CHAPTER III

DESIGN AND PROCEDURE
INTRODUCTION

In the proceeding two chapters, we have stated the objectives of the present study and have also surveyed related research studies and their designs. In the present chapter we shall state the method, the techniques and the goals that have been chosen and employed to achieve these objectives of the study in the light of research designs used by previous investigators in this area of research.

3.1.0 DESIGN

An experimental design for the purpose of the present problem cooperative learning based training approach, developed by the Unesco (1991) for Education for all: Special Needs in Classroom, has been chosen. It is based on effective teacher training in latest modern context. Teacher attitude scale towards learning teaching considered as measures for its effectiveness.

The study followed solomon four group design to achieve the stipulated objectives. Solomon four group
design was selected in preference of simple pre and post-test control group design because additional validity factor of testing the interaction was controlled. The sample of those forty teachers was divided into four equal groups randomly. There were ten teachers in each group. Out of those four group two were experimental groups and the other two groups were named control groups. One experimental and one control group were given pre-test and other two group were not given pre-test. Though the design of the study pre-test, post-test experimental design. The pre and post test teacher attitude scale towards learning-teaching and pupil perception inventory towards learning for transfer to practice was given to those groups as shown in Table 3.1.

Table 3.1: Design of the Study

<table>
<thead>
<tr>
<th>S.No. Groups</th>
<th>Number of Teachers</th>
<th>Number of Students</th>
<th>Pre-Test</th>
<th>Treatment</th>
<th>Post-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Experimental</td>
<td>10</td>
<td>100</td>
<td>-</td>
<td>-</td>
<td>CLBTA</td>
</tr>
<tr>
<td>2. Control</td>
<td>10</td>
<td>100</td>
<td>-</td>
<td>-</td>
<td>Conventional Approach</td>
</tr>
<tr>
<td>3. Experimental</td>
<td>10</td>
<td>100</td>
<td>-</td>
<td>-</td>
<td>CLBTA</td>
</tr>
<tr>
<td>4. Control</td>
<td>10</td>
<td>100</td>
<td>-</td>
<td>-</td>
<td>Conventional Approach</td>
</tr>
</tbody>
</table>

+ Test Administered
- Test not administered

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Experimental group followed the cooperative learning based training approach (CLBTA) for 40 hours in 4 weeks involved pre test and post test for training. Control group received the conventional training which are they got during their preservice teacher training course considered. Control group also involved pre test and post test and sustenance of training effects followed after two and six weeks through teacher attitude scale towards learning teaching. After treatment, all the four groups were given post test to assess their attitude and training effect transfer to practice. Table 3.2 provides the experimental treatment design.

3.2.0. VARIABLES

The study has the following variables:

Table 3.2: Variables of the study

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Dependent Variables</th>
<th>Control</th>
<th>Control Employed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training method, i.e., Attitude and Training</td>
<td>Teachers' attitude training</td>
<td>1. Year of administrative training</td>
<td>1. Administrative training (elementary)</td>
</tr>
<tr>
<td>Cooperative Learning and Training Effect</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Based Training Practice</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approach and Conventional Approach</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Sex of the teachers</td>
<td></td>
<td>2. Administrative training (only males selected)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Table 3.3: Experimental Treatment Design.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Duration</th>
<th>Control Group without pre-testing</th>
<th>Experimental Group without pre-testing</th>
<th>Treatment</th>
<th>Control Group with pre-testing</th>
<th>Experimental Group with pre-testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>One week</td>
<td>Conventional programme of training</td>
<td>Conventional programme of training</td>
<td>Observation of the classroom behaviour of teachers using conventional approach by teacher attitude scale</td>
<td>Observation of the classroom behaviour of teachers using conventional approach by teacher attitude scale</td>
<td></td>
</tr>
</tbody>
</table>
### Table 1

