"Bronoski (1958-59) distinguishes among discovery, invention and creation by pointing out that Columbus discovered the west. Bell invented the telephone and Shakespeare created Othello. A fact is discovered, and a theory is invented, but only a masterpiece is created for creation must engage the whole mind."

-GEORGE DEMOS
& JOHN GOWAN
CHAPTER IV
PLANNING AND DEVELOPMENT

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4.1 INTRODUCTION

Planning is necessary aspect even if an ordinary day to day work. It is essential step in any kind of research without which a satisfactory result would not be possible. In the absence of careful planning there is every likelihood that will make the difference between a sound study and faulty one.

A research design is a mapping strategy like the architects or an engineer's plan. The researcher must consider certain fundamental steps which are essentially the same regardless of the type of research design Walter B. Brog\(^1\) proposes to use:

"The factor that must often differentiate between good and poor research is not the funds available the size of the sample or sophistication of the statistics, it is the care and thought that goes into the research plan."

\(^1\) Walter B. Brog: Educational Research; London Longmans Green & Co. Ltd. 1963 P. 166
The present world and its affairs have become extremely complex, if any work is to be carried out and completed meaningfully, it needs to be well planned. Without a careful planning a very much damage has been done and nation suffers a great loss.

A good research work cannot be done without purposeful efforts. It includes a number of operations carried out with patience and accuracy.

Hence, the planning requires utmost care and insight for such serious work undertaken in the study.

4.2 STATEMENT OF THE RESEARCH

DEVELOPMENT OF de BONO THINKING PROGRAMME
AND TO STUDY ITS EFFECT ON CREATIVITY AND
CREATIVE PERSONALITY OF THE STUDENTS.

From the above statement of research, it is clear that the study consists of two parts i.e.

Part I : The development of creative thinking programme for primary school students of std. VII. and

Part II : Study of the effect of de Bono thinking programmes on creativity and creative personality of the primary school students of Std. VII.

4.3 SPECIFIC OBJECTIVES OF CREATIVE THINKING PROGRAMME

The purpose of the study is to know the relative
Creativeness of three units of Dr. Edward de Bono's thinking programme namely:

(1) Operations of thinking
(2) Operations to be performed, and
(3) Things - to be observed.

The specific objectives of the study are as follow:

(i) To provide a standardized thinking programme for the primary school students of class VII.

(ii) To find out the effectiveness of Creative thinking programmes on the development of creativity and creative personality of the primary school students of Std. VII.

(iii) To study the creative thinking abilities of the primary school students of Std. VII in relation to their convergent thinking ability.

(iv) To investigate whether other variables viz: Reading Facility play its role in developing of the primary school students of Std.VII creativity.

(v) To study the effect of Creative thinking programme on the components of creativity viz. Fluency, Flexibility and Originality.

(vi) To compare the effectiveness of the programme on the three forms of creative stimulations viz. Verbal, Figural and Numerical.

(vii) To teach creative thinking and problem solving skill.
(viii) To present information as a vehicle and stimuli for creative thinking.

(ix) To make most students more systematic and more imaginative problem-solving.

(x) To enhance the student's attitude related to creative thinking such as open-mindedness and appreciation for novel ideas.

(xi) To improve their perceptions of themselves as a capable thinker.

4.4 PLANNING FOR CREATIVE THINKING PROGRAMME

Investigator thought about the study and gave priority for preparing programmes. Some existing works regarding the Bono thinking Programmes were referred to as reviewed in the previous chapter with an intention to prepare the base for the types of programme to be included in the present study. Various types of educational programmes covering different items and content are available for Creative thinking programmes. Some of them are:

(1) Convergent thinking item
(2) Divergent thinking item
(3) Evaluating personality item.

These above items contained three programmes, and each programme contained 10 lessons.

Thus the investigator prepared total three progra-
mmes and each programme containing 10 lessons from the original programmes of Creative Thinking Programme. This present study is undertaken keeping in views with the following reasons:

(1) The primary school children seem most active and their activities are all full of joy and creativity trend. Children's mind are developed with creative innate capacities.

(2) This study is specially meant for Creative Thinking Programme for the primary school students of Std.VII.

(3) This type of selected programmes should be used separately or individual.

(4) Item for the present study should be selected in such a way that responses must be in written and figural.

(5) The whole thinking programme include:

(a) School Climax.
(b) School study environment.
(c) Primary school students behaviour.
(d) Trait & tendency of school teacher.
(e) Social view affecting to the primary school students.
(f) Political view affecting to the primary school students.
(g) Thought and thinking of the tinaged children.
(i) Guardian relationship with school administration.
The three basic principles underlying in Dr. Edward de Bono thinking programme are as follows:

(1) Thinking is a Skill that can be Developed.

(2) Most Practical Thinking takes place in the Perception Stage.

(3) The General Operations Method is used to teach Thinking.

The deliberate teaching or thinking can have an effect on the way pupils think about a situation. There was an improvement in thinking skill. Nevertheless to appreciate why it is necessary to teach thinking. One must have a clear understanding of the relationship between the knowledge, intelligence and thinking in the education trinity. The diagram used here may help to illustrate this relationship.

FIGURE: 2.9 RELATIONSHIP BETWEEN KNOWLEDGE, INTELLIGENCE AND THINKING
The intrinsic nature of the tank represents intelligence and all the so-called innate qualities of mind (and personality). These innate qualities affect thinking in the same way as the diameter of the tank affects, the head of the pressure acting on the tap. For instance, in a narrow diameter tank the same volume of 'knowledge' will lead to a higher head of pressure and more flow out of the tap over a given period than in a wider diameter tank. The water in the tank represents the sheer volume of knowledge put into the tank by first or second hand experience. A large volume of knowledge will also generate a good flow through the tap. But the way the tap is handled represents thinking skill, Control, appropriateness of response etc. We can consider this education trinity in more detail below.

A great deal is already done about this in education. Since most subjects are knowledge subjects, there is no substitute for knowledge. Thinking is the use of knowledge to achieve a purpose that cannot be achieved at once.

**Thinking:**

This is the last element in the education trinity. Thinking represents the practical use of knowledge for a purpose (or pleasure). Thinking skill is not a substitute for knowledge or IQ, but a way of enhancing them. Well developed thinking skill may make good use of limited knowledge of ability.
Thinking skill and Ability

The figures shown here illustrate how skill in thinking relates to innate ability. Each figure represents a 'scan area' in the mind. A scan area in the field of ideas, images and information that are brought into consciousness by a particular question. With the more able person there is a wider scan. There is also a higher density of tracks representing more concepts and more experience. If the answer to the question (indicate by A) falls within this scan then the more able person reaches it easily. The less able people with the smaller scan does not reach it. In the second situation, the less able person has developed methods for directing his attention (that is what thinking skill is about) and so he reaches the answer as well. In the third situation, the answer lies outside the immediate scan area of even the more able person who fails to reach it. But the trained thinker may still be able to reach this answer by directing his attention. There is nothing fanciful about this illustration- if we did not implicitly believe it, we should never teach mathematics.

The figures on the next page represents the 'Scan area' of the mind.
1. The answer falls within the larger scan of the more able person. The less able person cannot reach it.

