The destiny of India is now being shaped in her class-rooms.

- National Education Commission
  (1964-1966)
CHAPTER VII
OBSERVATIONS AND CONCLUSIONS

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7.1 **INTRODUCTION:**

Keeping in view the process of creative thinking, the investigator believes that cycle of four overlapping stages preparation characterises most creative responses. Preparation involves the investigation of the problem in all direction including a full understanding of what the problem is. Incubation is the letting go of the problem by the conscious mind and allowing it to ferment, below the level of consciousness. Illumination is being struck by a solution in a eureka-like experience. Verification is the evaluation of its implication. Thus, the creative thinking is the three phase thinking, convergent thinking, Divergent thinking, and Evaluating thinking.

A good number studies have been carried out abroad, to examine the impact of the creative thinking programmes on the creative ability. This research study taken by the investigator was an attempt to investigate the impact of creative thinking programme in developing the creative ability level of Gujarati speaking school children. The brief summary of the research work is stated in forth coming paragraphs.

7.2 **SUMMARY OF RESEARCH WORK:**

The statement of this research study indicates the development of creative thinking programme and also indicates to see its impact on the creative ability levels of secondary school students of standard IX of Mehsana District. Here investigator used CTP prepared by himself in verbal form such that it would feel rather easy and simple to understand. This was done with view to conform the importance of developing and nurturing the divergent thinking skill alongwith the
covergent thinking and evaluating thinking skills required in learning of developing subjects. The summary of research work is described briefly by following steps:

7.2.1 Statement of the Problem

The statement of the problem of the present research study is worded as under:

"DEVELOPMENT OF CREATIVE THINKING PROGRAMME IN THE LIGHT OF PROGRAMME DEVELOPED BY DE BONO AND ITS EFFECTIVENESS ON CREATIVE ABILITY OF THE STUDENTS OF STANDARD IX OF MEHSANA DISTRICT."

7.2.2 Objectives of the present study

The study was constructed keeping in view the following objectives:

[1] To provide a standardized creative thinking programme for the secondary school study of class IX of Mehsana District.

[2] To find out the effectiveness of creative thinking programmes on the development of creativity and creative ability of the secondary school students of standard IX of Mehsana District.

[3] To study the creative thinking abilities of the secondary school students of standard IX of Mehsana District in relation to their convergent thinking ability.

[4] To investigate whether other variables viz: sex play its role in developing creative ability of the secondary school students of standard IX of Mehsana District.


[8] To present information as a vehicle and stimuli for creative thinking.
[9] To make most students more systematic and more imaginative problem-solving.
[10] To enhance the student's attitude related to creative thinking such as open-mindedness and appreciation for novel ideas.
[11] To improve their perceptions of themselves as a capable thinker.

7.2.3 Hypotheses:

The hypotheses of the study are as under:

H₁: There is a significant effect of creative thinking programme with feedback on the creative ability of the students of Std IX of Mehsana District.

H₂: There is a significant effect of creative thinking programme without feedback on the creative ability of the students of Standard IX of Mehsana District.

H₃: There is a significant effect of creative thinking programme processing intelligence on the creative ability of the students of standard IX of Mehsana District.

H₄: There is a significant effect to creative thinking programme possessing sex on creative ability of the std. IX of Mehsana District.

H₀₁: There is no first order interaction effect of treatment of creative thinking programme with feedback and intelligence on the creative ability of the students of Standard IX of Mehsana District.

H₀₂: There is no first order interaction effect of treatment of creative thinking programme with feedback and sex on the creative ability of the students of Std. IX of Mehsana District.
H07: There is no first order interaction effect of treatment of creative thinking programme with out feed back and intelligence on creative ability of the students of Std. IX of Mehsana District.

H08: There is no first order interaction effect of treatment of creative thinking programme without feed back and sex on the creative ability of the students of Std. IX of Mehsana District.

H09: There is no first order interaction effect on intelligence and sex on the creative ability of students of Std. IX of Mehsana District.

H10: There is no Second order interaction effect of treatment with feed back intelligence and sex on the creative ability of the students of Std. IX of Mehsana District.

H11: There is no Second order interaction effect of treatment without feed back intelligence and sex on creative ability of the students of Std. IX of Mehsana District.

7.2.4 Methodology :-

The methodology of present research work is explained briefly as under.

