Reaction Scales on both Groups.</td>
<td></td>
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<td>2. Administration of Teacher Rating Scale (T.R.S.) on both Groups.</td>
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<tr>
<td>COACHING PHASE</td>
<td>Experimental Group-I ($E_1$) (Student-Teachers) $N=8$</td>
<td>Experimental Group-II ($E_2$) (Student-Teachers) $N=8$</td>
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</tbody>
</table>
| PRE-TEST       | 1. Administration of Achievement-test (self-constructed) on the pupils of both sections [i.e. IX(A) and IX(B)].  
2. Administration of Sodhi's Attitude Scale (S.A.S.) on the pupils taught by both the groups separately. |
| TEACHING       | Student-Teachers of Experimental Group-I ($E_1$) have been assigned to teach the five lessons of Chemistry to Class IX(A) of T.D.S.I.C. Jaunpur through C.A.M.  
Student-Teachers of Experimental Group-II ($E_2$) have been assigned to teach the same five lessons of Chemistry to Class IX(B) of T.D.S.I.C. Jaunpur through A.O.M. |
| POST-TEST      | 1. Administration of Achievement-test (self-constructed) on the pupils of both the section [i.e. IX(A) and IX(B)].  
2. Administration of Sodhi's Attitude Scale (S.A.S.) on the pupils taught by both the group separately. |

5.6 RESEARCH TOOLS:

The following tools were used to conduct the present experimental study:

(1) Theory Check-up for Concept Attainment Model (Indore)  
(2) Theory Check-up for Advance Organizer Model (Self-constructed)  
(3) Teaching Analysis Guide for Concept Attainment Model
5.7 ANALYSIS OF DATA:

The following statistical analysis has been done to interpret the collected data:

1. The "t" test has been used to test the significance of effects of Orientation in theories of 'Concept Attainment Model' and 'Advance Organizer Model' on Experimental Group-I and Experimental Group-II in terms of their achievement scores at Pre and Post-test level.

2. The "t" test was used to test the significance of difference in the Opinions (Reactions) of Experimental Group I (Student-Teachers) who have been trained through Concept Attainment Model (C.A.M.) at Pre and Post treatment stage.
3. The 't' test was employed to test the significance of difference between teaching effectiveness scores of Experimental Group I as measured through T.R.S. before and after the treatment.

4. The 't' test was used to test the significance of difference in the Opinions (Reactions) of Experimental Group II (Student-Teachers) who have been trained through Advance Organizer Model (A.O.M.) at Pre and Post treatment stage.

5. The 't' test was employed to test the significance of difference between teaching effectiveness scores of Experimental Group II as measured through T.R.S. before and after the treatment.

6. The 't' test was also employed to test the significance of difference between the achievement scores of pupils under the charge of Experimental Group I and Experimental Group II after coaching.

7. The 't' test was used to test the significance of difference in the Attitude Scores of pupils taught by Experimental Group I and Experimental Group II after coaching.

The following formula was used to test the significance of difference between the two means.

(i) For a large and independent sample:

\[ t = \frac{M_1 - M_2}{S.E_D} \]  \( \text{......... (1)} \)
or ‘t’ = \( \frac{M_1 - M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}} \) \hspace{1cm} (2)

Where, \( M_1 \) = Mean of the first group.
\( M_2 \) = Mean of the second group.
\( \sigma_1 \) = S.D. of the first group.
\( \sigma_2 \) = S.D. of the second group.
\( N_1 \) = No. of individuals in first group.
\( N_2 \) = No. of individuals in second group.

(ii) But, when two samples are small, taken from the same parent population, the S.E. of the difference between two means should depend upon ‘pooled’ S.D. The formula for computing ‘pooled’ SD and the formula for S.E. of difference is as follows:

\[
\text{‘Pooled’ SD} = \sqrt{\frac{\sum (X_1 - M_1)^2 + \sum (X_2 - M_2)^2}{(N_1 - 1) + (N_2 - 1)}} \hspace{1cm} (3)
\]

Where, \( \sum (X_1 - M_1)^2 \) = \( \sum (D_1)^2 \) is the sum of the square deviations from the mean of group I and \( \sum (X_2 - M_2)^2 \) = \( \sum (D_2)^2 \) is the sum of the square deviations from the mean of group II.

\( N_1 \) and \( N_2 \) are the number of individuals in two groups respectively.
\[ \text{Pooled' SD} = \sqrt{\frac{\Sigma (D_1)^2 + \Sigma (D_2)^2}{(N_1 + N_2) - 2}} \quad \ldots (4) \]

Hence,

\[ \text{S.E}_D = \text{Pooled S.D.} \times \sqrt{\frac{N_1 + N_2}{N_1 \times N_2}} \quad \ldots (5) \]

Thus, for a small sample the value of 't' was computed by the formula given below:

\[ 't' = \frac{M_1 - M_2}{\sqrt{\frac{\Sigma (D_1)^2 + \Sigma (D_2)^2}{(N_1 + N_2) - 2}} \times \sqrt{\frac{N_1 + N_2}{N_1 \times N_2}}} \quad \ldots (6) \]

Where \( M_1 \) and \( M_2 \) are the means of the two groups.

5.8 MAJOR FINDINGS:

1. The Student-Teachers of Experimental Group I, who have received the training in Concept Attainment Model, have significantly favourable Opinions towards the Model.

2. The Student-Teachers of Experimental Group I trained by Concept Attainment Model gained significantly in regard to teaching effectiveness as measured through Teacher Rating 'Scale.
3. The Student-Teachers of Experimental Group-II trained by Advance Organizer Model have significantly favourable Opinions towards the Model.

4. The Student-Teachers of Experimental Group-II trained by Advance Organizer Model gained Teaching Effectiveness significantly.

5. The pupils taught by Student-Teachers (C.A.M. Group) achieved significantly more than the pupils taught by Student-Teachers (A.O.M. Group).

6. The pupils who were taught by Student-Teachers of Experimental Group-I show significantly more favourable Attitude towards teaching in comparison to the pupils who were taught by Experimental Group-II.