CHAPTER 3
CHAPTER - III
A PEEP INTO THE PAST RESEARCHES

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3.0 **Introduction:**

The review of related study is nothing but a look into the past research works done in the specified fields. This is a very significant aspect of the research process as pointed out by William Wiersma, "Educational Research is not or atleast should not be carried out in any information vacuum."

The review of related studies helps the researcher by providing historical background of creativity. It also helps in foresee the limitations and scope of the study and to locate the research problem in the whole area of investigation, selecting the proper tools, sample and treatment or analysis of data. Moreover, it helps to practice the conclusions of the research and to avoid ambiguities.

Hence accepting the importance of a review of the past work, the present investigator has tried to go through the available literature and the research reports and review them with special reference to the types of studies in creativity.

3.1 **Creative Thinking Programme : Abroad:**

Good amount of research work in this area has been done in foreign countries, especially in U.S.A. Research study related to this investigation is reviewed below:
Study - 1:

Development of Pardue Creative Thinking Programme (PCTP)\(^1\)

This programme is prepared by Carington Crutchfield and Fedhusen in Pardue University. The programme was first prepared in 1970 and was finally revised in 1981. The review will be studied with respect to the description of the procedure and goals to provide directions for efforts. Finally results and research findings will be discussed.

Description:

The Pardue Creative Programme (PCTP) consists of 32 audio taped programme on 8 pages, and a set of 3 to 4 printed exercises for each programme. The taped programme consists of two parts: (i) 3 to 4 minutes presentation designed to teach a principle or idea to improve creative thinking, (ii) 8 to 10 minutes story about a famous American Pioneer. The exercises for each programme consists of printed direction, problems or questions which are designed to provide practice in fluency, flexibility, originality and elaboration in thinking subject matter and teaching strategy.

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The content of the audio-tapes focuses on social studies. The series also teaches writing and listening skills which are related to the language arts. The programme is designed to be administered in a group setting or individual learning.

In developing the series some goals to provide directions for efforts were formulated as under:

1. Focus on famous people and events that represent models of creative activity.
2. Present information as a vehicle and stimulus for creative thinking.
3. Teach creative thinking and problem solving.
4. Involve students in creative verbal and drawing activities.
5. Use auditory rather than visual stimuli to encourage imagination.
6. Undertake a substantive programme of research and formative and summative evaluation.

A typical format is to present one programme each week and to devote about 45 minutes to the tape and activities. After a brief introduction by the teacher, the children can discuss what they know about the person featured in the programme. This motivates the children to listen carefully. The tape is played for about 15 minutes. Activity
sheets are than distributed and discussed briefly to make sure that the children understand the instructions.

Some exercise stresses verbal fluency, flexibility and originality and other are strengthened by non-verbal exercises. Figural activities stress elaboration along with above 3 factors.

Results and Evaluation:

There are atleast 15 published reports summarising research and evaluation on PCTP. The most recent is an extensive review of clinkenbeard in 1980. It can be summarised briefly as under.

One of the first major studies showed that children who had experienced the programme scored higher than controlled ones on verbal and figural originality, verbal fluency, non-verbal elaboration and language skills. A subsequent project showed increasing fluency and originality especially at the fourth grade level, for children who had been through the programme. It was also found that activities were the most effective parts of the programme, stories almost as effective and introductory presentation somewhat less effective.

In another study teacher effects were investigated in the context of a comparison of the PCTP and PTP. Both
were found effective in producing creative thinking gains but the PTP produced slightly more consistent gains. It becomes evident that children make greater gains when teacher refrain from extensive discussion of the stories.

Some scientists carried out further tests, regarding the effects of spaced is massed programme use on problem solving skills, again comparing the PTP with PCTP. They found both the programmes effective in developing divergent thinking abilities and determin that the teacher's leadership role can facilitate greater creative growth when programmes are used over a longer rather than massed period of time. Overall it seems that one may conclude optimistically that the PCTP is effective in developing creative thinking abilities and some related attitudes and skills.

