CHAPTER 5
CHAPTER - V

ADAPTATION AND EXECUTION OF THE CoRTTP

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5.0 Introduction:

The most valuable and remarkable gift of the twentieth century to the present human generation is the scientific planning of every type of work. It is an undoubted fact that many a work without pre-planning and thinking have not only failed to bring out expected results, but also have invited abrupt results and frustrations. Planning involves previewing and reviewing any sort of activity, arranging all details, thinking about the various devices for the implementation there of, deciding what consequences would emerge after the successful execution of the plan and finally the overall evaluation of the same. Such a complicated process is called planning.

Hence present world and its affairs has become extremely complex. If any work is to be carried out and completed meaningfully, it needs to be well planned. Without a careful planning very much damage is done and nation suffers a great loss.

A good and meaningful research work cannot be done without purposeful planning. Hence, the planning requires utmost care and insight for such work undertaken in the study.
Here the planning of the whole study was divided into two parts regarding the following aspects:

1. Adaptation of the CoRT Thinking Programmes.
2. Studies on creativity.

This chapter deals with the first part.

5.1 **Content of the CoRTTP:**

As stated in foregoing pages of the chapter IV, the CoRTTP consists of six units. Out of six only three units were selected for the research work, which was inter-related with each other. Each unit covers a broad area of THINKING (C.1 Breadth, IV Creativity and VI Action). There are ten lessons in each unit; and a student work-card is provided for each lesson. The content of the three units of CoRTTP as under:

5.1.1. **Breadth:**

Bruner's two basic types of categories are those of identify and equivalence. Categorization as a research construct has attracted the attention of the scholars in various field of social science. Categorization whether conceived as style or strategy, can be treated as a problem in "Breadth" - that is, in the range of discriminable events assigned to a common class.
The theme of CoRT-1 is breadth: here pupils were encouraged to explore more widely around a situation.

In this unit, there are ten lessons.

Each of the lessons in this section is designed to encourage pupils to broaden their thinking. In the thinking of both children and adults the dominating fault is the tendency to take too narrow a view. For example take up an instant judgement position rather than to explore the issue. The lessons in this section provide attention areas into which thinking can be directed: looking for the plus and minus points; considering all the factors; consequences; aims and objectives; assessing priorities: taking other people's view into account. By making a deliberate effort during the lessons to direct their thinking towards these areas, pupils can develop the habit of broadening their thinking.

The theme of each lesson is described in brief below:

Lesson - 1: Treatment of ideas (PMI):

Deliberate examination of an idea for good, bad and interesting points, instead of immediate acceptance/rejection

Lesson - 2: Factor involved (CAP):

Switches attention from the importance of the factors involved to looking for all the factors consider the situation at the moment.
Lesson - 3: Rules:

Provides an opportunity for practicing the first two lessons. Rules provide a well-defined thinking situation.

Lesson - 4: Consequences (C & S):

Consideration of the immediate, short, medium, and long term consequences.

Lesson - 5: Objectives (AGO):

Introduces and emphasizes the idea of purpose. Helps students define objectives and see other people's objectives.

Lesson - 6: Planning:

Explores the thinking operations involved in planning. Draws together the previous two lessons.

Lesson - 7: Priorities (FIP):

It is useful to generate as many ideas as possible, provided that at some time the most important ideas will be chosen.

Lesson - 8: Alternatives:

Focuses attention on exploring all the alternatives - beyond the obvious ones. Looking for alternatives is an effective antidote to emotional reaction.
Lesson - 9: Decisions:

Promotes an awareness of the thinking operations involved in making a decision.

Lesson - 10: Viewpoint (OPV):

Emphasizes how the view of the other person in the same situation may be entirely different.

The underlying structure of each lessons of CoRT-1 is very simple. A basic process is to be the subjects of attention during those lessons. In CoRT-1 lessons the whole structure were divided into six points viz., 1. Content, 2. Examples, 3. Practice items, 4. Process, 5. Principles and 6. Project. The details of each point are as under:

1. **Content:** A section is designed to cover one term's work with one period. Each of the lessons covers one general aspect of thinking and learning. In this section the material is quite tightly structured and the teaching notes are detailed. There is, however, a much more important point concerning the use of the leaflets. Clearly it is possible to teach the CoRT - 1 lessons without using the leaflets at all. The teacher could use the hand book and explain the terminology of each CoRT-1 lessons.
2. **Examples**: In this section the process is explained with illustrations and examples. It is left to the teacher to provide the overall framework which shows the relevance of the process to the whole thinking process. This may be weakness of the material.

3. **Practice items**: These are designed for practising the process outlined above. The items or problem may be short and may require no more than answer to a question or a simple discrimination. In other cases it may be a matter of picking things out and putting them in order. Most of the practice items, however, are in the form of problems or proposals. The pupils are asked to consider the situation presented and then to apply the process that is being practised. There are no definite right or wrong answers. A number of different practice items are given in most of the lessons. A rapid jump through a number of different practice items is recommended in order to keep attention on the process. This creates great problems in terms of drift into content and the maintenance of interest. The choice of practice items and their nature also create problem, because pupils are apt to prefer those problems about which they normally do little thinking.

4. **Process**: The process is something to do or something to look at. The distinction between the two is not clear cut. All the processes are attention-directors of one sort or
another. In some lessons the process involves looking in a direction and then 'listing' what one sees. In other lessons it is a matter of looking in order to pick out some pattern. In yet others the operation may consist of asking a certain question and then finding the answer to it.