2. The less able person has learned how to direct attention (Thinking Skill) and can now reach the answer as well.

3. The answer lies outside the scan of the more able person but the less able person may still reach it by directing attention.

FIGURE 2.10: THE POSITION OF SCAN AREA IN THE MIND
Some skill in thinking may be acquired naturally through ordinary every-day living- it is not easy to transfer this skill to new situation. Some skill in thinking may be acquired as a spin-off from other subjects- but this tends to be tethered to particular information. There is no reason why a deliberate attempt to develop thinking skill by directed practice should not be added to these other methods especially as experimental results suggest, it can be effective.

One advantage of developing thinking skill directly (as a specific subject) is that the skill can be applied to any situation since it has not been developed in a specific knowledge area.

Another advantage of the deliberate method is that it becomes possible to separate thinking skill from the ego. This is a very important, and difficult matter, for only when the separation is effected can we look objectively at thinking. It should be possible to say : "My thinking is that situation was very poor." without condemning oneself as a dunce. The tennis player who says: "My backhand was not working this afternoon" has separated a skill from his ego.

Thinking is natural, like swimming or riding a bicycle it only becomes natural after you have learned how. Unfortunately, with thinking, failure is not a obvious as drowning or falling off a bicycle.
We can take the example of a couple about to buy a house in a certain area. We can use mathematics to find out what mortgage and insurance they can afford and also to decide the best type. We can use mathematics to work out running costs and the extra fares needed for travel. But how do you apply mathematics to such things as the possibility of promotion and having to move. The value of the local schools; the value of easy of shopping; aesthetic appearance of the house; friendliness of community possible ill health of parents in law. Before these things can be considered, they have to be thought off, and that is where the general skill of thinking comes in. You cannot consider some aspects you have not even thought off. Logic and mathematics are part of thinking and certainly the most reliable part, but thinking is much broader than easier of them, and it must be usable in all situation.

Thinking has to deal with messy situations in which information is quite incomplete. Thinking is concerned with exploring our own ideas and experience and that of others. All the time the effort is directed towards seeing things so clearly that we know what to think, feel or do at the time, in a way logic itself is only a device to enable us to see clearly what is implied in the starting assumptions.

General Operations Teaching Method

The general operations teaching method is simple
but it is very important to understand exactly what is meant by it.

1) The method involves crystallising certain aspects of thinking into definite operations. They are called general operations, because they can be used in different situations. The operations like tools, are independent of the content of what is being thought about.

2) The operations are neutral. They do not give right answers or wrong answers. You can look in a direction and see something or look in that direction and see nothing; what matters is that you are looking in that direction. You can use hammer to knock in nails or to break a shop window: Knowing that a hammer exists is what matters.

3) Each operation stands on its own. They are not part of an interlinked hierarchical system. Like tools on a work bench, they are independent, but can be used in a co-ordinated manner to achieve a specific purpose.

4.4.1 Aims of the Creative Thinking Programmes

Thinking is as much a skill as tying a shoe-lace, riding a bicycle or playing tennis. When we neglect to treat it as a skill, we are relying on raw intelligence and knowledge to carry out the thinking function—this is
rather like relying on a player's reach and his tennis racquet to play tennis for him.

So Creative thinking programmes aims could be summarised as under:

Creative thinking programmes aims -

(1) To develop skill in broad practical thinking, intellectual virtuosity as such is definite.

(2) To encourage pupils to feel that they can think about anything that is put before them - but in a practical and sober way.

(3) To develop a skill in practical thinking rather than in philosophical excursions.

(4) To get pupils to look at thinking objectively instead of regarding it as based on ego and emotion. A pupil should be able to cool and critical about his own thinking and dispassionately observant of thinking of others. Emotions do have a real value - in fact they are the ultimate value. But emotions should be based on good thinking not become a substitute for it.

(5) To acknowledge thinking as a skill and therefore to make an effort to develop that skill.

(6) To develop the skill of practical thinking.

(7) To encourage pupils to look objectively at their own thinking and the thinking of others.
4.4.2 Lesson Structure

The basic principles of the lesson structure of three programmes can be explained as follow:

(1) Each lesson of the programme is concerned with one thinking operation or process. This is central to the lesson and the whole lesson pivots around this. The attention of the pupils should be brought back to this process again and again.

(2) The lesson provides definite practice for the central operation. The practice should consist of a number of items on which the operation is practiced. A general discussion about one item is not much used.

(3) With older children a time can be set aside for discussing the operation or process itself, so that the pupils can become more directly conscious of it.

4.4.3 Programme Content

Now we explain here-under the content of the Creative Thinking Programme in detail.

FIRST PROGRAMME

This programme contained 10 lessons, provides specific operations which a pupil can carry out in order to make thinking easier and more effective— that is the purpose of organization. To get a point by drifting is much more difficult than by organised operations. Almost all the
operations are familiar ones which people do tend to do but in a haphazard way. The purpose of the lessons is to practice these operations in a deliberate 'training' manner so that they can be used fluently.

LESSON - 1 : RECOGNISE

Recognition is possibly the most basic of all thinking operations, since it either precedes all others or is their aim. In every day life as soon as we recognise something, we know how to deal with it. The process is usually unconscious: We do not make a deliberate effort to recognise a bus, a steering wheel, an egg, etc. This recognition of concrete objects is not very important since unknown objects are relatively rare in ordinary life. What matters more is the recognition of 'situations' and this may require conscious effort. You have to recognise a problem situation before you can begin to try and solve it. You have to recognise a planning situation before you sit down to make a plan. It is this deliberate attempt to identify a situation in order to know what to do about it that is practised in this lesson.

LESSON - 2 : ANALYSE

Most of the time we are analysing the complex environment into the separate pieces with which we can cope. In this lesson analysis is used in its most basic sense of dividing something up. The purpose of this division is to enable us to understand something, deal with it, say
something about it, or explore it more easily.

For the sake of convenience analysis is separated into two distinct types. The first type is called 'original part analysis' and corresponds to the classical search for the true components that make up the situation. The second type is called 'perceived parts analysis' and is a division not of the thing itself, but of the way it is looked at. For instance, the true components of a box may be shaped pieces of wood, hinges and a lock. But the perceived parts or aspects, may include size, age, value, use and ownerships.

Analysis into true components should give the same answer for everyone - if they are indeed true components. But analysis into perceived parts can give a variety of answers even for the same person.

LESSON - 3 : COMPARE

When neither recognition nor analysis tell us enough about something we turn to comparison. We compare something new to something familiar in order to see if we can transfer knowledge from one to the other.

Two different situation can occur here. In the first situation we start with something and look around for something with which to compare it. The comparison may cover several points and tell us a lot about the new thing. On the other hand a comparison may illustrate just one aspect and so enable us to see this more clearly. The
situation arises when a comparison is put forward as a basis for transferring experience. Two things may be said to be alike. For instance the working capacity of men and women may be said to be different. In either case it is the validity of the comparison that matters. So the basic operation is to pick out points of similarity and points of difference:

In what way are they similar?
In what way are they different?

The emphasis of the lesson is on making comparison into deliberate operation with definite outcome.