<table>
<thead>
<tr>
<th>Press Duration</th>
<th>Control Group without pre-testing</th>
<th>Experimental Group without pre-testing</th>
<th>Control Group with pre-testing</th>
<th>Experimental Group with pre-testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 hours spread over 4 weeks</td>
<td>Conventional programme of training previously acquired during pre-service training</td>
<td>Intensive classroom based on CTLA</td>
<td>Conventional programme of training previously acquired</td>
<td>Intensive classroom based on CTLA</td>
</tr>
<tr>
<td>Fourth week</td>
<td>Post testing-I using teacher attitude scale towards learning-teaching</td>
<td>Post testing-I using teacher attitude scale towards learning-teaching</td>
<td>Post testing-I using teacher attitude scale towards learning-teaching</td>
<td>Post testing-I using teacher attitude scale towards learning-teaching</td>
</tr>
<tr>
<td>II After two weeks</td>
<td>b: Post testing-II using teacher attitude scale when teachers join their schools</td>
<td>b: Pre test administration of pupil perception inventory towards learning to the pupils</td>
<td>b: Pre test administration of pupil perception inventory towards learning to the pupils</td>
<td>b: Pre test administration of pupil perception inventory towards learning to the pupils</td>
</tr>
<tr>
<td>Another four weeks</td>
<td>c: Post test administration of pupil perception inventory towards learning to the pupils</td>
<td>c: Post test administration of pupil perception inventory towards learning to the pupils</td>
<td>c: Post test administration of pupil perception inventory towards learning to the pupils</td>
<td>c: Post test administration of pupil perception inventory towards learning to the pupils</td>
</tr>
</tbody>
</table>

### 3.3.0 SAMPLE

Multistage sampling procedure was followed. At the first level, zone was selected. Out of the MCD zones one was selected using table of random numbers. The northern zone was included in the sample. At the second level primary schools from the zone which opted for the experiment were selected. So selection of the school was purposive.
All the third level forty teachers of classes III, IV and V from these schools were selected for the study. These teachers were assigned to experimental and control groups randomly using table of random numbers.

At the fourth level 10 students were selected from each class randomly to measure pupils' perception of teaching.

3.4.0 RESEARCH TOOLS

3.4.1 Teacher Attitude Scale Towards Learning-Teaching

Teacher attitude scale towards learning teaching was developed by the investigator under three headings 1) planning, 2) item writing and 3) analysis. It had fifty questions in all. It was a type of scaling rating scale having four alternate i.e. 1) SA (Strongly agree), 2) A (agree), 3) D (disagree) and 4) SD (Strongly disagree) choices to each answer. The participant have to mark one of them most suitable. This questionnaire was based on five areas of 1. Active learning 2. Negotiation of objectives 3. Demonstration Practice feedback 4. Continuous evaluation and 5. Support. Some of them were positive statement questions and some were of negative nature. Positive nature questions were given marks 1, 2, 3 and 4 to SA, A, D and
SD respectively and reverse marking to negative statement. Though the investigator scored the responses areawise and in total scores. It had previously 75 questions. The questionnaire was standardized by item analysis. The investigator followed Anastasi's method and items with moderate difficulty value and discriminative value were collected. Pupil perception inventory also followed the same steps. Teacher attitudes scale was administered among teachers for pre-test, post-test-I, post-test-II and post-test-III. It was translated from English to Hindi version also for convenience.

3.4.2 Pupil perception Inventory Towards Learning

Pupil perception inventory was constructed by the researcher to measure the training effect transfer to practice. It was based on all the five areas of active learning negotiation of objectives, demonstration practice feedback, continuous evaluation, and support. It had 30 questions and previously 40 questions. Responses were given in the form of 'yes' and 'No' type. Some statements were positive and some negative. In positive statements 'yes' was given one mark and 'No' was given zero mark and reverse in the case of negative. This questionnaire was administered among pupils when teachers again join their classes after
training as pre-test and post-test. Having consequent interval of four weeks between pre and post-test. Scoring was done area wise and in total respect of scores. The scale was standardized by item analysis. Hindi version of the scale was used for data collection.