5. **Principles:** Here each lesson shows its practical and theoretical importance while implementing in the classroom. The principles of each lesson clarify its theme, and phases to the students under study. How the ideas come out as a spring and lead towards a new idea, is explained in this section, so that the students could be able to distinguish between the positive and negative facts of the ideas.

6. **Project:** In this section, the project items are given under the head - "Think at LEISURE." There are two or three items regarding to the theme of the lessons. The items can be used in three ways:

   (i) At the end of a period lesson, if the time permits.

   (ii) After the completion of the lesson, made by the talented students.

   (iii) At leisure time available to the participants.

   The project items should be checked before the next lesson is started.
5.1.2 Creativity:

Creativity is a word that covers a great deal. Artists are said to be creative because they do not imitate but produce something new. An inventor is said to be creative if he comes up with a new invention which works. A scientist is said to be creative if he makes a new discovery. The common element seems to be the production of something new. If a person produces something new that is not good, he is not considered to be creative. Creativity is usually a value judgement of a result. Creativity is always fun and highly motivating to the people involved. This sense of fun should be kept throughout CoRT IV, but at the same time creativity is a serious matter. The purpose of creativity is to arrive at an effective new idea not to offer some bizarre, gimmick.

It is unfortunate that in ordinary language the word "Creativity" is often applied to artistic creativity which involves emotional resonance, craftsmanship and many other characteristics in addition to the ability to create new ideas. In CoRT-IV the type of creativity that is developed is the "design" type of creativity.

It is too often assumed that creative ideas come only from inspiration and that there is nothing that can be done about it. This section covers the basic creativity techniques, Procedures and attitudes. Creativity is treated
as a normal part of thinking involving processes that can be learned, practised and applied in a deliberate manner. Some of the processes are concerned with the escape from imprisoning ideas. Others are concerned with the provocation of new ideas. Problem definition is an important part of creativity. So is the evaluation of suggested solutions.

In this unit, there are ten lessons. The themes of each lesson is described in brief below:

**Lesson - 1: Yes, No and 'Po':**

'Po', a device for showing that an idea is being used creatively without any judgement or immediate evaluation.

**Lesson - 2: Stepping Stone:**

The use of ideas not for their own sake but because of the ideas that may lead to further thinking.

**Lesson - 3: Random input:**

The input of unrelated outrageous ideas into a situation may change the situation or to stimulate new ideas.

**Lesson - 4: Concept challenge:**

Looking at accepted ideas and challenging them - not in an attempt to prove them wrong but to challenge their uniqueness.
Lesson - 5: Dominant idea:

To recognize the dominant idea in a subject. Once it is recognized, it is not too difficult to put in its proper perspective.

Lesson - 6: Define the problem:

An effort to define a problem exactly may make it easier to solve. Some creative situations are not problem solving once and an effort to define such situations exactly might actually inhibit ideas.

Lesson - 7: Remove Faults:

Listing all the faults and trying to rectify them. The assessment of faults and their removal from an idea.

Lesson - 8: Combination:

By examining the attributes of seemingly unrelated items, new items may be created by combination.

Lesson - 9: Requirements:

An awareness of requirements may influence the creation of ideas.

Lesson - 10: Evaluation:

An idea may be creative, but it is a good idea. It is useful. Does it work? Does an idea fit the requirements and what advantages and disadvantages are here?
The above lessons are concerned with areas to look at and things to do. In some cases such as the use of a random input the operation are so specific that they almost amount to a technique. Nevertheless, there is, behind the technique, an attitude that can be used quite apart from the technique. For instance picking a random word out of a bag and using it is the technique. Readiness to consider accidental inputs or to bring in something from outside is the attitude.

It is often argued that no one can be made more creative then they really are. This may indeed be true in terms of innate ability but not in an operational sense. If a person does use a random word as a provocation he is more likely to turn up new ideas than if he does not. His brain may not have altered at all but he has put himself in a situation where his reaction to that situation tends to produce more new ideas.

In some cases, a lesson draws attention to an area of thinking that is usually taken for granted. For instance, most people would assume that they always define a problem pretty exactly. In practice this is not so. Because this is obvious or easily understood, does not mean it is done. The purpose of these lessons is not to increase understanding of thinking in a way a geography lesson might increase understanding of geography but to encourage deliberate habits of operation.
If something is obvious there is no point in having an 'understanding' type lesson about it, but there may well be a point in having an 'operating' type lesson. It is not difficult to understand the purpose and working of a saw. But to use a saw properly and appropriately is an entirely different matter.

Each of the ten lessons in this creativity section is designed to help the development of new ideas. The last lesson on 'Evaluation' is concerned with assessing both the ideas that turn up from one's own thinking and also the ideas that are suggested by others. Each of the other nine lessons is designed to produce ideas. Even the lesson on 'Requirements' is concerned with the production of ideas since requirements actually shape ideas. Similarly exact definition of a problem often sets a new train of thought.

5.1.3. Action:

The action suggests that the purpose of the thinking is to end up with some action. Indeed the operations stage sets forth specific action steps. The thinking is therefore contrasted with thinking that is contemplative. It is, however, made clear that explanation or description is a legitimate purpose of thinking. In this sense 'action' also refers to the deliberate 'Putting into action' or 'act' of thinking.
This implies purpose and deliberate application as distinct from reverie. It is almost as if the teacher were to say "let's have some action" meaning mental action or thinking.

Action is concerned with the total process of thinking: beginning with the purpose, and ending with the specific action step for implementing the outcome of thinking. The word ACTION refers to the fact that the TEC-PISCO process is directed towards some definite action. The thinking is not contemplative but directed towards action.