LESSON - 4 : SELECT

Selection is another basic operation that comes into much of our thinking. The operations may appear in several guises as selecting, choosing, judging, matching of fitting but the basic process is similar. It is a matter of having requirements and seeing how well they are met. When something fits your requirements you choose or select it whether it is a house, a new job, a car, an explanation, a plan or a solution to a problem.

Three different situations can arise. You may have to find something to fit your requirements. What fits this? You may have to choose the best from a number of alternatives which fits best? or you may be offered a 'fit' and have to decide whether it is satisfactory. Is
there a good fit? This clears the ground and focuses attention.

LESSON - 5 : FIND OTHER WAYS

This stands for 'Find other ways of looking at things.' This is a clumsy title, which covers the basic process of trying to find alternative perceptions. When you find a different way of looking at something you open up new ideas and new lines of thought.

If you escape from a fixed way of looking at the problem you may be able to solve it more easily. For instance, you could look at monarchy as antiquated and expansive, or as a system which excludes a more dangerous selection for head of state.

The emphasis of the lesson is on the deliberate effort to find other ways of looking at things even when there seems to need to do so. This is a vital point. It may seem unnecessary, wasteful, or confusing to search for other ways when the obvious way seems adequate. But the obvious way will always seem adequate until after a better way has been found.

LESSON - 6 : START

Whenever a person is thinking about something, there must be a start. So why do we need to make deliberate what is automatic and obvious? Because the natural start
is usually a matter of drafting into the subject at any points that happens to come to mind. In order to make deliberate start you have to consider the type of situation and where you want to end up. This is quite different from drifting. The first operation is to ask the question. Where do I start? Once asked the question has to be answered. As always, it is this answering operation that matters most. But it is very much easier to ask the first question as a way of getting the second operation done than to try and do it directly.

The emphasis is on making a deliberate and definite start whenever that may be. This is in line with the basic teaching method which encourages deliberate operations with definite outcomes.

LESSON - 7 : ORGANISE

This is a natural sequel to the preceding lesson and is concerned with knowing lesson what you are going to do next. Once again the purpose is to supplant the drifting by a definite sense of direction. The organization does not have to be complex. The important thing is that it should be definite and that there should be a deliberate effort to set up a plan. The plan includes operations, headings, questions etc. in a simple order. So whatever you are doing you know what is to be done next.

The first operation is to ask the easy question:
How do I organise this? The second operation is to consider the situation and put down some definite plan. The lesson does not try and demonstrate what a good plan should be. It is difficult and rather spurious to set down planning rules that would cover every situation, and they would probably be so complicated. They would confuse what is important is to carry out the operation and make a plan of any kind. This is a big improvement on having no plan at all and just drifting from idea to idea.

LESSON - 8 : FOCUS

Although this lesson, like many others, sounds obvious it is a very important one. In discussion or personal train of thought the mind moves from one aspect of the situation to another. This is a natural flow and the people involved assume that they know what they are thinking about. But if you stop someone in mind-thinking, and ask - "Exactly what are you looking at now?" The answer is usually very vague. (unless it is so general that it covers the whole subject area). This is because at any moment the ideas are related more to the preceding ideas than to the situation being considered. The purpose of the lesson is to encourage pupils to ask the deliberate question: "What am I looking at now?"

In order to answer the question, he has to focus his thoughts and decide what indeed he is looking at. He may find that he is looking at same thing totally irrelevant.
Alternatively, the very process of focusing his thoughts may open up new lines of thought. The lesson serves to develop relevance in thinking.

**LESSON - 9 : CONSOLIDATE**

The word 'consolidate' indicate a basic process. After thinking or discussing has proceeded for a while, it is useful to know exactly what has been achieved and what has yet to be achieved. The purpose of the lesson is to encourage the habit of making a deliberate pause for consideration. This means looking back over the thinking to see what has been achieved so far. The process is more than a passive summary, since the effort to consolidate may involve synthesising some ideas or clarifying others.

As before the process is one of asking a deliberate question and expecting a definite answer. The first operation is to ask the question: "How far have I got?" The second operation is looking back and consolidating whatever has been achieved - What is still to be done. This aspect of consolidation is most important since it happens not at the end of thinking but the part of the way along. The habit of consolidation can also bring home to a person or group just how good their thinking is. When repeated consolidations fail to show any achievement a group is inclined to become more deliberate and relevant in its thinking.
LESSON - 10 : CONCLUDE

Many people believe that only some thinking situations can have definite conclusions (problems, decisions, plans, judgements, etc). The purpose of this lesson is to show that every piece of thinking can have a conclusion, and that a deliberate effort should be made to produce such a conclusion. It is true that not all situations have a correct answer but they can still have finite conclusions.

For instance, a meeting that ends with the comment: "We are unable to reach agreement on this issue." has a finite conclusion but no answer. The comment that there is no definite conclusion itself a definite conclusion. It is important to realise this and to emphasis it. If pupils do believe that there is to be no conclusion than their thinking simply drifts on to an end with nothing achieved.

The lesson suggests many different types of conclusion (picture, opinion, judgement, solution, action, etc). These are certainly not intended as a classification system but only to illustrate that there are many more types of conclusion than solution to a problem.
SECOND PROGRAMME

In this second programme we deliberate the operation in three types of effect.

(1) **BEHAVIOUR**
This concerns the behaviour of pupils when they are put into a thinking situation. This behaviour also includes their response to the thinking of others.

(2) **STYLE**
This is not easy to define, but covers the way the pupil uses his thinking—what he hopes to achieve and how he tries to achieve. For example, does he use thinking to defend a position or to explore the situation?

(3) **CONTENT**
This deals with the actual ideas used, the breath and depth of the thinking the amount of the scene that is explored, the number of aspects brought to mind.

The second programme contained 10 lessons. The lessons include two basic operations of the PMI type. These are E.B.S. (examine both side—of the argument) and A-D-I (pick out points of agreement, disagreement and irrelevance). Like the PMI there are operations which everyone assumes that he does naturally in the course of his thinking since they are so obviously worth doing. Like the PMI they are operations which in fact are very seldom
done because a person is in such a rush to prove his point that he does not even listen to the other side and also assumes that he will disagree with everything the order side has to say.

In the following caption the content—Creative Thinking Second programme has been explained in detail. This contains 10 lessons.

LESSON - 1 : E.B.S. (Examine Both Sides)

This is a vital because it is extremely unnatural to examine both sides of the question. It may seem an obvious thing to do and indeed most people would claim that it is something they do naturally. But how many people will have examined the other side so well that they could take over and carry through the opponent's argument? It is an unnatural thing to do because in an argument a person is anxious to prove his point.

A pupil may be asked at any time to do an E.B.S. This shifts the emphasis from winning the argument to examining the other side. If a pupil expects to be asked to do this at any moment he will pay some attention to what the other side is saying. An E.B.S. does not call for a general awareness of the other side's arguments.

The general usefulness of doing an E.B.S. is self-evident. In an argument situation it can help one to win an argument or to lose it to reach agreement or compromise.
and not to argue aimlessly just because you have never listened to what the other side is actually saying.

LESSON - 2 : EVIDENCE : TYPE

The word 'evidence' is a general term, covering points, arguments, ideas, thoughts, support, etc. which are used as evidence for a point of view. This lesson is concerned with looking at the nature of type of evidence that may be used. There is a very simple classification into FACT and OPINION. It is definitely not suggested that facts are valid evidence and that opinions are not.