3.5.0 EXPERIMENTAL PROCEDURE

The study involved mainly cooperative learning based training approach and conventional programme of training. Where in teachers prepared teaching unit, lesson plans and teaching aids to refers to the theoretical orientation of CLBTA. Each unit was planned under three points 1) Unit aim, 2) Activities and Evaluation issues.

There were two control groups and two experimental groups as solomon four group design used. In first phase, during first week one experimental and one control group was given pre test measurement, while the other one control and one experimental group did not receive the pre-testing. Both the groups received conventional programme treatment during first week. After the testing measurement, control groups were instructed through conventional approach (no separate training programme was organised for control groups.

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The training was considered what they received during their pre-service training course. Experimental groups were treated by CLSTTA following four unit of Unesco resource pack i.e.

unit 1 - classroom factors.
Unit 2 - cooperative learning
Unit 3 - learning lessons and
unit 4 - special needs in the classrooms modules and
study material for 40 hours spread over four weeks, suitable to the system in the organized workshop.

Mostly the workshop was conducted for 2 hours daily after the school in evening in the month of August, 1992. Sometimes during schools time when teaching practice was required. Immediately after the treatment, all the four groups were given post testing measurement. In pre-testing and post-testing teacher attitude scale towards learning-teaching was used.

Second phase of the treatment design started when all the teachers join the teaching profession after completing their training in the institute. Just after joining in teaching positions i.e. after two weeks of experiment, post-testing II was administered involving all the four groups through teacher attitude scale
towards learning-teaching. After a further period of six weeks of experiment or after four weeks the post-testing - II, post-testing - III was again obtained through teacher attitude scale which one was used during the pre-testing, post-testing and post-testing II. Pre-test and post test measures for the performance of the pupils in respect of their attitude through pupil perception inventory towards learning under all the four groups of teachers were obtained with post testing - II and post testing - III respectively. That provided data for testing hypotheses about sustenance of training and transfer to practice using CLBTA.

3.6.0 TRAINING

Workshop for implementing the cooperative learning based training approach from (3 - 29) August, 1992 was organised at MCD, School, Sarai Rohilla, New Delhi. There were several resource persons who were already trained by the cooperative learning based training approach. The aim of the workshop was to help participants to develop their thinking and practice with respect to the ways in which they respond to pupils' educational needs. The timings of workshop were nearly 1.00 p.m. to 3.00 p.m. Daily one (sometimes
two) session(s) was conducted in which twenty teacher
of experimental groups were participants. They were
given the topics and they have to respond the topic
with three heading (1) Objectives 2) Activities and 3)
Issues to think about. For that they used mostly flip
charts blackboard writing and sometimes verbal
techniques.

Section I : Workshop setting

The inaugural session was started on 3.8.92
first day by Mrs. Anupam Ahuja, Resource Person, by
asking each one to introduce themselves and to share
with the group the place from where they came. The
focus was to introduce the participatory approach
requiring active learning usually involving group work.
Attention was drawn to the aim of the material in the
Resource Pack to encourage teachers to examine their
own practice, formulate priorities for development and
take responsibility for making improvements. Five
principles were emphasised throughout the training and
apply to all teaching and learning situations were
discussed. There were 1) Active learning 2) Negotiation
of objectives 3) Demonstration, practice and feed back
4) Continuous evaluation and 5) Support.
Section II: Goal Setting

Also on the first day in the goal setting session each member of the group was asked to discuss with a partner what each of them would like to gain from this course. It was explained that while one partner talks, the other is required to listen actively. Active listening involves looking at the person what is talking, sitting quietly; doing nothing else but listening; responding naturally with gestures and expressions; making no comments; and asking a question only if there is a need to clarify a point. This was followed by asking them to join with another pair of course participants and explain to the other pair their expectations. Each group of the four members sat in a circle facing each other. The need to listen, share, challenge, relate and, at the same time, have fun, was shared before introducing working in pairs and groups of four. The idea was to encourage everyone to speak. It served as a warming up exercise.