Teachers too can learn a great deal about creative teaching from the introduction to the tapes. The programme has at best, limited effectiveness though, like other creativity thinking programme. It is perceived as a valuable and enjoyable experience for teachers and students alike.

Study - 2:

This study was done by John Feldhusan and Fred Widlak at University of Brazilia.

In the present study 14 out of 28 stories of the PCTP and the corresponding exercises were used with a sample of children in Brazil. The choice of 14 dramatizes stories were based on their relationship to the programme of history and social studies in Brazilian schools. The programmes were translated into Portuguese by the first author.

Sample:

A tool of 578 fourth and fifth grade children from 24 classes in both private and public elementary schools in Brazil participated in the study. There were 12 fourth grade and 12 fifth grade classes with 8 classes assigned to each of two treatment condition (Programme with reinforcement of the pupils' performance on the creativity exercises and programme without reinforcement of the pupils' performance on the creativity exercises) and 8 classes assigned to the control group condition.

Procedure:

Before instruction began two verbal sub-tests (unusual uses and product improvement) and two figural sub-tests (circles and picture completion) of the Torrance Test of Creative Thinking (TTCT) were administered as per tests to all pupils in both the experimental and control groups. The tests were translated into Portuguese. The instructional material was then administered to the experimental groups
by the teacher once a week for 14 consecutive weeks. The teachers were taught how to use the material. In administering the programme the teacher read the introduction and the story to the children since tape players were not available. The pupils then worked on the printed exercises. In one experimental condition (programme with reinforcement) the children's completed exercises were evaluated by the experimenter. She wrote encouraging comments on their papers intended to reinforce fluency and elaboration (e.g., very good, good, good but try harder, try harder) and then gave back to the children. Pupils in the other experimental condition received no reinforcement. Pupils in the control group received no creativity training. At the end of 28 weeks TTCT form A was administered as part-test to all pupils of the project.

A 3 x 2 x 2 (treatment by sex by grade level) analysis of covariance was used to analyse pupil performance on each of the 12 creative measures. Previous research indicated that the creativity sub-tests were task specific and should be analysed separately. The covariance for the divergent thinking measures were the respective TTCT pre-test measures. Post hoc individual comparisons between adjusted means were made for significant effects using the Newmankeuls procedures. Further analysis of covariances were carried out to analyse the effect of treatment using the class as the sampling unit.
Results:

Using individual subject as the sampling unit, a constant finding across all dependent variables was that interaction effect reached statistical significance. The main effect of treatment was significant for all the three creativity dimensions of fluency, flexibility and originality for the lines and unusual uses sub-tests. Here the treatment effect was also significant for figural originality on the product improvement sub-test. The effect of classes within treatments was significant for figural fluency on the lines and picture completion sub-tests, for figural flexibility on the lines sub-test, and for verbal originality on the unusual sub-test. The significant classes within treatment effect indicates differences among the classes in the effectiveness of the programme.

Study - 3

Developing the skills of productive thinking:

This Productive Thinking Programme (PTP) is developed by Covington, Crutchfield and Davis in 1966 at the University of California. This set of booklet material, designed primarily for Vth and VIth grade students, provides systematic

instruction and carefully guided practice in the skills of productive thinking and problem solving. 16 programmed booklets are individually self administered and self paced each requiring approximately one hour.

Each lesson is designed in such a way that a student working through the problem, is led eventually to discover the solution for himself. This gives him the trill of discovery and helps him to develop a sense of confidence in his ability to cope with difficult and challenging intellectual tasks.

A total of 280 students, comprising five Vth grade and five VIth grade classes, participated in this study. These students generally were above average in intellectual ability. The mean I.Q. of the group was 115 checked on 6 sub-tests of the Stanford Achievement Battery. In order to equate these two grades for influence of a particular teacher and a particular classroom climate, a split class technique was used. Half the students of each class were selected to receive instruction in productive thinking, while the other half of each class served as a non-instructed controlled group.