In this unit, there are ten lessons. The theme of each lesson is described in brief below:

**Lesson - 1: Target:**

The first step in thinking. Directing attention to the specific matter that is to be the subject of the thinking. The importance of picking out the 'thinking target' in as definite and focused a manner as possible.

**Lesson - 2: Expand:**

Having picked out the target the next step is to expand upon it; in depth, in breadth, in seeking alternatives. This is the opening up phase of thinking. "Say as much as you can about....."
Lesson - 3: Contract:

The third step is to narrow down the expanded thinking to something more tangible and more usable: main points, a summary, a conclusion, a choice or selection.

Lesson: 4: T E C:

The use of all three preceding tools in one sequence. Practice in defining the target, exploring the subject and narrowing down to usable outcome.

Lesson - 5: Purpose:

Being clear about the exact purpose of thinking. With what does one want to end up: a decision, a problem solution, and action-plan or an opinion? The general purpose of the thinking and also the specific objective.

Lesson - 6: Input:

The situation, the scene, the setting, the information available, the factors and people to be considered: the total input that goes into the thinking.

Lesson - 7: Solutions:

Alternative solutions including the most obvious, the traditional and new ones. Methods for generating solutions and filling gaps.
Lesson - 8: Choice:

The decision process, choosing between the alternative solutions. Priorities and the criteria of choice. Consequences and review of the decision.

Lesson - 9: Operation:

Implementation. Carrying through the results of the thinking. Setting up the specific action steps that will bring about the desired result. Putting the thinking into effect.

Lesson - 10: PISCO (The five stages):

Using the whole sequence. Consolidation of the total procedure in which the first tools are used to define and elaborate within each of the five stages of the framework (TEC - PISCO).

Each of the lessons has a visual symbol which serves to illustrate the nature of that lesson. The symbols are shown in pupils work-cards - (Lessons). Each stage of the framework has been given a letter so that the letters make up a word that is easy to remember. The total framework is called TEC - PISCO which stands for: Target, Expand, Contrast-Purpose, Input, Solution, Choice and Operations. Each lesson covers on stage in the total framework. Each lesson focuses on the nature of the particular stage and type of thinking carried out within it. In fact the total TEC-PISCO framework
covers two procedures. They are put together for ease of remembering. The PISCO procedure gives the definite stages in the application of thinking to a problem or difficult solution. The TEC procedure covers a more general approach to thinking about anything. It simply involves a definite focusing phase; an expanding phase in which as much is thought or said as possible, and a contracting phase in which the thinking is narrowed down to a summary or conclusion. The TEC process can be applied at any moment to any point that seems to require more thought. It can also be applied to anything that turns up in the PISCO procedure as a way of amplifying consideration of a point.

Reference is made to the symbol which illustrates the process that is the subject of the lessons. The process is described briefly. The teacher goes through the alternative ways of describing the process, given in pupils' work-card for each lesson. The examples then follows, perhaps with a brief comment or even discussion with the pupils. Then come the five practical points that are listed for each lesson. The teacher goes through each of these without elaboration. In the next section the main process of lesson is divided into sub-division or 'types.' The practice items provide the main body of the lessons. Each lesson contains 3 to 5 practice items. Another practice items follows as rapidly as possible.
All the time the teacher is emphasising and repeating the process that is the subject of the lesson.

The summary serves to tie the lesson together.

If there is sufficient time at the end of a period-lesson the project items under the head "THINK AT LEISURE" can be used. There are 2 to 3 project items. It is necessary to complete project items before the next lesson was started.

5.2 Observation for CoRTTP:

In the field of Divergent thinking and Lateral thinking training the teacher plays an important role as the open classroom climate induces the children to think freely. CoRT thinking programme make children more sensitive to environmental stimuli. The CoRTTP develop tolerance of new ideas of the children and also encourage and evaluate self-learning. Such type of healthy and creative atmosphere encouraged the children to think in various dimension of life. The observation for CoRTTP are as under:

1. Most of the children took deep interest in the CoRTTP.
2. Initially, the CoRT Thinking Programme were found some difficult to understand the theoretical part of it.
3. Children liked to read the lesson of CoRTTP as the language of programme was found lucid.
4. First lesson of each unit takes more than 40 minutes to complete them.

5. In CoRTTP the uses of the pictures and the visual symbols have made the framework easy to remember for children and illustrate the nature of particular stage.

6. The CoRTTP may be used by an individual on his own effort or group.

7. CoRT VI (Action) lessons were not able to complete within fixed duration of time.

8. CoRT VI (Action) lessons provided to children a definite opportunity to concentrate upon and practise one of the stages of TEC - PISCO framework.

5.3 Adaptation of the CoRTTP:

The development of psychological measurement was delayed for long probably due to the creative ideas of the human personality. So that much research work has been done in the field of creativity and its relationship to national economic goals, personal accomplishment, mental health and contributions to society in general. However, little work has been done to explore and interpret measures found to enhance factors of creativity. The creativity can, and should, be fostered wherever and whenever possible in the school programme.
For the present study the investigator has adapted CoRT Thinking Programme developed by Edward de Bono, London. First of all, the investigator discussed with his guide and studied the vast literature pertaining to adaptations of Creative Thinking Programme in abroad. The items or problems were critically studied with a view to incorporating the desirable modifications necessary because of the cultural as well as the social and economic differences. The present programme was to be administered to a local sample of Petlad situated in Gujarat State. So, the modifications introduced into the programme items or problems were entirely confined to such as were inevitably involved in translating the pupils work cards (lessons) and Teacher's hand book from English to Gujarati.