The writing of learning journal was introduced. It was explained that it is a form of a diary, a personal document that participants keep in which they write their own learning under the headings:
- Ideas that you would like to remember,
- Questions that you need to think about.
- Leads to follow up
- Point to share with colleagues
- Reactions on the session

The main purpose of writing journal was to help them to take responsibility for their own learning. After that teacher attitude scale towards learning-teaching for pre-test was administered.

Session III: How do we Learn?

This session was started on second day of the workshop. In that the participants were asked to reflect upon themselves as learners. This was one of the proposed unit of the training course. Each participant was required to spend a few minutes thinking about themselves as adult learners. On their own each was asked to complete seven statements on their individual preferences. The seven statements were:

- I learn slowly when __________________________
- I learn quickly when __________________________
- I find learning easy when _______________________
- Learning in groups ____________________________
- Learning from books __________________________
- I learn well from someone who __________________
- I enjoy learning when _________________________
Each participant was asked to share his response with another participant. In order to promote each individual to express views to the whole group everyone shared his response to each statement with the whole group. A volunteer was asked to act as a scribe and write down the response of each participant on the blackboard. Common responses were tallied. In order to break monotony of expressing views on the seven statements responses were obtained designating persons clockwise, anti clockwise, and left and right half circles. The group realised that there are diverse ways in which they learnt. People have different learning preferences with a few commonality. They realised that thinking about themselves as learners helped them in getting better at their own learning and supporting the learning of their colleagues. It also helped them in understanding more about children as learners.

The debriefing session took account of the difference and commonality in the learning styles and focussed on the following aspects of learning:
- Learning is never complete
- Learning is individual.
- Learning is social process.
- Learning is active.
- Learning means change.
The activity concluded with asking each participant to reflect and write their views in the learning journal.

Session IV: Emerging concept of Special Needs

Third day of the training course, the emerging concept of special needs was introduced. There was the study material differentiating traditional and new approach to special needs. The changing perspectives on special needs in education and the nature of the pupil, differences and how special needs can be met was discussed using the framework given table 3.4.

Table 3.4: Traditional and new Concept of special needs

<table>
<thead>
<tr>
<th>Traditional</th>
<th>New</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Individual</td>
<td>Contextual</td>
</tr>
<tr>
<td>- Categories</td>
<td>Needs</td>
</tr>
<tr>
<td>- Care</td>
<td>Curriculum</td>
</tr>
<tr>
<td>- Segregation</td>
<td>Collaboration</td>
</tr>
</tbody>
</table>

It was clear that ideas about special needs were gradually changing.

The traditional approach was based as the premise that a group of children can be identified who are
different and only this small group needs special help. It was believed that these children only have problems and the rest of the children in the school were normal. The children with problems are because of their own disabilities or limitations and it was best to teach children with similar problems together.

Against this, highlights that any child may experience difficulties in school and all children should get special help, if they need it. The learning difficulties are the result of interactive effect of factors within the school and the home. The emphasis in this approach is that children have problems for all sorts of reasons and teachers must take responsibility for all their pupils. The need of teachers for help and support was also stressed at the end of the session comments were given on the evaluation sheet designed for this purpose under the main points content, process, material, and outcome about the session.

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Five day gap for study and implementation of new practice to assess learning references of students and their perceptions of classroom to negotiate what and how they want to learn.
Fourth day of the workshop was began with providing feedback on the evaluation sheets completed by the participants on the previous day. Most of the participants found the content useful. Usefulness of process in inservice programme to make learning easy and enjoyable, good variety of discussion, systematic, smooth and encouraging process involved. Material was effective and well planned accordingly to the session. Outcome provided insight into the need for teaching all children effectively, usage in actual work setting and content helps in understanding the need of mutual understanding cooperation, sharing ideas, acquisition of more knowledge.

