"Personality is the dynamic Organization within the individual of those psychophysical systems that determine his Characteristic behaviour and thought"

ALLPORT, 1961
CHAPTER I

PROLOGUE

1.1 INTRODUCTION

1.2 CONVERGENT AND DIVERGENT THINKING

1.2.1 Convergent Thinking

1.2.2 Divergent Thinking

1.3 LATERAL THINKING

1.3.1 Vertical Thinking

1.4 CREATIVE THINKING

1.5 CREATIVITY AND EDUCATION

1.6 PRESENT CLASS-ROOM ENVIRONMENT

1.7 STATEMENT OF RESEARCH PROBLEM

1.7.1 Terminology: Its meanings

1.7.2 Thinking

1.7.3 Creativity

1.7.4 Programme

1.7.5 Edward de Bono Thinking Programme

1.8 SPECIFIC OBJECTIVES

1.9 LIMITATIONS OF THE STUDY

1.10 FORMAT OF RESEARCH REPORT
1.1 INTRODUCTION

The objectives of the study, methods of teaching, and process of learning, are always changing keeping in view with changing values in society. Hence the objectives, methods and process are always in a state of constant renewal. The last one hundred years has been a period of rapid change in education. John Dewey, Pestology and James were pioneers who were responsible for change in education. But the major changes in educational thinking and architectural responses came about after World War II, when the demand for new facilities occurred. At the same time those social, cultural and technological changes, literally pushed education into a new era. Changes occurred so fast that the future can no longer be regarded as a reasonable extension of the past. A brief sketch of some of the present trends in education as they appear can do no more than to indicate the range and variety of changes and development and to illustrate the point that current educational changes are complex and widespread and has many forms.

In a situation in which education is seeking
further a wider variety of objectives in a multiplicity of ways and in which education is open to a wider range of social influence and in which change is proceeding at a greatly increased speed. Our country has faced more complex and fluid conditions, than those which existed only twenty or thirty years ago.

One of the basic philosophical considerations is the continuous change that occurs in education from time to time, as a result of research. Such changes based on new knowledge should be introduced for the sake of accuracy without sacrificing the learning potential of students. The students who were under adequate guidance and experience may be encouraged to develop into future creative scientists. In future our nation cannot depend on sheer quantity of manpower, but must strive to find high quality personnel, especially creative persons to deal with its vital problems.

The educationalists have laid down the aims and objectives of education. Invariably, the list of objectives is headed by 'Teaching students to think by themselves' so educator must teach 'thinking' manifestly schools do not teach thinking. The educational trinity is knowledge, intelligence and thinking. Intelligence is an innate quality that may depend on genes early environment or a mixture of the two. Intelligence is simply a speed of processing within the brain, which gives an intelligent person a large span over the same period of time. Thinking is an operating skill
through which intelligence acts upon experience, and knowledge or information is the basic material headed by thinking.

In school subjects it is often assumed that information is more important than thinking. Thinking is regarded only as a tool for assimilating information. Classifying it and putting it into its proper place, information is very much easier to teach than thinking. In the academic world, the pupils who are well informed within their own speciality can be classified as talented or brilliant. Outside that speciality, however, their ability is much less, for information can no longer be a substitute for thinking. To aim getting information is always admirable but to await perfect information is impractical. In the real world, decisions and actions have to be taken and since that information is usually imperfect it has to be supplemented by good thinking.

The relation between thinking and information can be considered in two situations. In the first situation, it is possible to collect a great deal of information. In the second situation, it is not possible to fill the field with information. In almost all situations involving decision, planning or action, there is a need and a desire for more information. But that information cannot be obtained in time.

According to Dr. Edward de Bono¹ "Thinking is a

skill, it can be developed and improved if one knows how". Manifestly thinking is a skill as much as thinking can be performed skillfully. Skill in thinking is a broad skill like in Woodwork: knowing that to do, when to do, how to do, what tools to use, the consequences what to take into considerations. It is much more than knowing the rules of logic or learning how to avoid logical errors. Skill in thinking has much to do with perceptions and with attention directing. It is a matter of exploring experience and applying knowledge. It is knowing how to deal with situations one's own ideas, the thoughts of them. It involves planning, decision-making, looking at evidence, guessing, creativity and very many other aspects of thinking.