Both the groups were given a pre-test battery of productive thinking problems to determine the extent to which any difference in productive thinking proficiency existed
before instruction began. Then during the next 8 weeks the instruction group devoted approximately one hour per day to instruction in productive thinking. While the controlled group also spend an hour daily in activities consisting of stories, movies and various projects chosen to interest the children and to have general educational value, but not related to productive thinking. At the end of 8 weeks period, performance of the two groups was compared on an extensive past test battery of thinking problems.

These studies have consistently found to produce significant gains in student performance on a variety of tests of productive thinking. The trained students have demonstrated strengthened skills in cognitive functions as generating ideas of high quality, asking relevant questions, being sensible to crucial clues, making effective use of informations and achieving solutions to problems.

At various points in booklet lesson, the student practises using such skills and writes down his ideas, questions or suggestions about the work to be done next. The student is led to understand what contribute relevant and original ideas, how to proceed fruitfully when faced with a challenging problems and what effective strategies to use when encounters difficulties.
Results:

1. Performances of the instruction and controlled groups were nearly identical on the pre-test battery, indicating that they were well matched in productive thinking proficiency before instruction began. Indeed the small difference that did exist favoured the controlled group.

2. After the instructional programmes has been computed, a clear and substantial superiority in thinking was shown by the instruction group.

3. On the follow up battery, performance of the instruction group continued to surpass that of the control group by significant margin. Thus the gain in thinking skills produced by the 8 weeks of instructions was still evident more than 6 months after instructions had ended.

The same study has been replicated by Olton and Wardrop in 1967.

Study - 4:

Various experiments of Edward de Bono. Edward de Bono has carried out eight experiments mainly applied to the first CoRT section that broaden the scan of thinking. They are as follow:

Experiment - 1:

Primary - school children aged ten to eleven years.
Eight groups, four CoRT trained (10 lessons) and four untrained were selected randomly.

The difference between the untrained group and the CoRT group is particularly striking. The CoRT group covered a much wider 'scan' of areas. The teacher who had been teaching CoRT to this group was an exceptionally good teacher. Hence the base-line improvement with young children is likely to be more striking than with older children.

Experiment - 2:

Mixed-ability pupils, aged twelve to thirteen years.
Three groups that had done twelve lessons were compared with three untrained groups from a comparable classes. Four pupils are included in each groups.

The difference in the number of ideas or attention area between the untrained and the CoRT groups is again apparent. It is worth to note that when a group hits on a theme, then the several ideas follow on this theme.

Experiment - 3:

Mixed-ability pupils, twelve to thirteen years were chosen to represent a scatter of ability. Ten pupils had done 10 CoRT lessons, the others were untrained.
The individual output of the ideas has been measured and it can be seen that there has been an improvement in almost all cases. In the untrained group only two out of the ten have a total of more than twenty ideas spread across the various questions. In the CoRT group eight out of 10 have more than twenty ideas.

Experiment - 4:

Mixed-ability groups aged fourteen years in average. The CoRT trained groups had done fifteen lessons. Total numbers of students are forty seven. Twenty- minutes' discussion was tape-recorded.

The teacher had arranged the group in descending order of ability so that in each case group one was the most able and group four least able. It is found that in each case the CoRT trained group did better than untrained group.

Experiment - 5:

Mixed ability group aged fourteen years. The CoRT trained groups, one had nineteen pupils and two groups had twenty pupils. To whom five CoRT lessons were given. They were matched with equivalent pupils who had done no training.

As usual the CoRT - trained group produced more ideas both in favour of and against the idea.
Experiment - 6:

High School girls' group aged thirteen to fourteen years. A CoRT trained class of thirty-two pupils had done just one lesson and was compared with a comparable class of thirty-two pupils which had done no CoRT lessons.

The CoRT trained groups were more able to generate points which were on the opposite side to their own conclusions about the situation. It is worth to note that this effect was produced after one lesson (the PMI lesson).