Session V: Learning about Special Needs

After discussion on evaluation sheet, the course leaders emphasised the importance of recognising how a range of factors may have an influence. These are within children, community and some arise from the policies and practice of schools. Special needs arise as a mismatch between the factors from different sources. The main focus of this workshop was on finding approaches to teaching that can enable all pupils to experience classroom success. The participants, in pairs different from own school, were given ten minutes to review and reflect on the highlights about the
special needs of the child in the story then in a
bigger group of six on following issues:
- what is the nature of Rekha's special needs?
- what do you feel about contribution of various
  professionals involved?
- what factors influenced Rekha's lack of progress

Each group prepared a poster indicating positive factors which could improve Rekha's life or influence her progress. The groups shared their thinking with help of presented posters. The following points emerged.
- child should be encouraged for her work whatever little bit of she might attempted
- motivate through encouragement and non competitive atmosphere.
- provide alternative learning material so that he can learn easily.
- taught through playing method
- interesting reading material
- child's aptitude and interest should be kept in mind while teaching
- teacher should take help from the parents, and her/his pears to support the child.
- supportive environment at home and in school helps the child learn better.
It was felt that the teachers' themselves could also do a lot if they were given an opportunity and provided support and participants concluded that such an elaborate infrastructure with specialists is not necessary to meet special needs like those of child being discussed.

Session VI : Attitude to Disability

On fifth day in order to help participants to reconsider their own attitudes towards people with disability discussion material. 'The Special Needs Bank' was provided and ten minutes were sloted for reading and reflections. All the members counted by fours participants with odd numbers formed one group and those with even numbers formed organise discussion. All the twos and fours were asked to construct a core for the manager's proposal regarding provision in the bank for clients with disability. The ones and threes were to construct a core against the proposal. Each member was asked to take notes. A group leader was nominated to facilitate discussion. Small groups were then formed. Two members from even and two from odd were asked to form one group of four and discuss implications of their previous discussion for their schools.
The debriefing session involved getting each member of the group share their views with the whole group. It was surprise obtained from the presentation that it is possibility of children with special needs studying together alongside others in their classes. And those with different attitude also realised it and felt that the need for support was essential.

Session VII: Factors Influencing Integration

On sixth day of the workshop a video on a successful integration programme in secondary school was shown for ten minutes in context of educational factors. The participants were informed in the beginning to observe and note the positive factors responsible for successful integration in school. After video viewing, the group was asked to volunteer the influencing factors identified by each. These were as follows:

- Variety of learning material
- Democratic environment
- Encouraging attitude of the head teacher
- Careful planning by the staff in the school
- Accountability of the faculty as whole
- Participatory approach
- Collaborative teaching
- Interaction with other teachers
- Involvement, commitment and supportive atmosphere
- Child-to-child help
- Time management
preparation of children to receive children with
special needs, positive reinforcement and step by step
teaching.

Session was ended with reflection of learning journals
they maintained.

-----------------------------------------------
Four days gap for reading and reflection on
implications for practice.

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Session VIII: Effective Teaching: Meeting Individual
Needs

Seventh day began with a brief talk on how
teachers can improve their practice with respect to
ways of responding to individual needs in the class.
The emphasis was on meeting individual needs within a
common curriculum.

The following issues on how effective teachers
help their pupils to learn, were put up on a flip chart
and discussed:

- helping the children understand their work
- setting work that the children can do
- teaching in step by step way
- giving the class different types of activities
- sometimes letting children choose what they want to do
- expecting the children to do well
- making the classroom a busy place
- having sensible rules and routines
- praising the children for their efforts
- organising equipment so that children can get on with their work
- getting the children to help each other
- taking notes of the children's progress

The participants were divided into small groups with three members each. Each group was allotted an issue. They were required to reflect on how they use it in their classroom and discuss improvements in their setting in a group.