7.2.4.1 Sample :-

A total number 150 students from the IX grade classes of Mehsana District, participated in the study. These students generally were average and above average in intellectual ability. On the basis of pre test scores on creative ability test the students were divided into three equal groups, out of which one is control group one experimental group was treated randomly with CTP, alongwith feed back there after, and other experimental group was treated with CTP without feed back. The control group deals with no programme was administered.

The procedure of selections of sample was briefly placed in the table No:7.1 as under :
TABLE : 7.1

COMPOSITION OF SAMPLE UNDER STUDY

<table>
<thead>
<tr>
<th></th>
<th>IX A</th>
<th>IX B</th>
<th>IX C</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOYS</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>75</td>
</tr>
<tr>
<td>GIRLS</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>75</td>
</tr>
<tr>
<td>TOTAL</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>150</td>
</tr>
</tbody>
</table>

7.2.4.1 Population :-

Present study covered the students of standard IX of secondary schools of Mehsana District. At the time of investigation there were about 193 secondary schools in Mehsana District. Total 34356 students were study in ninth standard which included 20889 boys and 13467 girls students studying Gujarat in different schools, in the year of 1999-2000 were considered as a population.

7.2.4.3 Research Design :-

The methodology of research design was stated as 3X2X2 factorial design as under:

...
TABLE : 7.2

VARIABLES AND THEIR LEVELS

* Independent Variable :

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of the Variable</th>
<th>Nature of Variable</th>
<th>No. of levels</th>
<th>Name of levels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>programme</td>
<td></td>
<td></td>
<td>[3] No Programme</td>
</tr>
<tr>
<td>2.</td>
<td>Intelligence</td>
<td>Independent</td>
<td>2</td>
<td>[1] High</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>[2] Low</td>
</tr>
</tbody>
</table>

* Dependent Variable :

Dependent variable was creative ability score obtained by pupils after taking creative ability test developed by J.Z. Patel.

7.2.4.4 Tools used :

The following tools were used in the present study :
### Tools Used

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of the Tool</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Creative Thinking Programme</td>
<td>Prepared and Developed by investigator</td>
</tr>
<tr>
<td>2.</td>
<td>Desai Verbal and non verbal group intelligence test</td>
<td>K.G. Desai</td>
</tr>
<tr>
<td>3.</td>
<td>Creative ability test.</td>
<td>J.Z. Patel</td>
</tr>
</tbody>
</table>

#### Data Collection :-

The data collection is the most important stage in research study. In development of the CTP the data collection was at three stages:

1. The CTP was sent to subject experts for reviewing the CTP and their suggestions were incorporated before the draft prepared for the try out of the tool of CTP to be developed.

2. The pre-pilot testing was carried out on a sample of 25 students. The analysis of their responses pointed some flows in the wording of instructions, items, and the arrangement of items and subjects. This was modified and the form was prepared for the pilot try out.

3. After the CTP was constructed, it was found ready for its administration. As a general procedure in the process of development of CTP, it is administered at three stages. viz. pre-pilot, pilot and final.

Thus, the final form of CTP was prepared got printed and was administered on following groups of standard IX of Mehsana District.
TABLE 7.4

GROUPS OF STUDY

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Groups of Study</th>
<th>No. of Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Experimental Groups</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[A] Treatment with</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Feed back</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[B] Treatment without</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Feed back</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>[C] Control Group</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Total No.</td>
<td>150</td>
</tr>
</tbody>
</table>

7.2.4.6 **Classification of Data :-**

All the test papers, were scored and data were gathered for statistical analysis. Data gathered were classified according to variables. As mentioned earlier in chapter IV, some hypotheses were to be tested. With the help of these hypothesis relation between creative ability and some variable. Such as intelligence and sex were to be studied. Hence it was necessary to classify the data accordingly. Thus obtained data were classified, necessary statistics were applied data were analysed, hypotheses were tested and on the basis of the obtained results, the differences between some groups were found significant and established. For the simplicity and lucidity of the reporting norms are written here under.

7.2.4.7 **Statistical Techniques used :-**

Statistical technique of ANOVA [F-test] used to study the overall significance of difference in the main and the interaction effects of
these three independent variables. And subsequently the Newman Keuls test was applied in order to examine the significance of different between any two specific groups. All these results have been presented in various tables and discussed in the main body of the thesis under chapter VI.