The separation of evidence into these two types has the main purpose of getting pupils to look closely at evidence in a neutral manner.

There is the secondary purpose that fact and opinion are indeed different types of evidence. Fact have universal application in so far as they should be accepted by everyone. The emphasis is on seeing whether the fact is correct and whether it is correctly used. Opinions are much more personal and do not have universal application.

In this lesson facts are taken as events which have really occurred. This includes the usual figures and data, but it also includes actual experience.

LESSON - 3 : EVIDENCE : VALUE

This lesson is concerned with the value of a
particular piece of evidence to the argument it supports. We know that in criminal cases there may be a 'key' piece of evidence on which the whole case rests. This approach is carried over into the argument situation. There is a very strong natural tendency to tackle an immediate point because the answer is known.

The main purpose of the lesson is to get pupils to examine the evidence, but this time from the point of view of its usefulness or value. An effort is made to find the key or central point. This is the point on which the whole argument rests.

An effort is also made to pick but the strong points. There are points which really need considering even though they are not actually key points. Similarly points are classified as weak can be ignored until the more important points have been dealt with.

LESSON - 4 : EVIDENCE : STRUCTURE

This lesson is concerned with the way evidence is used with the way it is put together, with the way it hangs together. Two simple classifications are given: DEPENDENT evidence and INDEPENDENT evidence. Dependent evidence rests on other evidence. In an argument one point may rest on another point. In analysing an argument (reading a book or listening to a speech) it is useful to examine each point to see what it depends upon.
In order to classify a point as dependent or independent you have to make an effort to see what it depends upon. So points are examined to see what they depend upon. If a point cannot be found to depend on another point, it is termed 'independent'. The important thing is not to have classified the evidence, but to have some picture of the structure of dependent in the argument.

One piece of evidence may depend upon another piece of evidence. But quite often the ultimate piece of evidence is not actually given but is an implied assumption. In such cases it is useful to bring that implied assumption out into the open in order to examine it directly.

LESSON - 5 : A. D. I. (Agreement, Disagreement, Irrelevance)

Doing an A.D.I. is a natural sequel to doing an E.B.S. but it is much more specific. An E.B.S. is used to examine the other side of the argument, whereas an A.D.I. is used to map out the areas of agreement, disagreement and irrelevance. In practice an A.D.I. need not cover the whole area of the argument- it is possible to pick out the major points of agreement or disagreement.

In politics it is usual to believe or to pretend that everything the other side says is wrong or mistaken. It is not uncommon to find this blanket view of things in any other situation where two sides are used to disagreeing. A deliberate A.D.I. solves this problem by directing
attention to finding the areas of agreement and disagreement.

Once a special effort is made to find areas of agreement it is not usually difficult. Once areas of agreement have been found, they can be examined to see how large they are, and they can also be built up into a compromise. Similarly a deliberate isolation of the actual points of disagreement can take the heat out of the argument and allows attention to focus more directly onto them—again leading to a better chance of agreement.

Apart from the areas of agreement and disagreement there may be other points which are interesting and true but which are so irrelevant that agreement or disagreement about them does not affect the argument at all. The points of agreement are listed first, then the points of disagreement, and finally the irrelevant points. In doing an A.D.I. it is useless for a person to ask himself, "Does the other person agree with me on this?" because he can never really know. It is much more practical to ask himself, "Do I agree with him on this point?" So an A.D.I. should initially be done from a personal point of view. This can be followed by a direct discussion in an effort to find the points of agreement and disagreement.

LESSON - 6 : BEING RIGHT-1 (SHOW, REFER)

This lesson covers two of the four main ways of being right used in an argument. The lesson is concerned with observing these ways as used by other people. At the
same time there develops an awareness of the use of these ways by oneself. The first way, show covers the basic process of demonstrating or proving a point. It may involve explaining or interpreting a situation. It may involve showing the intrinsic nature of the matter. It may involve trying to show the other person how something can be looked at in a different way. It may involve showing what would happen if an idea or suggestion was actually put into practice. The improvement point is that it involves showing the other person, your thinking—what is in your mind. This is done in the hope that by seeing your thinking he will see your point of view and agree that you are right.

LESSON - 7 : BEING RIGHT-2 (NAME, JUDGE)

At first sight both these ways of being right may seem false. It may seem that they are tricks used by people to make themselves appear right. It is quite true that these particular ways of being right are very frequently abused and it is useful to be able to pick out the abuses. But just as a hammer can be used for driving in a nail or breaking of a window, these two ways of being right are valid in themselves.

The other way of being right dealt within this lesson is the attachment of value labels in the process called Judge. These labels have an intrinsic value and this may be on the goody-goody side (honourable, brave,
enterprising). Whereas with the naming method one simply called in established experience, with the judging method one indicates directly one's feelings about the situation. It is an attempt to make feelings apparently objective, and therefore universally valid.

LESSON - 8 : BEING WRONG-1 (EXAGGERATE, MISS-OUT)

Both of these two ways of being wrong are very fundamental and cover a huge area. The purpose of the lesson is to encourage pupil to observe these ways of being wrong in the thinking of others and so to avoid them in their own thinking. Exaggerate includes false generalisations and all the 'undistributed middle' bit from syllogistic argument. It also includes the 'magnitude error' which is so much common in thinking and arises from a lack of sense of proportion.

The second way of being wrong miss-out, is equally fundamental. It is at the bottom of all those arguments in which a person seems to be very logical. It is also at the bottom of those arguments in which each side seems to be logically correct. Politicians are almost always guilty of this type of error in all their public pronouncements. In order to make a point, they look at that part of the situation which supports the points and ignore or miss-out the rest.
LESSON - 9 : BEING WRONG-2 (MISTAKE, PREJUDICE)

The third way of being wrong mistake covers exactly what is seems to cover; mistakes in facts, mistakes in identifications, misinterpretations, misunderstandings, getting things wrong in a variety of ways. Usually the mistakes are genuine, but sometimes they are deliberate.

The fourth way of being wrong prejudice, covers all these fixed ideas which are not open to alteration by argument or evidence. There may be a fixed idea that the opponents are idiots, dishonest, or crooks. There may be fixed idea of conflict between 'them' and 'us'. Cliches and fixed generalisations also come under this heading. So do doctrinaire beliefs and dogmas. What is the wrong is the way the fixed idea is used as proof in an argument. The more evidence there is against a particular fixed idea the more 'wrong' it is to use that idea as fixed. In effect prejudice renders all argument useless.

LESSON - 10 : OUTCOME

Arguments do not always have neat endings. Occasionally there may be complete agreement. At other times, there may be a compromise. But when there is neither agreement nor compromises has the argument been just a waste of time. The purpose of this final lesson is to get pupils to assess what has been achieved in the argument. Each side may have a much better knowledge of the other's views.
It may be possible to map out the points of agreement and points of disagreement. There may be an agreement to disagree on certain issues— atleast for the time being. There may be an agreement about the priorities and the points which need agreeing most urgently. There may be an agreement to seek further information. All these are valid outcomes, and yet they are not obvious until one makes a deliberate effort to see what has been achieved by the agreement.