The programme items or problems which were heavily located with England culture were either changed or replaced by equivalent items or problems from Indian background. Some of items or problems were constructed by the investigator with the guidance of his guide and educational expert who is working in the field of research.

This description makes it clear that the present adaptation involves modification of some items or problems, the replacement of certain items or problems, and the construction of certain new items or problems. The point kept in view
for the adaptation of items are as follow:

1. The items should be based on the culture and social environment of Gujarat State for development of Creativity of the children.

2. The language of the items should be very lucid to maintain the interest of the children.

3. Keeping in view the time schedule, the sufficient items should be included in each programme.

The details of this try-out and items analysis will be described in the next caption.

5.4 Try-out:

The investigator has translated CoRT Thinking Programme in mother tongue (Gujarati). During translation of the programme, it was necessary to change some items and problems in relation to our Indian culture. A pool of problems was constructed as discussed above in 5. The problems were to be scrutinised scientifically. The tryout of CoRT Thinking Programme is very essential for the purpose. The investigator comes to know only after the tryout, how the children understand the problems, how he interprets the given data and how he arrives at the conclusions and write down his own solution. In order to fulfil these requirements the process of tryout is done at two stages in the present study.

5.4.1. Pre-pilot tryout
5.4.2. Pilot tryout.
5.4.1. **Pre-pilot tryout:**

The cyclostyled materials of the CoRT Thinking Programme containing 260 problems in thirty lessons were used. It was given to a very small group of 5 to 7 children for pre-pilot tryout. The main objective of this tryout was to confirm the applicability of the cyclostyled materials. Hence no statistical calculations were involved at that level. The specific objectives of this tryout could be listed as under:

1. To see whether the children follow the instructions of the CoRTTP.
2. To confirm whether the children follow the language of the problems and lessons of the CoRTTP.
3. To check whether items work well with the children.
4. To find out, if there is any ambiguity in the items.
5. To determine the time limit for each lesson of the CoRTTP.
6. To fix-up the necessary time intervals for relaxation.

It would be more appropriate to discuss the findings along with the observations of this tryout in different lessons are as under:

**Observations:**

1. The children could not give many responses of varied type by applying the same item at a time.
2. The lessons of Unit I and IV (i.e., Breadth and Creativity) proved to be very interesting.

3. The language of instructions and lesson was easy to follow.

4. The children could write down the items correctly, which were announced by the experimenter.

5. The children were not able to give complete responses in Unit VI (i.e., Action). Their items were found to be monotonous and less interesting.

6. A small note book with 60 pages could serve the purpose as an answer booklet.

7. A few lesson's items and problems were found to be difficult, being of higher level.

8. Individual copy of the lesson was necessary.

Important conclusions regarding this tryout were drawn for the above observations are listed below.

1. It was finalised that the thirty lessons should be given at different stages during one school period.

The pattern for each unit was as under:

Unit - I: Breadth (Lessons 10):

This lesson should be given at Five stages during one school period.
(a) 5 minutes for instruction and content.
(b) 5 minutes for explaining the example.
(c) 20 minutes for practicing items.
(d) 2 minutes for explaining process and discussion.
(e) 3 minutes for principles.

Unit - IV: Creativity (Lesson 10)

This lesson should be given at different stages during one school period. Time limit is different in each items with reference to their necessity.

Unit - VI: Action (Lesson 10)

This lesson should be given at three stages during one school period.

(a) 15 minutes for discussing content.
(b) 5 minutes for explaining example.
(c) 15 minutes for practice items.

2. Difficult items were dropped out and the number of items was finalised for pilot tryout.

3. Cyclostyled copies of the lessons were prepared and supplied individually.

4. Each lesson was read at least twice (and with explanation if necessary) loudly by the experimenter, so as to enable the children to follow the content.
The present study was not an ability test but a training programme for nurturing creativity, because the tool is going to be used for training and not for testing. For a training programme at least 1½ time more items are required for efficient result for having scope for marginal elementation if necessary, considering all points. It was supposed to construct almost double items for pilot tryout. The number of items to be included in the final, pilot as well as in the pre-pilot forms are given in the table 5.1 (A to C).

Table: 5.1 (A)
TRY OUT AND LESSON WISE ITEMS AND REQUIREMENT AT THE DIFFERENT STAGE OF CoRT - I

<table>
<thead>
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<th>Lesson No.</th>
<th>Content</th>
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<td>Pre-pilot</td>
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<td>P M I</td>
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<td>R</td>
<td>2</td>
<td>C A P</td>
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<td>E</td>
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<td>Rules</td>
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<td>A</td>
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<td>G &amp; S</td>
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Table: 5.1 (B)
TRY OUT AND LESSON WISE ITEMS AND REQUIREMENT AT THE DIFFERENT STAGE OF CoRT - IV

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<td>Stepping Stone</td>
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<td>I</td>
<td>6</td>
<td>Define the Problem</td>
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<td>V</td>
<td>7</td>
<td>Remove Faults</td>
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<td>8</td>
<td>Combination</td>
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Table: 5.1 (C)
TRY OUT AND LESSON WISE ITEMS AND REQUIREMENT AT THE DIFFERENT STAGE OF CoRT - VI

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<td></td>
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<td>T E C - PISCO</td>
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Keeping in view the requirements of the item and problem in final form it was decided to construct items and problems in the beginning.