In the debriefing session an elected member from each group shared group views with the whole group. The course leaders collect out the group members from each group randomly. This helped to maintain an atmosphere of joy and an element of suspense in the room. As a whole group they realised the importance of teachers knowing their pupils well which is not an easy task. Pupils have to be helped to understand what they are trying to learn. This will help them in finding their
own purpose and meaning relevant to each individually.
The need for physical management of the class in terms
of class size, furniture arrangement and allocation of
tasks to children also stood out from the discussion.
It was realised that it is important to let the pace
going and have classroom organisation to keep children
busy.

Session IX: Strategies to meet Special Needs in Classroom

This session was organised on eighth day of the
workshop considering classroom factors that influence
children's learning. A classroom strategies chart
stating classroom factors to meet special needs was
distributed to all ten participants. This was prepared
by a group of teachers who used these strategies with
individual children in their classroom. The chart is
shown in Table 3.5:

Table 3.5: Classroom factors to meet special needs

<table>
<thead>
<tr>
<th>SETTING</th>
<th>TALKING TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDIVIDUAL</td>
<td>INDIVIDUALS</td>
</tr>
<tr>
<td>TASKS</td>
<td></td>
</tr>
</tbody>
</table>

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>GIVING PUPILS</td>
<td>PRAISING CHILDREN'S</td>
</tr>
<tr>
<td>CHOICE</td>
<td>EFFORT</td>
</tr>
</tbody>
</table>

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>GETTING TO</td>
<td>SMALL GROUP WORK</td>
</tr>
<tr>
<td>KNOW PARENTS</td>
<td></td>
</tr>
</tbody>
</table>

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LISTENING TO</td>
<td>RECORDING PROGRESS</td>
</tr>
<tr>
<td>INDIVIDUALS</td>
<td></td>
</tr>
</tbody>
</table>
The participants were asked to complete the three empty cells by the strategies that they consider most useful in the light of their experience as teacher and put start against three strategies which they feel most important out of these nine strategies.

Groups were formed in two stages. Firstly, they were required to sit close to the persons sitting next to them and share with their partners their starred classroom factors from the twelve cell entire. Groups of six participants each were formed by asking three pairs to join together. By voting, these groups were required to choose one strategy each which they considered to the most popular in their groups. In this way, each member had an opportunity to express his/her starred choices. The groups were required to work out a plan for using the chosen strategy in the classroom. Here they pooled their knowledge and skill to complete the assignment. Each member was asked to note the salient features of the discussion, since everyone would be required to present in new groups to be formed later on.

At the second stage further grouping was done by asking each group to count its members from one to six. All the ones in the group formed a group, in this way
there six groups, and all had plans and presentation of all the six groups, which were formed at the first stage. Suggestions for improvement were considered. In this way, jigsaw format of structuring the group was used in transacting this session. The course leaders made sure that each member of the group had a clear understanding of the plan prepared by the group and had a copy of the same with him/her, so that each member could succeed. They also ensured individual accountability in the group. In these groups, each participant presented the plan prepared by the original group to which the participant belonged. Every participant also had an opportunity to react to all plans and suggest improvements. "Praising children's effort" turned out to be the most popular strategy. It was followed by "giving pupils choice" small group work.

The session was ended with filling of evaluation sheets and a look on learning journal they maintained in summarised way.

Five days gap for reading, reflection, sharing with peers and assimilates and review of their curriculum practice.

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Session X: Cooperative Learning:

On the ninth day, the participants were provided feedback on evaluation sheets of the previous day and a brief on how classrooms can be organized to facilitate teaching learning process. In order to help participants consider issues involved in the use of cooperative learning, they were told at the outset that certain tasks with specific instructions will be given. It was considered essential to follow the instructions. Since there were several starts and steps the participants were told to put up their hand and ask if any particular instruction was not clear to them.

New working groups were made for this exercise. The participants were required to keep in mind the first letter of their name and stand alphabetically in a diagonal line across the room. Small groups of two members each were then made by moving one from beginning and one from end of the line to the other.

Attention was drawn to the first pattern in the instruction sheet. The participants were asked to count the total number of squares in the pattern. Start counting individually after a signal to start and no copy of others. The activity was of two minutes. After that each one was required to speak their counted
number and course leader putted them an blackboard and then the correct answer was shown and the persons in the group nearest to the correct answer were identified and there was a big deviated range of responses.