THIRD PROGRAMME

Third programme deals with information and feeling. The direct purpose of the lesson is to make the pupils aware of the information and feeling content of a situation.

"Look, hard at the information."
"Be aware of the information."
"What is the information here?"
"What feelings are involved?"
"Is that a guess or a fact?"

Such exhortations sounds useful and effective. In practice it is no more effective than any other exhortation. In place of exhortation there must be some practical operations that has to be carried out.

In many of the lessons in third programmes the pupil is asked to look at a situation and to examine it with the purpose of putting things into two boxes or
categories. As described above the intention is not to end up with two boxes but to provide a motive for carrying out the examination. For this reason it is most important whether the categorisation is accurate. If you can clearly show that what is normally looked at falls into one box then the existence of a second box—when it has been filled—we can now examine two boxes in each of the third programme lessons and see the reasons behind their creation.

LESSON - 1  :  INFORMATION

The two boxes here are 'information-in' (FI) and 'Information-out' (FO). The second box is an attention directing box. In addition to extracting all the information from what has been presented can we make a deliberate effort to outline the information that is missing, that has been left out? In order to put something under both these headings we have to examine the information carefully. It is easier to do it this way than just to exhort: "examine the information."

LESSON - 2  :  QUESTIONS

The two boxes here are 'fishing question' (FQ) and 'Shooting question (SQ) is when you are exploring and do not know what sort of answer you might get. A 'shooting question' is when you are checking up on something and the answer is always 'yes' or 'no'. This may seem a trivial distinction but it is not. It is not much used, using
one sort of question if you should be using the other.
The main point, however, is that in order to decide which
type of question it is you have to examine the question to
see what it really asks.

LESSON - 3 : CLUES

The two boxes here are 'clues separately (CS), and
'Clues combined'(CC). These boxes are two deliberate ope-
rations. Instead of looking at clues in a general way the
pupil is urged to separate his examination into two stages.
The first stage is to examine each clue to see what it
implies on its own. The second stage is to examine all the
clues together to see what the combination applies.

LESSON - 4 : CONTRADICTION

The two boxes here are 'Contradiction' (CO) and
'False Contradiction' (FCO). The boxes here are genuine
and important types of information error. The errors are
usually intrinsic to the information given (Though they
can also refer to the use or interpretation of that infor-
mation) Contradiction arises when two point of information
contradict each other. (say opposite things). False conclu-
sion arises when the second point does not necessarily
follow from the first point although it is claimed that
it does. The intention is that a pupil should examine an
error in sufficient detail in order to be able to decide
which type of error it is.
LESSON - 5 : GUESSING

The two boxes here are 'small guess' (SG) and 'big guess' (BG). The categories are selected to the odds on something happening. If it is more likely than not to happen, if it will happen unless something unusual turns up, then it can be called a 'small guess'. If the odds are no better than even (or worse) then it is a 'big guess'. There are two very broad categories and they are not specially useful in themselves. What is important is that pupils should get into the habit of noting when a guess is being made and estimating the probability of the guess turning out right. The category boxes are only a device to encourage that habit.

LESSON - 6 : BELIEF

The two boxes here are 'belief personal' (BP) and 'belief of others' (BO). A belief is taken as something that is accepted as true based on one's own feelings and experience (personal) or the authority of others (belief of others). The distinction does have some usefulness but what is more important is that in examining a belief a person has to examine the basis for the belief and that is very important. So once again, the two boxes are a device to get pupils to examine the bases of belief they use or come across.

LESSON - 7 : READY-MADES

The two boxes here are 'ready mades as help' (RM-H)
and 'ready mades as substitute' (RM-S). Here the intention is to get the pupils to focus on the question: "How am I using this ready-made opinion?" Which I have not thought out for myself? Am I using it as a help for my own thinking? or Am I using it as a substitute for my own thinking - in place of thinking?" The final categories are unimportant. But the attempt to discover how a person is using ready-mades opinions is useful and important. In fact the distinction between the categories is not sharp since quite often a ready-made is used partly as a help and partly as substitute. This does not matter. It is the attempt to analyse the use that matters.

LESSON - 8 : EMOTIONS

The two boxes here are 'ordinary emotions' (EM) and 'ego emotions' (EG). In this case the second box is used as an attempt to direct attention to a type of emotion that is often not regarded as an emotion at all. The basic emotions (anger, love, fear) do of course effect thinking but we often forget that there is a whole group of 'ego emotions' which affect thinking to an even greater extent (the need to be right, the need to feel important). The two boxes a device to enable us to pay attention not only to the usual emotions but also to these ego-emotions.

LESSON - 9 : VALUES

The two boxes here are 'Value high' (VH) and 'Value
These may seem rather trivial boxes and highly arbitrary since in fact there must be a smooth graduation of value from high to low rather than only two boxes. The purpose, however, is not to divide values into high and low but to encourage pupils to examine the values involved and so to become aware of the values used by oneself and by others. In most situations at that moment: "For this situation there are the higher values and there are lower". In other words there is as much a comparison as a judgement. This does not matter since the purpose of the exercise is an examination of values.

**LESSON - 10 : SIMPLIFICATION AND CLARIFICATION**

The two boxes here are 'Simplification' (SF) and 'Clarification' (CF). These are not boxes or categories at all but two distinct operations which can be carried out on information. Simplification means putting something in a simpler, more direct way. The purpose is usually to make something easier to understand (but not always) Clarification is specially concerned with making something more clear easier to understand. Sometimes clarification may involve the use of a larger number of words or examples. Obviously there is an overlap between the two.

Nevertheless it is useful to keep them distinct since in some situations you may want to ask for a simplification (e.g. in laws, or the rules of a game) whereas
in others you may want to ask for a classification (e.g. instructions).

4.4.4 Its Format

J.P. Guilford has suggested to provide minimum one or two months' training to get significant change in creativity of all teenagers. According to E.P. Torrance at least two month's training is necessary for a definite change in the creative level of any person, such different views of the scientists were taken into consideration for the development of training programme under references. The above said references indicated that training period should range between one and two months. This was further strengthened through the discussion with the experts and concluded, though arbitrarily, to consider the programme period of ten weeks. The total number of items to be formed for the creative thinking. There were three programmes containing 10 specific lessons each. Thus the training programme was to be administered for nearly ten weeks at the alternate days in a week.

The present study was not an ability test but a

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training programme because the tool is going to be used for training and not for testing, for a training programme atleast one hour time more items are required for efficient result and for having scope for marginal elimination, it is necessary considering all points. It was supposed to construct almost double items to be included in the final, pilot as well as in the pre-pilot forms are given in the table.