5.4.2. **Pilot Tryout:**

From the above mentioned observations of varied responses obtained during pre-pilot, the investigator selected the necessary and sufficient numbers of items and problems in each unit of the CoRT Thinking Programme (CoRTTP) as shown in the Tables: 5.1 (A, B, C). Pilot form of CoRTTP includes the 30 lessons in different three unit of the CoRTTP. In all each lesson consists of 3 to 7 items or problems, which could be read from Appendix 1. For try out of the pilot form of the CoRTTP 30 children were selected purposefully. So the investigator could get purposeful and novel responses from the intelligent children. The time scheduled for this try out is shown below in the tables: 5.2 (A, B, C).
Table: 5.2 (A)

LESSONS WISE PATTERN OF PILOT STUDY FOR BREADTH UNIT

<table>
<thead>
<tr>
<th>Week</th>
<th>Day</th>
<th>Lesson No.</th>
<th>Content</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Monday</td>
<td>-</td>
<td>Instruction</td>
<td>1, 2, 3, 4, 5</td>
</tr>
<tr>
<td></td>
<td>Tuesday</td>
<td>1</td>
<td>P M I</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td></td>
<td>Wednesday</td>
<td>2</td>
<td>C A P</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td></td>
<td>Thursday</td>
<td>3</td>
<td>Rules</td>
<td>1, 2, 3, 4</td>
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<tr>
<td></td>
<td>Friday</td>
<td>4</td>
<td>C &amp; S</td>
<td>1, 2, 3, 4, 5</td>
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<tr>
<td></td>
<td>Saturday</td>
<td>5</td>
<td>A G O</td>
<td>1, 2, 3, 4</td>
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<td></td>
<td></td>
<td>6</td>
<td>Planning</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td>II</td>
<td>Monday</td>
<td>7</td>
<td>F I P</td>
<td>1, 2, 3, 4, 5</td>
</tr>
<tr>
<td></td>
<td>Tuesday</td>
<td>8</td>
<td>A P C</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td></td>
<td>Wednesday</td>
<td>9</td>
<td>Decision</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td></td>
<td>Thursday</td>
<td>10</td>
<td>O P V</td>
<td>1, 2, 3, 4</td>
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</table>

Table: 5.2 (B)

LESSONS WISE PATTERN OF PILOT STUDY FOR CREATIVITY UNIT

<table>
<thead>
<tr>
<th>Week</th>
<th>Day</th>
<th>Lesson No.</th>
<th>Content</th>
<th>Item No.</th>
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<tbody>
<tr>
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<td>Monday</td>
<td>1</td>
<td>Yes, No, 'Po'</td>
<td>1, 2, 3</td>
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<tr>
<td></td>
<td>Tuesday</td>
<td>2</td>
<td>Stepping Stone</td>
<td>1, 2, 3, 4, 5</td>
</tr>
<tr>
<td></td>
<td>Wednesday</td>
<td>3</td>
<td>Random Input</td>
<td>1, 2, 3, 4, 5</td>
</tr>
<tr>
<td></td>
<td>Wednesday</td>
<td>4</td>
<td>Concept Challenge</td>
<td>1, 2, 3, 4, 5</td>
</tr>
<tr>
<td></td>
<td>Thursday</td>
<td>5</td>
<td>Dominant Idea</td>
<td>1, 2, 3</td>
</tr>
<tr>
<td></td>
<td>Friday</td>
<td>6</td>
<td>Define the Problem</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td>IV</td>
<td>Monday</td>
<td>7</td>
<td>Remove Faults</td>
<td>1, 2, 3, 4, 5</td>
</tr>
<tr>
<td></td>
<td>Wednesday</td>
<td>8</td>
<td>Combination</td>
<td>1, 2, 3, 4, 5</td>
</tr>
<tr>
<td></td>
<td>Thursday</td>
<td>9</td>
<td>Requirements</td>
<td>1, 2, 3, 4, 5, 6, 7</td>
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<tr>
<td></td>
<td>Friday</td>
<td>10</td>
<td>Evaluation</td>
<td>1, 2, 3, 4, 5, 6</td>
</tr>
<tr>
<td>Week</td>
<td>Day</td>
<td>Lesson No.</td>
<td>Content</td>
<td>Item No.</td>
</tr>
<tr>
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<td>---------------</td>
</tr>
<tr>
<td>V</td>
<td>Monday</td>
<td>1</td>
<td>Target</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td></td>
<td>Tuesday</td>
<td>2</td>
<td>Expand</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td></td>
<td>Wednesday</td>
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<td>Contract</td>
<td>1, 2, 3, 4</td>
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<td></td>
<td>Thursday</td>
<td>4</td>
<td>T E C</td>
<td>1, 2, 3, 4, 5</td>
</tr>
<tr>
<td></td>
<td>Saturday</td>
<td>5</td>
<td>Purpose</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td>VI</td>
<td>Monday</td>
<td>6</td>
<td>Input</td>
<td>1, 2, 3, 4</td>
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<td></td>
<td>Tuesday</td>
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<td>Solutions</td>
<td>1, 2, 3, 4</td>
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<td></td>
<td>Wednesday</td>
<td>8</td>
<td>Choice</td>
<td>1, 2, 3</td>
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<td>Thursday</td>
<td>9</td>
<td>Operation</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td></td>
<td>Friday</td>
<td>10</td>
<td>T E C - PISCO</td>
<td>1, 2, 3</td>
</tr>
</tbody>
</table>

The time duration for each unit of the CoRTTP was noted, lesson wise as shown below.
### Table: 5.3 (A)
**PILOT TRY OUT TIME FREQUENCY FOR CoRT - I**