Emphasizing on the process of thinking and creation, Don Fabun said, "What tomorrow needs is not the masses of intellectuals but masses of educated man-man educated to feel and to act as well as to think and to create".

These two verbetive words: to think and to create, would indicate the process of creative thinking, that is to think creatively for today and tomorrow.

-----------------------------

1.2 **CONVERGENT AND DIVERGENT THINKING**

Most of our education is concerned with promoting convergent thinking, the kind of thinking in which students are encouraged to find the 'right answers' to the problems. Such a process assumes that there is only a single right answer and that it exists somewhere usually in the textbook or in the course of study.

Guilford J.P.\(^3\) proposed a box like model structure of intellect. SI Model has been shown in Fig. 1.

In this model one dimension is operation. Operation indicates the mental process performed or actively involved. There are five kinds of operations viz., Congenition memory, Divergent Production, Convergent Production Ability and Evaluation.

1.2.1 **Convergent Thinking**

Both the production abilities have to do with the retrieval of information from memory storage but convergent production occurs under several restrictions starting with the given information. There is only one right or conventionally acceptable answer most at present Education is concerned with promoting convergent production ability.

THE STRUCTURE OF INTELLECT MODEL

FIGURE 1.1
THE STRUCTURE OF INTELLECT MODEL
convergent thinking, the kind of thinking in which students are encouraged, to find the 'right answers' to the problems. Such a process assumes that there is only a single right answer and that it exists somewhere, unusually in the textbook or in the course of study.

1.2.2 Divergent Thinking

Divergent thinking leads to a broadening of the definition and criteria of the problem so as to generate a wide variety of possible solutions, many of which are acceptable and some of which may be creatively superior. Divergent thinking is free to develop its own idea, raise its own questions of taking new directions. Divergent thinking is identified by fluency, flexibility and originality in a process that three imaginative and wheeling. Divergent Thinking does not come into play in total process of reaching a unique conclusion, for it comes into play wherever there is trial and error thinking. Fluency is now regarded as a facility, in divergent production of symbolic unit. The divergent production on class is believed to be the unique feature of a factor called spontaneous flexibility. The number of clever responses given by an examinee is his score for originality.

The abovementioned are the divergent thinking ability and these are the base for creativity.
1.3 LATERAL THINKING

Lateral thinking is closely related to creativity. Dr. Edward de Bono suggested in his book Lateral Thinking (1973) that at school the emphasis has traditionally always been on vertical thinking which is an effective but not complete.

1.3.1 Vertical Thinking

Vertical thinking develops the idea generated by lateral thinking. Lateral thinking emphasizes the effectiveness of vertical thinking. One could not dig a hole in different places by digging the same hole deeper. Vertical thinking is used to dig the same hole deeper and lateral thinking is used to dig a hole in different places. Vertical thinking in itself is dangerous because it is useful to some extent. Lateral thinking involves restructuring escape and the provocation of new patterns. Lateral thinking is concerned with the generation of new ideas. It is also concerned with breaking out of prison of old ideas.

Liberation from old ideas and stimulation of new ones are the aspects of lateral thinking. Lateral thinking like logical thinking is a way of using mind and attitude of mind.

Lateral thinking is a very basic concept of thinking and that one can develop some skills in it.

1.4 CREATIVE THINKING

In view of the challenges of twenty first century, the students will have to learn how to think rather than what to think. But, What is thinking? This might seem a pointless question since everyone knows by acquaintance what thinking is from his own first hand experience of doing it. We all think from time to time. It is a first step to help the student to his mental thinking process and environment. In creating a climate where creativity can flourish, the teacher must assume responsibilities to the former, where work begins only after the seed is sown. The nature of the child like the nature of the seed depends upon the conditions for growth. For creative thinking, the divergent thinking and lateral thinking should be developed by providing the proper situation.