7.3 GENERAL OBSERVATIONS :-

In the process of creative ability training the teacher plays an important role as the open class-room climate induces the students to think freely. The teacher is the same here through out the training period of ten weeks. Moreover, necessary instructions to maintain proper class room climate were imparted to students. Some points out of 20 essential points as listed in the II Chapter were taken into consideration for open class room climate. They are as under:

[1] Make students more alert to environmental stimuli.
[2] Be more sensitive for new ideas and encourage the pupils to develop all their creative talents.
[3] Develop creative class room atmosphere a free, relaxed and unhurried one.
[5] Encourage students to note their ideas in concrete form whenever possible.

Such a healthy and creative atmosphere encouraged the students to think in various dimensions of life. Consequently they try out numerous and varied responses in point tryout.

During the pilot tryout the following observations were made:
Most of these students took deep interest in these type of programmes. They liked to read and observe the picture given. They felt free to think as the activity items 2, 4 concern with divergent type of thinking. They found some difficulty to understand some situation. They were happy with the thought provoking questions posed before them. They could respond the activity item-1 and item-3. In the beginning the students took more than 45 minutes to complete the lessons of first programme. They were able to complete the last ten lessons of the third programme within fixed duration of time. There were anxious during this tryout for being kept away from loss of their regular period in the school.

In the beginning of the training programme CTP, the students were not happy with such work, but after a few days a little more understanding and interest were appeared on their faces. It could be reflected in giving the varied and novel responses of the questions posed before them. The discussion followed by the programme was carried poorly in the beginning, but later on the students were accelerated to take part in the discussion followed by programme. By the end of the training the treatment group students were filled with more enthusiasm as compared with the control group students of the same school. Here, is a supporting statement to the above observation given by R.P. Crawford.1

"A person starting to teach creative thinking encounters blank looks on the faces of his students during the first few weeks. 
After a few weeks the blank looks fade and by the end of the semester, the students usually have a surprisingly large number of workable ideas.

In the process of implementation, a rapport between the teacher and taughts of the experimental groups was established and it resulted into way communication to ask the question and to respond the question.

At the completion of the experiment students were asked for more such programmes to the investigator. This shows a little success of the programme. The statistical observations would give a clear and perfect picture of its effect.

7.4 STATISTICAL OBSERVATIONS AND CONCLUSIONS :-

On the basis of data obtained in the previous chapter VI, the statistical observations and conclusions are discussed according to the study-wise hypotheses formulated. They are briefly given below:

**Study :- 1 : Treatment V/s. Creative ability :-**

The hypothesis for the study is:

HO₁: The creative thinking programme (CTP) increase the level of creative ability of the Students.

Investigator studied this HO₁ in the form of null hypothesis as stated below.

HO₀₁: There is no significant difference between experimental and control group students on their creative ability.

The data for the hypothesis are listed below:

Data: (a) The table 6.7 shows that Fobs (5.92) > Ftav (4.81) at 0.01 level.
(b) Table 6.3 shows that
X exp, Gr. (206.82) > X Con. Gr. (146.12)

Hence, the observations and conclusions made are as follows:

**OBSERVATIONS :**

The null hypothesis HO, is rejected.

**CONCLUSIONS :**

(a) The alternate hypothesis HO, is accepted.

(b) The variable treatment (CTP) and (NO CTP) has significant effect on the creative ability level of the students.

(c) The mean difference in creative ability scores is in favour of experimental group students.

(d) The relationship between two groups is shown symbolically as below:

(Experimental Group) > (Control group)

But treatment variable for experimental group is varied at two levels:

[1] CTP alongwith discussion and feedback.

[2] CTP only.

To study the effect of feedback on the creative ability level of student when CTP was given, the investigator studied the following null hypothesis -

**HO, :** There is no significance difference between the two experimental groups students when the feedback is carried on one group and other group without feedback.

The data for this hypothesis HO1 are listed below:

**Data:**

(a) Table 6.7 shows that:

Fobs (4.81) < Ftab (5.92) at 0.01 level

(b) Table 6.8 shows that:

X CTP with F.B. (206.82) > X CTP without F.B. (170.80)
The N.K. Value for the mean difference score between these two experimental group students is 6.13 (table 6.9) which is significant at 0.01 level.

Hence observations and conclusions are made as below:

**OBSERVATIONS:**

The null hypothesis $H_0$ is rejected.

**CONCLUSIONS:**

(a) The alternate hypothesis $H_A$, "There is a significant mean difference between two experimental groups on the creative ability level of the students" is accepted.