<table>
<thead>
<tr>
<th>Name of the Unit</th>
<th>Lesson</th>
<th>Items or Problems</th>
<th>Item or problem wise time Frequency in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>1. P M I</td>
<td>4</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>B</td>
<td>4</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>2. C A P</td>
<td>4</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>R</td>
<td>4</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>E</td>
<td>5</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>A</td>
<td>4</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>6. Planning</td>
<td>4</td>
<td>10</td>
<td>8</td>
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<tr>
<td>D</td>
<td>4</td>
<td>10</td>
<td>8</td>
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<tr>
<td>T</td>
<td>4</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>H</td>
<td>4</td>
<td>8</td>
<td>10</td>
</tr>
</tbody>
</table>

### Table: 5.3 (B)
**PILOT TRY OUT TIME FREQUENCY FOR CoRT - IV**

<table>
<thead>
<tr>
<th>Name of the Lesson</th>
<th>Item or problem wise time Frequency in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>C 1. Yes, No, 'Po'</td>
<td>3</td>
</tr>
<tr>
<td>R 2. Stepping Stone</td>
<td>5</td>
</tr>
<tr>
<td>E 3. Random Input</td>
<td>5</td>
</tr>
<tr>
<td>A 4. Concept challenges</td>
<td>5</td>
</tr>
<tr>
<td>T 5. Dominant Idea</td>
<td>3</td>
</tr>
<tr>
<td>I 6. Define the problem</td>
<td>4</td>
</tr>
<tr>
<td>V 7. Remove Faults</td>
<td>5</td>
</tr>
<tr>
<td>I 8. Combination</td>
<td>5</td>
</tr>
<tr>
<td>T 9. Requirements</td>
<td>7</td>
</tr>
<tr>
<td>Y 10. Evaluation</td>
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</tr>
</tbody>
</table>
Table: 5.3 (C)
PILOT TRY OUT TIME FREQUENCY FOR CoRT - VI

<table>
<thead>
<tr>
<th>Name of the Unit</th>
<th>Lesson</th>
<th>Items or Problems</th>
<th>Item or problem wise time frequency in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>1. Target</td>
<td>4</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>2. Expand</td>
<td>4</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>3. Contract</td>
<td>4</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>4. T E C</td>
<td>5</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>5. Purpose</td>
<td>4</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>6. Input</td>
<td>4</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>7. Solutions</td>
<td>4</td>
<td>11</td>
<td>12</td>
</tr>
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<td>8. Choice</td>
<td>3</td>
<td>14</td>
<td>13</td>
</tr>
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<td>9. Operation</td>
<td>4</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>10. TEC - PISCO</td>
<td>3</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

From the above tables, it is seen that the time duration for each lesson should be fixed at 40 minutes.

The items and problems deal with divergent thinking and broaden perception. Hence, the percentage of a particular response out of many appropriate responses to such item or problem was computed.

Response analysis of divergent thinking items or problems were made according to the percentage of responses varied at three levels, determined by B.K. Passi.
This would be helpful to investigator to select the items or problems as per requirement shown in tables: 5.3 (A-C)

5.5 Final form of CoRTTP:

The items or problems were finalized after the analysis of responses which is related with the Lateral and Divergent thinking. It was necessary for the researcher to change some items or problems of the lessons to suit Indian culture particular for Gujarati speaking children which is described deeply in Chapter - IV. The final form of CoRTTP includes 30 lessons as of pilot try out and each lesson consists 3 to 7 Lateral and Divergent thinking items or problems to suit the proposed plan shown in Tables 5.2 (A-C). Then after the investigator has been finalized as an instructional Final form of CoRTTP (See Appendix 1).

5.6 Execution of CoRT Thinking Programme:

The resulted work derived from the procedure is elaborately discussed in this caption under three sub-points:

1. Formation of equal groups
2. Implementation of CoRTTP
3. Administration of CAT as post-test.

5.6.1. Formation of equal groups:

In this research work the sampling procedure is a cluster sampling inclusive with purposive one. Three classes
of standard VII as a cluster have been selected as a sample. Out of three classes two classes were selected as an experimental groups and remaining one is control group. Experimental group is again divided into two groups. One is programme with feedback (along with treatment) and other is programme without feedback, which could be read clearly from the flow-chart given in Fig. 11 (Chapter 4.8).

In the end of the second term of the school academic year, Creativity Ability Test was administered to the children under study as a pre-test. The CAT scores were used to make the equal matched groups for each treatment. Thus, the three equal matched groups have been formed. The experimental group's children were again distributed into two equal groups. One group of experimental was followed by feedback along with the programme and other was not. Thus, there are three equal matched groups. Two equal matched groups in experimental conditions and one group in control condition.

5.6.2. Implementation of CoRTTP:

After administering the pre-test the next step is to implement the CoRT Thinking Programme to the children of experimental groups. Thirty lessons of CoRTTP were used for training purpose.

Before starting the practice items or problems of the CoRTTP, the investigator established the rapport with the
Friends,

"This is a programme that makes you an active participant in the thinking exercises. There are thirty lessons in CoRTTP. You will be supplied a lesson card and answer-sheet. You will have to read the lesson silently. Then you will be asked to think about the items or problems and note your innovative responses or solutions. You should take in mind that many responses or solutions would be there for each item or problem, so you should not think that a particular response or solution is right and other were wrong. Only your thinking from different angles is required. This is not a test or an examination but a training to think deeply and widely. We shall work together for almost 10 weeks; so please be honest in your work. Do not try to cheat or copy from other children but write as many responses or solutions as you can think for each item or problem in your answer-sheet. I hope you will enjoy the opportunity of making your own responses or solutions as a discovery."