Second exercise was followed by asking the participants to focus their attention on the second figure of the sheet. They were required to count the total number of biangles (closed arches) in two minutes in pairs sitting nearest to each one as groups formed without competing. After the stipulated time their counted answers were written on blackboard and then the correct answer. This time the answers had the short deviated range and participants were required to evaluate their task individually. They feel that second exercise take less time and feel easy to complete.

Final task required the participants to count the total number of triangles in the third pattern. They were grouped by joining two pairs. exercise was allotted two minutes. After that their answers were putted on blackboard and after that the correct answer. This time there was only two deviated answers and took less time than second and participants were quite encouraged. This exercise turned them at the point to feel the real effectiveness of cooperative
learning work which will extend their children's learning providing several varieties of learning. At the end of session participants were required to complete their learning journal.

Session XI: Child-to-child help

On tenth day child to child help was identified as a source of help and support by the participants during reflection towards support. This approach as a means to respond to the individual needs in the classroom was explained briefly to the whole group. The participants were stimulated to think about the area of child-to-child help in teaching and in other special needs areas. A brainstorming session was planned for this purpose. It was conducted in groups of five participants each. The group were formed on member of the group gave his ideas about possibilities of child-to-child help to meet individual needs. They were informed about the rules to be followed during brainstorming so that all participants felt confident to make suggestions without fear of criticism. These rules were:

1) A maximum number of ideas is desired.
2) No discussion of the idea during the brainstorming session is allowed.
3) No criticism should be made since there is no right or wrong idea at this stage.

4) All ideas related to the subject will be respected and recorded.

5) One idea may be modified, adapted and expressed as other idea.

The groups were required to consider child-to-child help in the context of the classroom as well as out of the classroom activities. After brainstorming session participants enlist all the ideas. Whether relevant or irrelevant. The list of ideas was shared in the whole group. The following ideas emerged:

1. **Academic areas**: Helping children in reading, writing, class tests, home assignments, examination, completion of class notes etc. were considered.

2. **Non-academic areas**: Helping children one another in games and sports will be participating creative and re creative activities like music, dance, drama, painting, craft, celebrating important festivals and birthdays etc.

3. **Daily living skills**: Some children require help in self help skills, others may require in
mobility from one place to another in and out of school and to whom those who have difficulty in communication.

4. Social Needs: It was felt that friendly visits at home, inviting children to their home, participation in class, school, family and community activities, could be provided through child-to-child help.

Evaluation of the day was done by evaluation sheet.

Session XII: Collaborative Teaching

Feedback was provided for evaluation sheets on beginning of the eleventh day. Colleagues help was identified an effective resource for classroom teaching. The purpose of this session was to consider the idea of peer coaching as a means of supporting teachers to try out new ways of working. It was emphasised that peer coaching involves pairs of teachers working together to improve their teaching skills. It is very effective way of increasing the effectiveness of teacher education programmes. the importance of peer coaching was discussed. the following aspects were highlighted.
- Build communities of teachers who continuously study their own practice
- Develop a shared language and common understanding between teachers to help one another
- Develop a structure for the follow up support

The factors which enhance peer coaching were discussed and emerged as below:

- Familiarity with the new skill or strategy to be mastered and transferred into the teacher's everyday practice.
- Access to other teachers for purposes of observation, feedback and discussion
- Openness to experimentation and willingness to persist and retire skills

A caution was, however, sounded that every colleague may not take up the idea easily since the appreciation of new ideas requires effort and time. Some resistance may be natural. The participants, therefore, were advised to inform the colleagues about new approach, if needed more than once. They should be persistent in their persuasion and should always keep themselves open to challenge. Evaluation sheet was filled at end.
Seven days gap to read, preface practice plan, implement in classroom and share with peers in school.