**TABLE 4.1**

**TRY-OUT AND PROGRAMME-WISE ITEM REQUIREMENT AT DIFFERENT STAGE**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Lesson No.</th>
<th>Content</th>
<th>Item to be included</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pre-Pilot</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Recognise</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Analyse</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Compare</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>Select</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>Find Otherways</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>Start</td>
<td>10</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>Organise</td>
<td>10</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>Focus</td>
<td>10</td>
</tr>
<tr>
<td>9</td>
<td>9</td>
<td>Consolidate</td>
<td>10</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>Conclude</td>
<td>10</td>
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</table>

* Discussion
### SECOND PROGRAMME

<table>
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<tr>
<th>Sr. Lesson No.</th>
<th>Content Description</th>
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</thead>
<tbody>
<tr>
<td>11 1</td>
<td>E.B.S. (Examine Both side)</td>
<td>Pre-Pilot: 8 4 4</td>
</tr>
<tr>
<td>12 2</td>
<td>Evidence: Type</td>
<td>Pilot: 8 4 4</td>
</tr>
<tr>
<td>13 3</td>
<td>Evidence: Value</td>
<td>Final: 8 4 4</td>
</tr>
<tr>
<td>14 4</td>
<td>Evidence: Structure</td>
<td></td>
</tr>
<tr>
<td>15 5</td>
<td>A.D.I. (Agreement, Disagreement, Irrelevance)</td>
<td>Pre-Pilot: 8 4 4</td>
</tr>
<tr>
<td>16 6</td>
<td>Being Right - 1 (Show, Refer)</td>
<td>Pilot: 8 4 4</td>
</tr>
<tr>
<td>17 7</td>
<td>Being Right - 2 (Name, Judge)</td>
<td>Final: 8 4 4</td>
</tr>
<tr>
<td>18 8</td>
<td>Being Wrong - 1 (Exaggerate, Miss-out)</td>
<td>Pre-Pilot: 8 4 4</td>
</tr>
<tr>
<td>19 9</td>
<td>Being Wrong - 2 (Mistake, Prejudice)</td>
<td>Final: 8 4 4</td>
</tr>
<tr>
<td>20 10</td>
<td>Outcome</td>
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</table>
### Third Programme

<table>
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<th>Item to be included</th>
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</thead>
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<tr>
<td></td>
<td></td>
<td>Pre-pilot Pilot Final</td>
</tr>
<tr>
<td>21 1</td>
<td>Information</td>
<td>10 4 4</td>
</tr>
<tr>
<td>22 2</td>
<td>Questions</td>
<td>10 4 4</td>
</tr>
<tr>
<td>23 3</td>
<td>Clues</td>
<td>10 4 4</td>
</tr>
<tr>
<td>24 4</td>
<td>Contradiction</td>
<td>9 4 4</td>
</tr>
<tr>
<td>25 5</td>
<td>Guessing</td>
<td>9 4 4</td>
</tr>
<tr>
<td>26 6</td>
<td>Belief</td>
<td>9 4 4</td>
</tr>
<tr>
<td>27 7</td>
<td>Ready-made</td>
<td>9 4 4</td>
</tr>
<tr>
<td>28 8</td>
<td>Emotions</td>
<td>9 4 4</td>
</tr>
<tr>
<td>29 9</td>
<td>Values</td>
<td>9 4 4</td>
</tr>
<tr>
<td>30 10</td>
<td>Simplification and Clarification</td>
<td>9 4 4</td>
</tr>
</tbody>
</table>

* Project

**Pre-Pilot Format**

Keeping in view the constructing items first of all, the investigator has prepared in selecting concept of creativity from Dr. Edward de Bono Thinking Programme. By deep study and discussion with the experts working in the academic field and teaching at different stages of primary schools, the programme was prepared for the pre-pilot test.
The items for pre-pilot testing are mentioned in above table. These pre-pilot test items were administered to the primary school students. By the assessment and evaluation of the answers of the items, the pre-pilot test the investigator selected the important items. The awkward items were rejected. And hence there was a furnished pilot stage format.

**Pilot Format**

The selecting items from the pre-pilot test, were introduced for pilot-test format.

Again the authentic experts looked into the pilot test items and by their suggestions the pilot-test items were modified. Then for the disciplined try-out they had been cyclostyled prints for each lesson. A decent and fluently readable copies were provided for the pilot test.

This pilot test was administered in the primary schools. Rather there were some students puzzling and most of the students were most learned and they gave contentful answers. Again the investigator found the discriminative values and then the important and most useful items were selected for final try-out format and the others were rejected.

After the deep study of above content of programmes the investigator had prepared 30 lessons as described in the foregoing captions.
In the beginning, i.e. in the data sheet or on the front page of this programme general information like student's name, School Name, Age, Birthdate, etc. have been provided. The general instructions in each and every 30 lessons are common for the students.

Student's thinking ability can be traced out by implementing this programme, because the goal of this programme is to increase the thinking ability and creative ideas of the students.

Specific instructions and suggestions for the organised programme are as under:

(1) You have to give the answers of items included in each lessons of the said programme.

(2) Read carefully the instructions of each question in the lessons and write the appropriate answer in the given answersheets separately.

(3) Make a minute observations of the given concepts and thoughts.

(4) It is necessary to write patiently with good handwriting.

(5) Try to complete each lesson in a specific period.

(6) The whole lesson would be of 45 minutes of time duration.

Motivation phase

Here, there are ten lessons in each programmes. There
is definition and process including important informations for the concept of the thoughts and given informations. Students read this page silently and slowly. They would be inspired and motivated to give proper answers or to solve the problems. This would create interest and curiosity in them.

4.5 CONSTRUCTION OF CREATIVE THINKING PROGRAMME

While reading the review of Chapter III, various types of educational programmes were found available for the development of creativity of the children. On the basis of de Bono Thinking Programme, the investigator decided to prepare programmes, initially first programme containing ten lessons, and each lesson have ten items. Second programme containing ten lessons which contained eight items and the last third programme contained ten lessons of nine items each. First these all items were taken and worked out systematically, keeping in view the following points:

(1) In ten lessons as first programme there were six items out of ten selected for final form. In ten lessons of second programme there were four items out of eight selected for final form. In ten lessons of third programme there were four items out of nine selected for final form.

(2) In these, items are verbal because of conceptual
thoughts and situations.

(3) In the first programme there are two items for convergent, two for divergent and rest two for creative personality thinking.

In the second programme out of four items, there are two for convergent, one for divergent and one is for creative personality thinking.

In the third programme, there is one item for convergent and one for divergent thinking, whereas two items are for creative thinking.

(4) In all programmes there are certain conceptual figures in the front page. Seeing the certain conceptual figures students should alert about the similar conceptual content of the same lesson.

(5) For the purposeful instruction and readiness of the children there are one illustration given with fully solutions of the said problem.

(6) There are certain definitions and traits summarised in the beginning of the lessons. To read the definitions students should know the central conceptual thoughts of the lesson.

During the course of application of the programme, the following factors had to be reckon with (i) time limit, (ii) Instruction for the programme, (iii) Selection of the sample, and (iv) Mental readiness of the pupils.
(i) **Time Limit**

This factor should be discussed in two ways i.e. time limit per item and time limit for the whole programme. Each item of the programmes requires 6 to 8 minutes to be completed. As 10 lessons are included in pre-pilot try-out nearly 60 minutes time would be required to complete the lesson. Generally at the primary school level, schools have a period of 40 minutes duration. As whole programme was to be completed within ten weeks, it was decided to take alternative one period per week. Hence three lessons were completed in a week for each experimental groups. Here there are two experimental groups.

(ii) **Instructions for the Programme**

Instructions used for pilot testing should be similar to those for final testing from the observation of the pre-pilot try out. Some instructions were modified. The instructions were prepared according to the programme types.