The time schedule for the execution of whole CoRT Thinking Programme is shown in the next table No. 5.
<table>
<thead>
<tr>
<th>Name of the Unit</th>
<th>Week</th>
<th>Period No.</th>
<th>Day</th>
<th>Lesson No.</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No. Day</td>
<td>Lesson No.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No. Content</td>
<td></td>
</tr>
<tr>
<td>*</td>
<td>I</td>
<td>1</td>
<td>Monday</td>
<td>Oral</td>
<td>Preliminary items and Introduction</td>
</tr>
<tr>
<td>B</td>
<td></td>
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<td>Tuesday</td>
<td>1</td>
<td>PMI</td>
</tr>
<tr>
<td>R</td>
<td></td>
<td>2</td>
<td>Thursday</td>
<td>2</td>
<td>CAP</td>
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<td>3</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td>II</td>
<td>Monday</td>
<td>4</td>
<td>C &amp; S</td>
</tr>
<tr>
<td>T</td>
<td></td>
<td>3</td>
<td>Wednesday</td>
<td>5</td>
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<td>H</td>
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<td>3</td>
<td>Saturday</td>
<td>9</td>
<td>Decision</td>
</tr>
<tr>
<td>IV</td>
<td></td>
<td>2</td>
<td>Monday</td>
<td>10</td>
<td>OPV</td>
</tr>
<tr>
<td>C</td>
<td></td>
<td>3</td>
<td>Wednesday</td>
<td>1</td>
<td>Yes, No, 'Po'</td>
</tr>
<tr>
<td>R</td>
<td></td>
<td>4</td>
<td>Friday</td>
<td>2</td>
<td>Stepping Stone</td>
</tr>
<tr>
<td>E</td>
<td></td>
<td>V</td>
<td>Tuesday</td>
<td>3</td>
<td>Random Input</td>
</tr>
<tr>
<td>A</td>
<td></td>
<td>2</td>
<td>Thursday</td>
<td>4</td>
<td>Concept Challenge</td>
</tr>
<tr>
<td>T</td>
<td></td>
<td>3</td>
<td>Saturday</td>
<td>5</td>
<td>Dominant Ideas</td>
</tr>
<tr>
<td>I</td>
<td></td>
<td>VI</td>
<td>Monday</td>
<td>6</td>
<td>Define the Problem</td>
</tr>
<tr>
<td>V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Remove Faults</td>
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<tr>
<td>I</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Combination</td>
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<tr>
<td>T</td>
<td></td>
<td>VII</td>
<td>Tuesday</td>
<td>9</td>
<td>Requirement</td>
</tr>
<tr>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td>10</td>
<td>Evaluation</td>
</tr>
</tbody>
</table>
According to the time schedule of the programme implementation, the investigator had treated both the experimental groups on the alternative day every week.

The execution of the CoRTTP was carried on as under:

**Zero Period:**

Before the execution of CoRTTP the investigator had kept zero period to establish the rapport with the experimental group. The subjects under experimental condition were made aware of different types of thinking: Convergent thinking, Divergent thinking and Lateral thinking, which are the basic of the CoRTTP. The investigator put before the children a practice item shown below:
Practice item:

1. Justify the statement
   "Small Family,
   Happy Family"

The investigator had collected all the responses and put before the class for discussion to find out very uncommon response and for the divergent thinking and lateral thinking, while justifying the statements. Then after the children were familiar with such type of thinking, the best report was established between the teacher and taught. So that the children could participate whole-heartedly throughout the experimentation of the CoRTTP.

After finishing all the items, the investigator allowed half of the experimental group known as non-discussion group children, to have a discussion in the item for 5 to 10 minutes. Then the answer-sheets were collected from all the children. The work was found to be a little difficult during this time because the children were not accustomed to such type of work.

On the next day, the first CoRT TP lesson (PMI) was given and supplied the answersheet of the programme. The children were asked to give their required personal data on
the practice items was given. Thus, the second CoRTTP lesson was tried a day after. Thus a first week of training for three programme was completed. By the same way three CoRTTP lessons in a week were implemented to the children.

After ten weeks the children were received training through the 30 lessons of CoRTTP. So that two experimental groups would be completed the instructional programmes at the same time.

While the programme was implemented to the experimental groups children, the investigator noted some observations regarding (a) the responses of the children and (b) the general tone of the classroom.

(a) The CoRT Thinking Programme was meant for the creativity development. Due to this reason it was necessary to observe the responses according to the levels of creativity. Some responses, collected while executing the programme, are worth to note here for better clarification.

CoRTTP - I: BREADTH:
Lesson - 1: Treatment of ideas (PMI):
Practice item - 1:

"By law all houses should be painted white."

For this item, the highly creative responses, below 10% were enlisted below:
P — A thief may find a difficulty in stealing things from a definite house.
M — White colour has less durability.
I — To paint a house is not an essential thing.

The creative responses between 11% to 28% were noted as below:
P * We may not be required to prepare other colours.
   * White colour is more adaptable for health.
M * The total quota of white colour gets exhausted very soon.
I * Houses should be numbered

The responses, above 28% were considered to be a very common responses. They were listed as below:
P * A village may look beautiful.
M * A building may not look multi-coloured.

Practice item — 2:

"All cars should be banned from market."

For this item, the highly creative responses were as shown below:
P — * The trail of car does not pollute air.
M — * Less use of cars causes less production of cars.
I — * All must have equal rights for entering the market.

Some creative responses were noted below:
P — * Passers-by have no difficulty.
M — * There may be difficulty in reaching to other end crossing the market.
I — * There should be two markets: one for the passers-by and the other for car-holders.

Very common responses were listed as below:
P — * Petrol may be saved.
M — * If the market is far-off the car man may be required to go on foot.
I — * There should be two types of routes.