1.5 CREATIVITY AND EDUCATION

Education means a special training to a person, which helps to bring out his abilities that are lying innate. All kinds of abilities including intelligence and creativity also can be developed by education. A.H. Maslow believes that education can provide creative calisthenics to counteract this atrophying of talents.
In the beginning of this century Madam Montessory was the first educationalist who tried to develop creativity of a child in her own way. She was firm in her conviction that only the creative persons can reshape the world in a better way. Moreover she believed that God's blessings are instrumental in the development of our abilities. So she formed a poem to that effect and insisted that all the teachers should sing it as a prayer regularly. The gist of the poem runs as under:

"O God," Give us the strength to
understand the talents of the Child"

More and more research projects have been printing up the part that education can play in the development of creative efficiency. A good number of studies agree with the statement that environment is a major factor that enhances or curtails the development of creative thinking. Torrance argues that "Perhaps the most promising area if we are introduced in what can be done to encourage creative talent to unfold, is that of experimentation with teaching procedure which will stimulate students to think independently to test their ideas and communicates them others".

He himself conducted a number of studies about classroom climate for development of creative thinking and he found that engaging in a large variety of creative activities may result in greater word fluency. He also found that
differential rewards influence originality of thinking.

Other educationalists also now realise the importance of creativity. From this, we can infer that in modern education also the role of creativity is the most significant. Its importance is proved within a short period of time. Creativity is a mental trait which can be undermined by adverse environments and nourished by proper environments. For this reason the present classroom situation would prevail the ability to creative thinking.

1.6 PRESENT CLASSROOM ENVIRONMENT

It is acknowledged by the educationalists that stereotyped systems of education prevailing at every stage has been causing incalculable loss to the society in general and to an individual learner in particular. Our activities in formal educational set up have been considered obsolete, worn-out and out dated. Instead of producing creative minds they stuff the minds of learners at every stage with ill-digested ideas for the purpose of passing examinations.

Perhaps, this could be one of the reasons why learners fail to contribute anything new and fresh to the real advancement of the civilization. Kabra R.N. opines:

"The teachers of today know a lot of methods and very much of pedagogy and they over work, over worry and over teach but under achieve because their students are passive”

The reasons for passiveness are boredom which is one of the greatest causes of juvenile delinquencies and the monotonous learning. Teachers take the lion's share in the whole learning process has been greatly bit and damaged by killing all the initiative and the drive to strive and learn.

Marget Mead says "I didn't send my child to school because I wanted education". 6

By teaching, we kill their initiative to learn. We retard their problem-solving. We approach and converge their thinking to own's own set norms and discourage divergent and creative thinking.

Really, learning is a feast for the mind and spirit and a source of lasting joy. But the rigid discipline of schools, the bell bound, teaching, the compulsion, the 'oughts' and 'musts' have made it a sort of enslavement by killing the natural pleasure which is innate, inborn and instinctive. Natural learning begins right in infancy but the educational system goes on killing it by one's do's and don'ts and make learning stereo-typed and convergent rather than divergent and creative.

There could have been many Aristotles, Socrates, Platos, Tagores and Tilaks in the CRs, but they have been killing that spirit through the seals of learning which do

---

not aim at or allow free shaping and natural growth of personality.

To say in a word, the present education is converting man into an economic being. He becomes self centred and more formal in his day to day life. Free thinking is not allowed. Spontaneity is being killed at every stage. So if education has to bear fruits creativity should be given due weightage. Education void of creativity works in the field of arts, literature and religion need creativity. The aim of education should have been to help children to grow this natural tendency. It can still be done by creating an environment where the mind is free, peaceful, full of love, sensitive and conscious. A natural urge to do something leads a child to his full development physically and intellectually. Therefore, school efforts at all levels should be to develop this tendency in the child who comes to school for his mental development.

This view leads the investigator to undertake the task of developing creative abilities of the children when the school emphasizes mostly on convergent thinking abilities. So investigator has decided to use the most prominent the Dr. Edward de Bono thinking programme designed by Dr. Edward de Bono. Alongwith it, the investigator has thought of the variables that effect the execution of the programme in the class-room.
1.7 STATEMENT OF THE RESEARCH

The problem for the present research is:

"DEVELOPMENT OF DE BONO THINKING PROGRAMME AND TO STUDY ITS EFFECT ON CREATIVITY OF STUDENTS"

1.7.1 Terminology: Its meaning

In order to analyse the problem, it would be necessary to be precise about the connotations and meanings of the key-words involved in the statement of the research.