Experiment - 7:

Public School, boys aged fifteen years. Among twenty boys in a cross-over experiment, Nine boys tackled problem A and eleven tackled problem B. Both groups were given 20 CoRT lessons. (CoRT - I & II). The same groups then tackled the problem they had not tackled before. The 'before' and 'after' comparison was made for each problem.

It is observed that in each case there is a considerable increase in the total number of points per pupil, in the original points and in the areas covered.

Experiment - 8:

In the comprehensive school. The CoRT group had done ten CoRT lessons in addition to their normal inter-disciplinary
inquiry. The untrained group from a similar school had done only the inter-disciplinary inquiry without using CoRT as a core subjects.

As in the preceding experiments the CoRT group shows a greater total of points. It is found that untrained groups were more likely make-up their points with detail and anecdote. It is also found that the untrained groups were more likely to get points in a few areas.

The conclusion from the above experiments are generalized as follow:

1. The CoRT training effect is more visible with younger and less able children, because older children are usually able to produce some ideas even if they are all in the same area.

2. CoRT training leads to a wider spread of ideas over the different areas. It also leads to ideas that are more general in nature and less particular or anecdotal.

3. The strongest effects are to be seen as one moves out of the egocentric and immediate attention areas to consider wider effects and practical matters. Ordinary thinking is reluctant to look at things in so wide a manner, and hence the CoRT effect is strong.

4. When time is short and pupils have a lot to say on some subject, the effect of the CoRT training may not be apparent in a simple idea count, because the pupils are limited by time, not by lack of ideas.
5. CoRT trained pupils make fewer initial and instant judgements.

6. CoRT trained pupils are more inclined to generate points on both sides of the question instead of restricting their thinking to the side they favour. They offer a better exploratory balance between 'for' and 'against' points.

3.2 Creative Thinking Programme: India:

Since few years ago some researches on creativity thinking programme have been carried out in different parts of India.

3.2.1. Based on School subjects:

Study - 5

Teaching Techniques in Science to develop creativity.

An Experimental investigation of the effects of selected teaching strategies on the development of Creative Thinking and Achievement in Science.

The objectives of the study were:

(1) To find out the effectiveness of the strategies St₁, St₂, St₃ and St₄ on the development of creative thinking ability of standard VII pupils, and also on the achievement in Science.

I.Q. test, Creative Thinking Test, C.T.T.c.T. Figural and pre-achievement test were administered.

Various statistical techniques like means, S.D.'s, Correlations and analysis of variance (ANOVA) were applied.

The findings were as follows:

(1) The difference between the selected strategies for their effectiveness in developing creative thinking and achievement in science of seventh class pupils is significant at 0.01 level of significance.

(2) It was also found that the four strategies of teaching had significantly differential effects on the development of originally and flexibility but the F ratio for the effects of strategies was found to be not significant in the case of fluency.

(3) The St$_4$ produced significantly high mean scores for achievement of the pupils than all other strategies. St$_3$ and St$_2$ produced significantly higher mean score than St$_1$ and there was no evidence of significant difference between St$_3$ and St$_2$.

(4) Strategy St$_4$ was more effective in developing creative thinking and its components as compared to all other strategies.
(5) It is observed that the effects of strategies were depended upon the level of intelligence, sex and creativeness of pupils.

(6) St3 i.e., dominancy of practical work did not show any significant superiority over lecture with respect to low intelligence, low creativeness girls.

Study - 6

A study of the effect of Productive Thinking Programme in Geography on Creativity of Students of class IX (Nineth).

This study was done by D.D. Patel at the Sardar Patel University, Vallabhbh Vidyanagar.

Different types of the content from the text book of Geography had been selected for the programme. Each programme covered five activities (PAT) containing (1) Convergent thinking, (2) Divergent Thinking, (3) Evaluation Thinking. There are five questions in each programme. The programme had been finalized as an instructional tool.

Sample:

The number of students involved in the study is 126, selected from one school complex of Ahmedabad city. It includes 77 boys and 49 girls of Std. IX. Sample was selected by purposive sampling method.