(b) The variable treatment - feedback and no feedback has significant effect on the creative ability level of the students.

(c) The mean difference in creative ability scores is in favour of the experimental group to whom the feedback is facilitated along with the CTP.

(d) The relationship between these two experimental groups is shown symbolically as below:

\[
(\text{Exp. Gr. CTP with F.B.}) > (\text{Exp. Gr. CTP without F.B.})
\]

In short all the three treatment groups differ significantly at 0.01 level.

The relationship between all the three treatment groups is shown as below:

\[
(\text{Exp. Gr. CTP}) > (\text{Exp. Gr. CTP}) > (\text{Con. Gr. No Pro.})
\]

with F.B. without F.B.

**Study - 2 Trend of Creative ability Across Treatments:**

As the three treatment groups differ significantly, the investigator posed a question to investigate the trend of the creative ability when the three different treatments were given to the students.
Qu. 1 Is there a linear or quadratic relations between the three treatment
groups (CTP with F.B., CTP without F.B., No CTP) ?

The data for the solution of the question posed are shown
below:

Data: Table 6.10 shows that -
(1) \( F \text{ linear} = 18.831 \) significant at 0.01 level
(2) \( F \text{- quadrate} = 0.2868 \) Non significant.

Hence, the observations and conclusions drawn are as below:

**OBSERVATIONS :-**

"The trend of creative ability level across the three treatment is
linear" is accepted.

**CONCLUSIONS :-**

(a) The trend of creative ability level developed during three
treatments is linear one.

(b) Creative thinking programme (CTP) shows better effect on
creative ability level, if it is used alongwith feed back and show
still better if it is used alongwith the feed back. But the rate of
enhancement of creative ability in both the cases are significantly
same.

**Study : 3 Intelligence V/s. creative ability :-**

Intelligence level is the independent variable while creative
ability score acquired after the administration of CTP is the
dependent variable. The hypothesis for this study is stated below:

\[ \text{HO}_2: \] There is no significant mean difference in Intelligence and
creative ability scores of the students.

The data for the hypothesis \( \text{HO}_2 \) is noted below.

Data: [1] Table 6.7 shows that -
Fabs (74.87) > F tab (5.92) at 0.01 level.
Table 6.8 shows that -
\[ X_{HC} \ (206.82) > X_{LC} \ (146.8) \]
Hence the observations and conclusions drawn are as under:

**OBSERVATIONS:**
The null hypothesis \( H_0 \) is rejected.

**CONCLUSIONS:**
(a) The following alternate hypothesis \( H_1 \) 'There is a significant increase in creative ability scores due to creative thinking programme (CTP)' is accepted.
(b) The creative thinking programme shows highly significant effect in enhancing the creative ability level of the students.
(c) The relationship between these groups are shown below:
\[ \text{(High CR.GR.)} > \text{(Low CR.GR.)} \]
In short, the creative ability level of students can be enhanced to a greater extent by such creative thinking programme (CTP). This is but natural for playing a role of divergent thinking factor in CTP.

**Study - 4 Sex V/s. Creative ability:**
The hypothesis for this study is -
\( H_0 \) : There is no significant mean difference in creative ability of student possessing boys group students and girls group student.

The data for the hypothesis are listed below:

**Data:**
1. Table 6.7 shows that -
\[ \text{Fabs} \ (20.61) > \text{F tab} \ (5.92) \] at 0.01 level.
2. Table 6.8 shows that -
\[ X \ (\text{Boys}) \ (189.11) > X \ (\text{girls}) \ (160.05) \]

The observations made and the conclusions drawn are as under:

**OBSERVATIONS:**
The null hypothesis \( H_0 \) is rejected.
CONCLUSIONS :-

[a] The alternate Hypothesis -

H_a "There is a significant mean difference in creative ability scores obtained by boys groups students and girls groups students is accepted.

[b] Sex, the third variable has a significant effect on the enhancement of creative ability level of the boys groups students of standard IX of Mehsana District.

[c] The boys group students shows better progress in creative ability than the girls group students.

[d] The relationship between these two groups are shown below :

   Boys group students > Girls group students.

   In short, the students who possess boys groups students show the increase in the creative ability levels.

Study : 5 Treatment X Intelligence (AXB) :-

The hypothesis for the study is -

H_{O_4} : "There is no significant interaction effect of treatment and Intelligence of students on their creative ability scores."