1.7.2 Thinking

There are so many definitions about thinking in education. Charles E. Skinner says, "Thinking is often defined as 'the action of the mind' or 'reasoning' or 'being logical'.7 Thinking involving discovery and exploration of situation, original ideas and new solutions to old problems. The scientifically trained psychologists must either define his term with exactness.

2 Hindrance

1 Want or Motive

3 Possible Solutions or Hypothesis

4 Want Satisfaction or Goal

5 Creative Thinking

FIGURE: 1.2 : CREATIVE THINKING SITUATION

In the above figure, a want or motive (1) is directed towards a state of want satisfaction (4), but is hindered by some difficulty (2), necessitating some sort of problem-solving behaviour. If this behaviour is not promptly successful a state of tension is created (5), which constitutes the occasion for "Creative Thinking", observed event. Accuracy is the criterion of good reasoning.

1.7.3 Creativity

Creativity is the ability to think of a lot ideas where there is a problem or a need for ideas. It is also being able to think of many different ideas of unique or original ideas and to develop or elaborate ideas sometimes. It is asking good questions which clarify a problem. It is also being able to translate ideas into a form of communication or expression which makes it possible for other people to grasp the ideas or solution to problem, thus it is necessary to final words or an art media, music, drama or monument to express our ideas, solution or feelings.

1.7.4 Programme

Class-room is a schedule showing the major activities to be carried on the class-room and the honour and the day on which each is to be undertaken. Many cover the period of the day, week, month, semester or school year, generally limited however to a relatively short period.
1.7.5 Edward de Bono Thinking Programme

This programme is an innovative concept designed by Dr. Edward de Bono. It helps students broad perception and creativity. It teaches them an art of effective thinking and show them how to apply this new skill to virtually and academic subjects as well as day to day problem-faced outside the class-room. It is introducing a revolutionary break through in an art of creative thinking and learning.

1.8 SPECIFIC OBJECTIVES

The purpose of the study is to know relative creativeness of three units of Edward de Bono Thinking Programme; namely:

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

The objectives of the study are as follows:

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

(ii) To find out the effectiveness of Creative Thinking Programme on the development of creativity of the primary school students of class VII.

(iii) To study the creative thinking ability of the primary school students in relation to their convergent
(iv) To investigate whether other variables viz. Reading Facility, play their role in development of the primary school student's creativity.

(v) To study the effect of the 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.

1.9 LIMITATIONS OF THE STUDY

The study was delimited to the following aspects:

(1) Dr. Edward de Bono Thinking Programme consists of six units. Out of six units only three units, viz: (i) Operations of thinking, (ii) Operations to be performed, and (iii) Things - to be observed, were used for developing the thinking programme. Rest three units were not developed for thinking process.

(2) This study is limited only for Gujarati speaking students. Other language students are not included in this thinking process.

(3) The investigator has limited his study only for primary school students of class VII.

(4) The investigator has used only verbal test for
measuring creative thinking.

(5) Creative thinking was represented by Fluency, Flexibility and Originality.

1.10 **FORMAT OF RESEARCH REPORT**

The format of Research report or scheme of chapterisation is as under:

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>PROLOGUE</td>
</tr>
<tr>
<td>II</td>
<td>CREATIVITY: IT'S DEVELOPMENT</td>
</tr>
<tr>
<td>III</td>
<td>A PEEP INTO THE PAST RESEARCHES</td>
</tr>
<tr>
<td>IV</td>
<td>PLANNING AND DEVELOPMENT</td>
</tr>
<tr>
<td>V</td>
<td>RESEARCH DESIGN AND EXECUTION OF CREATIVE THINKING PROGRAMME</td>
</tr>
<tr>
<td>VI</td>
<td>DATA ANALYSIS AND INTERPRETATION</td>
</tr>
<tr>
<td>VII</td>
<td>OBSERVATIONS AND CONCLUSIONS</td>
</tr>
</tbody>
</table>

BIBLIOGRAPHY