(iii) **Selection of the Sample**

In the field of psychological testing the sample size should be of 300 students at the minimum for standardization. The present study was however to prepare the programme and not to standardize it. The sample of 150 students of one school can serve the purpose. The sample selected for pilot try-out should be similar to that would be used for final testing from the points of view.
of area, educational level, socio-economic level and such other factors with duration.

(iv) Mental Readiness of the Students

As the success of any factor programme depends upon the respondent, it was very essential to think of their mental condition. It was necessary to give off days between two programmes for freshness and better responses.

4.5.1 Its Try-Out

The try out process of the programme was divided into three phrases.

(i) Pre-Pilot try-out,
(ii) Pilot try-out
(iii) Final Form of Programme

(i) Pre-Pilot Try-Out

Pre-pilot try-out was considered as a try-out of original manuscript of the programmes. It served as a process of scrutinizing the creativity and creative personality thinking activity items with special reference to the language of the items and time required for it.

(ii) Pilot Try-out

Pilot try-out was the next important step to study the responses given by students scientifically. From the analysis of the response analysis, the validity of the
programme can be established and hence the selected programmes could be included in the final form of the programme.

(iii) Final Form of Programme

The final form of programme is a series of 30 lessons. Each lesson includes each conceptual thoughts and situations as shown in Table 4.1 accordingly. The construction of thinking programme was carried on.

Construction of Programme

Construction of thinking is explained under:

(i) In the first programme, there are two items from six for convergent, two for divergent and rest two for creative personality thinking items.

(ii) In the second programme there are two items from four for convergent and one for divergent and rest one for creative personality thinking items.

(iii) In the third programme there are one item from four convergent and one for divergent and rest two for creative personality thinking items.

Thus the exercise of the programme consists of three types of thinking items:

(1) Convergent Thinking item
(2) Divergent Thinking item
(3) Creative personality item.

Writing of every item presents new problem and new
situation. At times the investigator experienced a joy of such creation. As R.L. Thorndike and Elizabeth\textsuperscript{4} states:

"Writing good item is an art, it is a little like writing a good sonet and little like baking a good cake. The operation is not quite so free and fanciful as writing a sonet. It is not quite so standardized as baking the cake. It lies somewhere in breath."

In the forth coming chapter the investigator has discussed the three types of thinking items as a sample.

4.5.2 Creative Thinking Programme on ANVIL

A pool of problem was constructed as discussed above in paragraphs. Those problems were to be scrutinised scientifically. The try-out of creative programme is very essential for the purpose. The investigator came to know only after the try-out, how to respond and understand the problem, how to interpret the given data and how he arrives at the conclusions. In order to fulfil these requirements the process of try-out is done at two stages in the present study.

(i) Pre-Pilot Try-out, and

(ii) Pilot Try-out

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4. R.L. Thorndike and Elizabeth: Measurement and Evaluation in Psychology and Education
(i) **Pre-Pilot Try-out**

The manuscript containing 10 items in each lesson in the first programme and the manuscript containing eight items in each lesson in second programme, and the manuscript containing nine items in each lesson in third programme, were given to a very small group of 10-15 pupils for pre-pilot try-out. The main objective of this try-out was to confirm the applicability of the manuscript. Hence no statistical calculations were involved at that level.

The specific objectives of this try-out could be listed as under:

1. To see whether the pupils follow the instructions.
2. To confirm whether the pupils follow the language of the problem.
3. To check whether item work well with the students.
4. To find out if there are any ambiguity in item.
5. To determine time limit for each item.
6. To fix up the necessary time interval for relaxation.

It would be more appropriate to discuss the findings along with the observation of the pre-pilot try-out in programmes.

1. The students could not give many responses of varied nature by applying the same item at a time, continuous for 10 minutes.
2. Continuous applications of one type of item, i.e. terms and terminology, definitions and conceptual thoughts and situations.
(3) Definition and terminology are felt interested.

(4) The language of instructions and problem were easy to follow.

(5) The student could write down the item correctly which were announced by the experimenter.

(6) A few items were found to be simpler due to good interest towards conceptual and situational problems.

(ii) Pilot-Try-Out

From the observations of varied responses obtained during pre-pilot try-out, the investigator selected the necessary and sufficient number of items in each programme as shown in the table 4.1. Pilot form of the programme includes the ten lessons in each three programme. The items of ten lessons of first programme, second programme and third programme, are presented in appendix-1. For try-out of the pilot form of the programmes 40 students were selected purposefully. So the investigator could get good and novel responses from the intelligent students. The time schedule for this try-out is shown below in Table 4.2.
TABLE 4.2  
PROGRAMME PATTERN OF PILOT STUDY

FIRST PROGRAMME

<table>
<thead>
<tr>
<th>Week</th>
<th>Period</th>
<th>Day</th>
<th>Lesson No.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Oral</td>
<td>Instruction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>1</td>
<td>Monday</td>
<td>1</td>
<td>1,2,3,4,5,6</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Wednesday</td>
<td>2</td>
<td>1,2,3,4,5,6</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Friday</td>
<td>3</td>
<td>1,2,3,4,5,6</td>
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<td>II</td>
<td>1</td>
<td>Monday</td>
<td>4</td>
<td>1,2,3,4,5,6</td>
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<td>Friday</td>
<td>6</td>
<td>1,2,3,4,5,6</td>
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<td>III</td>
<td>1</td>
<td>Monday</td>
<td>7</td>
<td>1,2,3,4,5,6</td>
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<tr>
<td></td>
<td>2</td>
<td>Wednesday</td>
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<td>9</td>
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<td>IV</td>
<td>1</td>
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SECOND PROGRAMME

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</tr>
</tbody>
</table>

cont'd
Table 4.2 cont'd

<table>
<thead>
<tr>
<th>Week</th>
<th>Period</th>
<th>Day</th>
<th>Lesson No.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VII</td>
<td>3</td>
<td>Friday</td>
<td>21</td>
<td>1,2,3,4</td>
</tr>
<tr>
<td>VIII</td>
<td>1</td>
<td>Monday</td>
<td>22</td>
<td>1,2,3,4</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Wednesday</td>
<td>23</td>
<td>1,2,3,4</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Friday</td>
<td>24</td>
<td>1,2,3,4</td>
</tr>
<tr>
<td>IX</td>
<td>1</td>
<td>Monday</td>
<td>25</td>
<td>1,2,3,4</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Wednesday</td>
<td>26</td>
<td>1,2,3,4</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Friday</td>
<td>27</td>
<td>1,2,3,4</td>
</tr>
<tr>
<td>X</td>
<td>1</td>
<td>Monday</td>
<td>28</td>
<td>1,2,3,4</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Wednesday</td>
<td>29</td>
<td>1,2,3,4</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Friday</td>
<td>30</td>
<td>1,2,3,4</td>
</tr>
</tbody>
</table>

Discussion

In the first programme, focus, organise and consolidate students feel something hard, but a few discussions were much interesting. They could easily understand the terms and conceptual thoughts and situations. After completing the first programme, the investigator arranged group discussion on certain aspects of the conceptual thoughts and or on the situation in each lesson of the first programme. Some discussion was allowed at the end of the each practice item. This should be about the way it has been handled. The discussion was associated with the practice items, even when they could carry in an interesting manner.