The data obtained for this hypothesis are show below :

Data : Table 6.7 shows that -

[1] For A,B (Treatment with F.B.X Intelligence)
   F_{obs} (0.07) < F_{tab} (3.64) at 0.05 level.

[2] For A_2B (Programme without F.B. X Intelligence)
   F_{obs} (2.07) < F_{tab} (3.64) at 0.05 level.

The observations made and the conclusions drawn are shown below :

OBSERVATION :-

The null hypothesis H_{O_4} is accepted.
CONCLUSIONS :-

[1] There is no significant joint effect of all the Treatment X Intelligence levels on the creative ability levels of the students.

[2] There is no significant joint effect of programme X Intelligence levels on the creative ability levels of the students.

Study - 6  Treatment X Sex [AXC] :-

The hypothesis for the study is -

H0₅: There is no significant interaction effect of treatment on boys group and girls group of their creative ability scores."

The data for H0₅ are listed below:

Data: Table 6.7 show that -

[1] For A₁C [Programme with F.B. X Sex]
Fobs is negligible.

[2] For A₂C [Programme without F.B. X Sex]
Fobs (2.07) < F tab (3.64) at 0.05 level.

OBSERVATION :-

The null hypothesis H0₅ is accepted.

CONCLUSIONS :-

[1] The main effect of treatments on boys group student on creative ability are found independently significant while their joint effect on creative ability is non significant.

[2] The interactive effect of treatment programme on boys group students and girls group students, nearer to the level of significant at 0.05. Sot it is worth while to raplicate the study to see this interactive effect.

Study : 7  Intelligence V/s. Sex :-

Table 6.7 shows that -

Fobs is negligible and hence it is concluded that there is no
interactive effective of Intelligence X on boys groups and girls group of the students on their creative ability level. Hence $H_0$ is accepted.

**Study : 8  Treatment X Intelligence X Sex :**

Table 6.7 shows that -

1. For $A_1 BC F_{obs} = 2.15$ is not significant.
2. For $A_2 BC F_{obs} = 0.49$ is also non significant.

Hence the null hypothesis $H_0$ is accepted and it is concluded that there is no interactive effect of treatment, Intelligence on boys group students and girl group students on their creative ability level.

**Study : 9  CR-BLOCKS V/S Creative ability :**

The hypothesis for this study is -

$H_{0g}$: There is no significant mean difference in the creative ability scores of the students of different CR - Blocks. The data for testing this hypothesis are listed below:

The data for testing this hypothesis are listed below:

**Data:** Table 6.11 shows that -

1. Mean of LCG, LCB, HCG and HCB are 130.2, 155.6, 189.9 and 222.6 respectively.
2. N.K. Value for the mean difference between LCG and LCB is 2.56 which is not significant.
3. N.K. Value for the mean difference between HCB and HCG is 2.41 which is not significant at 0.01 level.
4. The rest three N.K. Values are 3.46, 0.9 and 3.31 which are not significant at 0.01 level.

**OBSERVATION :**

1. The mean difference between HCG and LCB (25.4) is not
significant, whatever the difference observed is due to chance factor.

[2] The rest all the five mean differences (59.7, 92.4, 34.3, 67.00, 32.7) are significant.

CONCLUSIONS :-

[1] The students of LCG and LCB groups had not shown significant mean difference in their creative ability.

[2] The students of LCG and HCB groups had shown significant mean difference in their creative ability.

[3] The students of HCB groups are superior to the students of rest three groups in their creative ability.

[4] The relationship between 4 CR - Blocks are shown below :
   
   \( (HCB) > (HCG) > (LCB = LCG) \)

Study : 10 Trend of Creative ability Across 4 CR-Blocks :-

To study the functional relationship of creative ability across the sex blocks, the following question was posed :

Question: Is the trend across 4 CR-Blocks, Linear, Quadratic or Cubic ?

The data needed for the solution of the question are listed below:

Data: Table 6.12 shows that -

[1] For linear trend the contrast sum is 9481 and \( F \) linear is 47.8559 i.e. significant.

[2] For quadratic trend the contrast sum is 19 and \( F \)-Qua. is 0.00096 i.e. Non significant.

[3] For cubic trend the contrast sum is 937 and \( F \) cub is 0.4674 i.e. Non significant.

OBSERVATION :-

\( F \) lin = 47.8559 is significant while other two F's are not significant.
CONCLUSIONS :-

[1] The 4 CR-Blocks, HCB, HCG, LCB and LCG are in the ascending order of the mean scores on creative ability test. The trend of the creative ability across these CR-Blocks is linear in nature.