On the twelveth day the course leader provided the feedback for the previous sessions and then post-test-I was administer among all experimental and control group teachers through teacher attitude scale towards learning-teaching.

3.7.0 FOLLOW UP

After two weeks of the workshop when the teachers joined their classes in their schools, pre-test for pupil perception inventory among the children, chosen in sample, was administered and teacher attitude scale among all the four groups teachers was conducted as post test-II.

After four weeks of the practice or after six weeks of the experimented workshop, when teachers have used the cooperative learning and traditional approach in actual classroom practice, pupil perception inventory for post-test and teacher attitude scale towards learning teaching among teachers for post-test-III was administered. Pre-test and post-test of pupil perception inventory provided the training effect
transfer to practice in actual classroom and post test-II; post-test-III of teacher attitude scale towards learning-teaching provided the sustenance of training.

2.8.0 INSTRUCTIONAL MATERIAL

The investigator developed most of the activity sheets self-based on the cooperative learning activities and some with the help of colleagues and some modules study material and units were selected from the UNESCO resource pack 'Special Needs in the Classroom, 1991', for this purpose mostly cyclostyled material and flip charts were used for convenience.

3.9.0 STATISTICS USED

To analyse the data, investigator used the t-test for small sample and analysis of variance as parametric statistics, for teacher attitude scale.

Teacher attitude scale for each teacher groupwise was scored out in respect of total score and area-wise scores for all the five areas i.e. active learning: negotiation of objectives; demonstration practice & feedback; continuous evaluation and support at pre-test, post-test-I, post-test-II and post-test-III. As there were two experimental groups (EG1 and EG2) and two control groups (CG1 & CG2), means and standard deviations were calculated for each group for the total
scores and areawise scores. Similarly, pupil perception inventory of experimental group and control group students were scores as total scores and areawise and means and SDs were calculated for each group in each area. Parametric statistical measures were employed.

In testing the hypothesis to fulfill the objectives.

At the outset of the analysis, the homogeneity of population variances was to be considered. But as the number of teachers ($N=10+10$) and number of students ($N=100+100$) in both experimental groups and in both control groups were equal, the assumption of the homogeneity of variances was important and therefore, was not concerned. According to Glass and Stanley (1970), when the population among the two groups are homogeneous then the tenability of the homogeneity of variances among the two (experimental & control groups) groups is accepts even without testing. So after assuming the homogeneity of population variances among the groups the testing of each hypothesis was done by the statistical analysis.

Teacher attitudes scores for total scores and areawise analysed through t-test (small sample) and analysis of variance. Pre-test mean attitude scores were tested through t-test for total scores and
areawise. Analysis of variance (ANOVA) was employed among the four post tests (post-test-I, post-test-II, post-test-III) to confirm the significance difference among the groups for each of the hypothesis and t-test (small sample) in pair of groups was applied to locate the significance difference between the groups. t-test for large sample between pre-test and post-test scores of pupil perception inventory of experimental and control groups students was applied.

To test the hypotheses and fulfill the objectives of the study, parametric statistical measures were employed. Before adopting the inferential measures the data on each test was measured upon experimental and control groups at the pre test and post tests stages. The data were computed through ANOVA and t-test for each of the hypothesis for finding out the significance of mean differences among the teachers and students of experimental and control group's and there after those were analysed.

Parametric procedures can be computed wherever the data are represented in numerical form. A number of empirical studies have demonstrated that when parametric procedures have been employed with ordinal data, they rarely distort a relationship between
variables which may present in the data. Parametric analysis results are nearly identical to those yielded by non-parametric procedures. The parametric techniques particularly the analysis of variance offer more analyses flexibility to the researchers. In addition, parametric procedures are often markedly more powerful than their non-parametric counterparts. That is generally a parametric procedure will more frequently reject a null hypothesis, than will a non-parametric test designed to perform the same function. This can be attributed to the parametric procedures using more of the available information, such as the deviation from the mean of the scores, in the analysis. Non-parametric procedure more frequently rely upon frequency count ranking procedure.