Practice item - 3:

"Every pupil should earn money during the vacation period by doing a job."

For this item, the highly creative responses were noted as follows:
P — * We can be self-helped persons by doing a job.
M — * If a student does a job there arises unemployment for a really grown-up needy person.
I — * Only the needy students should think of doing a job.

The creative responses were listed as under:
P * As grown-up we may not have disliking for doing a job.
M * The interest from other activities evaporates.
I * If a job is not in accordance with the qualification or eligibility, it causes many troubles in doing a job.

Very common responses were listed as below:
P * The burden of the parents can be lightened.
M * We cannot mind studies just doing a job side by side.
Practice item - 4:

"There should be a provision for the replacement of the players at any time in the game of cricket."

For this item, the highly creative responses were as shown below:

P  * The manager has an idea about the competency of all the players.
    * More players may have the economic benefits.

M  * If some good batsmen are included, the remaining may not have chances for batting.

I  * There may be a lack of team-spirit.

Some creative responses were noted below:

P  * The players can be engaged as per requirement in view of their competency.
    * Defeat can be transformed (changed) into victory.

M  * Which player has been replaced remains out of mind.

I  * There may arise a trouble in the game.

For this item, the number of common responses were given by the children. Some of them are as shown under:

P  * More players can be satisfied.

M  * An unskilled player may have not chance for improving the game.
Practice item - 5:

"There should be a provision for having a continuous special TV channel for the younger generation."

For this item, the highly creative responses were noted as follows:

P = * National spirit may develop.
   * The T.V. programmes cultivate the attitude for cultural activities.

M = * The youngsters are adversely mentally affected just watching the acts and actions.

I = * Every one has got a right to watch the TV programmes.

The creative responses were listed as under:

P = * We may have the information of the whole world.
   * The better programmes on TV lessen less the expenses done outside.

M = * The attraction for TV cuts down the other activities.
   * The study is spoiled.

I = * The child's life can be moulded through better life making programmes.

For this item, very common responses were listed as below:

P = * A lot can be learnt.

M = * The eyes are strained and hurt.
   * The electricity consumption bill is more.

I = * There should be programmes for all group age persons.
The responses shown above are for the illustration to distinguish between the creative and common responses of the children, when they were free to think within given specific time limit. Thus, the children had thought for the rest 29 lesson items or problems. The CoRTTP is meant for the creativity development. Due to this reason it was necessary to analyse the responses or solutions according to the level of creativity. As per suggestions of B.K. Passi, the responses less than 10% were to be considered as highly creative and the responses having creative and the responses having percentage between 11% to 28% were called normally creative or common responses. Considering this suggestion as a guideline the responses of all the items were classified into three categories as under:

(i) 0 to 10% responses highly creative.
(ii) 11 to 28% responses creative.
(iii) Above 28% responses non creative.

The responses of the last i.e., 3rd category were neglected for all the three types of programmes and the responses of the 1st and 2nd categories were listed as shown in Appendix 2.

During these CoRTTP implementation the following observations made by the investigator are listed below:

* For the first item of each programme, the responses gathered were more in quantity and quality. Because, it seems that the first items was rather easier as decided while preparing the items.

* For the items or problems No. 2 to 4, it was found that in the beginning of the CoRTTP execution, a few responses collected in comparison with item 1. But after 5 lessons of the CoRTTP - 1, it was found that the children were accelerated to give the good and novel responses or solutions for the items or problems paused.

* There were a few items or problems, through which the novel productions could be made by highly imaginative thinking. For such an item or a problem, the children could not produce a novel thinking or ideas or solutions as expected by the programme executor.

CoRT - I, Breadth proved to be very interesting and creative too in respect of all the children of experimental groups.

* When the CoRT - IV - Creativity was applied to the experimental groups, it was noticed that generally male children gave uncommon and intelligent responses throughout the programme.
* Generally female children did not participate in the discussion during the training imparted in the interval between two consecutive items in each lesson, which misled the investigator into the impression that they were less creative. After the completion of some items or problems, however, very good rapport was established with the CoRT and various numerous responses were obtained from them. It is inferred that shy nature of the girls of this age group was responsible for non-participation in the discussion.

* CoRT - VI - Action was found to be a little tough and confusing to many a participant and they developed a kind of conversion to this type of programme. Some really brilliant children, however, could give creative responses. (See Appendix 2.)

(b) Keeping in view the necessary conditions to keep the classroom climate to be free and warm, it is found that in the beginning the children were not producing new ideas or solutions for items or problems, but as the series of CoRTTP lessons progressed, they could give new ideas in a good number of quantity with a certain quality also.

Some so called naughty or mischievous children could give unexpectedly very good responses during the whole training programme. At the end of training these children seemed quite creative and outstanding in their responses.
In the discussion groups, generally female students did not participate in group discussion. This observation misled the investigator into the impression that they were less creative. But after the completion of last CoRT Thinking Programme, however, very good rapport was established with researcher and various cum-numerous responses were obtained from them. It is followed that shy nature of the girls was responsible for not participating in the discussion.

5.7 CAT as post-test:

After completing the training through CoRTTP, the children under study were given the creative Ability Test (CAT). See Appendix No. 4. The test was divided in three sub tests viz., Verbal Figural and Numerical. It was a post-test, which was given in the same way as the pre-test. The scoring was made according to the pre-determined method.

Thus, the required data for this research work was collected with necessary details. The statistical technique was used for analysis of the creative scores. The data scores on creativity Ability test were put to analysis process to test the formulated hypothesis in the next chapter.