[2] This linear trend suggests that creative ability can be enhanced by such creative thinking programme [CTP] techniques.

7.5 FINDINGS AND DISCUSSION :-

From the above observations and conclusions the researcher made some important outlook views. The findings of this study are as under :-

[1] A creative thinking programme [CTP] is a powerful mean to develop the creative ability of the secondary school students of standard IX of Mehsana District.

[2] Creative ability inheritedly plays much more role in the advancement of creative ability of the students. They acquired high level of creative ability after implementing the CTP.

[3] Sex plays its role in developing the creative ability of the students of standard IX of Mehsana District.

[4] According the statistical results' Judgement the creative thing programme developed by the investigator is highly valid, highly reliable and play the significant role to enhance the creative ability to secondary school students of standard IX of Mehsana District.

[5] The main effect of treatment, Intelligence level and sex is so high that the first order and the second order interaction effect was found mostly negligible.
It would be in the fitness of things to write a few illustrations of the similar programmes which have been carried out in different places. They all go to strengthen the results obtained by the investigator.

[1] A long range of study by General Electrics shows that company engineers who had received creative ability training produced 3 times more valuable inventions than those who did not receive this training.2

[2] A study of creative thinking programme [CTP] done by Covington University of California has showed that creative thinking programme could develop by such training in secondary school students.3

[3] Flendhusen J.F. and his associates had developed the Purdue creative thinking programme (PCTP) in Purdue University 1970. They have established that such programme can develop flexibility, fluency, elaboration - the components of the creative ability.4

[4] Bhaskar S.B. has studied such problems by developing the divergent thinking programmes through the general content in Mathematics and showed that such programmes enhance the creative ability levels of secondary school students.

Nir Pharke (1979) and Patel J.Z. (1985) had established the same impact of such general programme developing the creative ability level of children in their study.

Jarial G.S. (1981) had studied the development of creative ability of children by preparing programmes based on school subject - science and language.

So, this study undertaken by the investigator is provided worth for its educational implication.
The present classroom teaching appears to be very low on motivation, for the teacher, directed as well as dominated provides less opportunity for student involvement and student initiative. This results in low pupils interest and mainly convergent in nature. The first objective of the research therefore, was to find out the extent to which the theoretically postulated creative teaching practices in present class-room. The divergent thinking programme would provide a new direction to the conventional way of teaching.

Under the present critical situation when the national policy of education in India (1986) put emphasis on the self learning, self evaluation, child centred education and thinking process. This type of programmes would be helpful to motivate the students, to create open class-room climate and to fulfil the objectives laid down in the national policy of education.

The result of this study here proved that this short term programmes has increased the creative ability of the students. So any educational person can use such programmes for Gujarati School students applying any of the following ways:

[1] During day to day teaching one can spare 10-15 minutes within a period to pose a question aiding the divergent thinking programme of the students.

[2] One can implement the programme during a term. A period of 45 minutes per week may be allotted in regular school time table for the purpose.

[3] It is possible to introduce such thinking programmes when the school have a spare period per week for co-curricular activities. This activity would raise the interest in the students and enhance the divergent thinking in general.
Thus by the end of the school education, this group of students will become creative citizen of the nation. And so further researches in the field should be continued in this line.

7.7. **SUGGESTIONS FOR FURTHER RESEARCHES** :-

This research has produced some positive and encouraging results and hence it deserves a few suggestions for further researches. They are enlisted hereunder:

1. The same study should be replicated on larger sample.
2. Rural area should be introduced instead of urban area alone to study the effect of CTP.
3. All the groups of the B.C. students from Socio-Economice level should be selected as a sample to study its effect on creative ability level of the students.
4. The creative thinking programmes should be prepared by covering the various subjects of secondary school.
5. The impact of CTP can be studied on the various creative ability Components levels of the students.
6. A correlational study of academic performance and attitude of the students towards the creative thinking programme can be undertaken.
7. The post effect of such training programme might be found out as a follow up work.

At a time of modern national culture over the high degree of creative ability, it is so essential in the field of science and technology and hardly less essential in Government business and other areas. Education in creative thinking may do much to unlock the door to a vast treasure house of latent ability.
7.8. REFERENCES :

(1) Crawford R.P. : "THE Technique of creative thinking".


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