Second programme i.e. on 'Being Right-1,2 and Being Wrong-1,2' are the two sides of a coin. Students took
interest in the programme by knowing the day-to-day behavioural changes situations. A few items were found to be difficult but after an interesting discussion, the same conceptual thoughts become rather fruitful and simpler to the students.

The response of the given problems or situations in second programme is divided into two sides, one response towards the positive sense and the other response towards the negative or rather opponent conceptual manner. In such items the investigator evaluate the students creative personality attitude.

* How to think at the information?
* What is information here?
* What feelings are involved?
* Is that a guess or fact?

* By such type of practice the investigator has already evaluated their creative personality ability of the primary school students of Std. VII. But students took more time to solve such problems and situations.

Third programme was based on feelings, believes, values and informations. There were such day-to-day lifelong items, hence the students gave responses very fluently. All items were interesting to study thoroughly. Time factor affect in this programme because it required more thinking.

Experimenter gave more inspiration to the students with some discussion in evaluation. Most of all items of
three programmes were solved in time.

The time duration for each programme was noted item-wise as shown below.

**TABLE 4.3**

**PILOT TRY-OUT TIME FREQUENCY**

<table>
<thead>
<tr>
<th>No.</th>
<th>Content</th>
<th>Itemwise time frequency in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1  2  3  4  5  6  Total</td>
</tr>
<tr>
<td>1.</td>
<td>Recognise</td>
<td>6  8  8  8  7  6  45</td>
</tr>
<tr>
<td>2.</td>
<td>Analyse</td>
<td>6  7  7  7  7  7  42</td>
</tr>
<tr>
<td>3.</td>
<td>Compare</td>
<td>6  8  7  7  7  7  43</td>
</tr>
<tr>
<td>4.</td>
<td>Select</td>
<td>6  7  7  7  7  7  41</td>
</tr>
<tr>
<td>5.</td>
<td>Find other ways</td>
<td>6  6  6  6  8  8  40</td>
</tr>
<tr>
<td>6.</td>
<td>Start</td>
<td>6  7  7  7  7  7  42</td>
</tr>
<tr>
<td>7.</td>
<td>Organise</td>
<td>6  7  8  7  7  7  43</td>
</tr>
<tr>
<td>8.</td>
<td>Focus</td>
<td>6  7  7  7  7  7  42</td>
</tr>
<tr>
<td>9.</td>
<td>Consolidate</td>
<td>6  8  7  7  7  7  43</td>
</tr>
<tr>
<td>10.</td>
<td>Conclude</td>
<td>6  7  7  7  7  7  42</td>
</tr>
</tbody>
</table>

**SECOND PROGRAMME**

<table>
<thead>
<tr>
<th>No.</th>
<th>Content</th>
<th>1  2  3  4  Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.</td>
<td>Examine both side</td>
<td>4 10 10 12 11 43</td>
</tr>
<tr>
<td>12.</td>
<td>Evidence : Type</td>
<td>4 12 10 10 10 42</td>
</tr>
<tr>
<td>13.</td>
<td>Evidence : Value</td>
<td>4 10 10 10 10 40</td>
</tr>
<tr>
<td>14.</td>
<td>Evidence : Structure</td>
<td>4 11 10 10 10 41</td>
</tr>
<tr>
<td>15.</td>
<td>A.D.I.</td>
<td>4 10 10 10 12 42</td>
</tr>
<tr>
<td>16.</td>
<td>Being Right-1</td>
<td>4 10 12 10 10 42</td>
</tr>
</tbody>
</table>

..cont'd
From the above table, it is seen that the time duration for each programme could be fixed as 40 minutes.

Item No. 1,3 and 4 deal with convergent thinking and hence the No. of correct responses in percentage for each item was calculated. Item No. 2,4 deal with divergent thinking and hence the percentage of a particular response out

<table>
<thead>
<tr>
<th>No.</th>
<th>Content</th>
<th>Items</th>
<th>Itemwise time frequency in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 2 3 4 Total</td>
</tr>
<tr>
<td>17</td>
<td>Being Right-2</td>
<td>4</td>
<td>10 10 12 10 42</td>
</tr>
<tr>
<td>18</td>
<td>Being Wrong-1</td>
<td>4</td>
<td>10 12 10 10 42</td>
</tr>
<tr>
<td>19</td>
<td>Being Wrong-2</td>
<td>4</td>
<td>11 11 10 10 42</td>
</tr>
<tr>
<td>20</td>
<td>Outcome</td>
<td>4</td>
<td>10 10 10 10 40</td>
</tr>
<tr>
<td>21</td>
<td>Information</td>
<td>4</td>
<td>11 11 10 10 42</td>
</tr>
<tr>
<td>22</td>
<td>Questions</td>
<td>4</td>
<td>10 11 10 11 42</td>
</tr>
<tr>
<td>23</td>
<td>Clues</td>
<td>4</td>
<td>11 10 10 11 42</td>
</tr>
<tr>
<td>24</td>
<td>Contradiction</td>
<td>4</td>
<td>11 10 11 10 42</td>
</tr>
<tr>
<td>25</td>
<td>Guessing</td>
<td>4</td>
<td>10 11 10 10 41</td>
</tr>
<tr>
<td>26</td>
<td>Belief</td>
<td>4</td>
<td>10 11 11 10 42</td>
</tr>
<tr>
<td>27</td>
<td>Ready-mades</td>
<td>4</td>
<td>10 10 11 10 41</td>
</tr>
<tr>
<td>28</td>
<td>Emotions</td>
<td>4</td>
<td>10 10 10 10 40</td>
</tr>
<tr>
<td>29</td>
<td>Values</td>
<td>4</td>
<td>10 10 11 10 41</td>
</tr>
<tr>
<td>30</td>
<td>Simplification and</td>
<td>4</td>
<td>10 10 10 10 40</td>
</tr>
<tr>
<td></td>
<td>Clarification</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
of many appropriate responses to such item was computed. Item No. 4 deal with creative personality. Even though  
A part of each of this item deal with convergent thinking and B part deals with divergent thinking.  

Response analysis of divergent thinking items were made according to the percentage of responses varied at 
three levels. viz;  

- Below 15% response -  
  - highly creative response  

- Between 15% and 30% -  
  - Creative response  

- Above 30% -  
  - Non creative response  

This would be helpful to investigator to select the items as per requirements shown in table 4.1.  

4.5.3 Final Form of Programmes  

From the number of correct responses to the activity item of convergent thinking, item No. 1, 3 and 4 were selected and from the analysis of the responses to the activity items of divergent thinking thinking items no. 2 and 4 were selected.  

Thus, the final form of creative thinking programme
includes same all programmes as of pilot try-out and each programme consists of 4 thinking activity items to suit the proposed plan shown in Table 4.1 (See appendix-1) for creative programmes.

4.6 RESUME

This chapter describes the plan and procedure of developing the creative thinking programme. The convergent, divergent and creative personality items are described with the proper instructions, when the programme was put on Anvil, the final form of the programme was carefully evolved.

The execution of the creative programme is taken in the next chapter.