Objectives:

Objectives of the study are as follows:

(1) To provide a reliable productive thinking programme in Geography for a development of creativity in the students of Std. IX.

(2) To study the effect of PTPG on various blocks constructed on the basis of creativity and intelligence.

(3) To study the effect of PTP in Geography on the creativity of the students make with respect to discussion.

(4) To investigate the instruction of treatment and the block on creativity of pupils.

(5) To suggest the recommendations based on findings of the study.

Findings:

The findings of the study are as under:

(1) A productive thinking programme in Geography is a powerful mean to develop the creativity of the secondary school students.

(2) Initial creative ability inherited, plays much more role in the enhancement of creativity of the students. The acquired high level of creativity after implementing PTPG.
(3) IQ plays its role in developing the creativity of the students. The IQ bar level was kept 110 to divide the whole group into two groups.

(4) The main effect into two groups. Initial creativity level and intelligence is so high that the first order and the second order interaction effect was found mostly negligible.

Study - 7:

An investigation into the Impact of Divergent Thinking Programme in Mathematics on the Creative levels of the children of classes VII and VIII. General objectives of the study are:

(1) To provide the reliable divergent thinking programme in mathematics.

(2) To study the effect of divergent thinking programme in mathematics on the creativity of the students of Std. VII and VIII with respect to reinforcement i.e., Feedback.

(3) To study the effects of DTPM on the creativity components, viz., Fluency, Flexibility and Originality.

(4) To investigate whether the grade difference in the creativity is there or not.

(5) To investigate whether the sex difference the creativity exists or not.

Sample:

One school complex with co-educational system in Gujarati medium was chosen for the experiment. Three classes of standard VII and VIII from the school in Ahmedabad city were selected. Then 3 equal groups of each standard were formed (a control group and two experimental groups). One experimental group was termed as a group with feedback and other experimental group was called a group without feedback. Thus there were 4 experimental groups with 181 students and 2 control groups with 90 students in all. (Total 271 students, 130 from Std. VII and 141 from Std. VIII).

Tools:

Main tools, used in this experiment was PTC and DTPM.

(1) Passi Test of Creativity (PTC): PTC contained 6 tests, 4 tests were verbal and remaining non-verbal. In this study the verbal test were used.

(2) Divergent Thinking Programme in Mathematics: The DTPM tool was prepared and tested as an instrument for creativity. It contains 3 types of problem: (a) Multi-Response (b) Hidden shapes and (c) Make up problems.
Statistical Method:

Analysis of the pre-test score and post-test score was made for all the 6 groups. (for both the grades as well as scores separately). The ANCCVA method was applied.

Findings of the Study:

Various findings were considered together and discussed in the light of the objectives were narrated with reference to the hypothesis, observations and conclusions.

(1) The Divergent Thinking Programme in Mathematics was an essential tool to develop the creativity of VII and VIII grade students.

(2) The programme was equally useful to develop creativity in either sex.

(3) DTPM was essential tool to increase the fluency - a creativity component of the students of both the standards.

(4) DTPM was not helpful to get changes in flexibility scores.

(5) DTPM was useful but the training was not effective for originality.

On the whole, the results derived from the analysis were very interesting and encouraging, showed that creativity can be developed through DTPM.
Study - 8:

A preparation and tryout of divergent thinking programme in Maths for Std. VIII.

This study was carried out in rural area of Bayad District. The sample of 60 students was selected from school. It was divided into two groups called experimental and controlled groups.

Pre-test, post-test design was selected. Verbal creativity test of Baquer Mehdi was used for the same. Programme was prepared in Mathematics for the creativity training of the students. Especially 'algebraic expression' was selected topic for it. Ten programmes were prepared in a logical sequence and try out. Those programmes of divergent thinking were implemented by the investigator thrice a week. While the same topic of algebraic expression was taught to the students of control group by the traditional method. The pre-test and post-test were conducted and the answer-sheets were scored according to Mehdi. To test the hypothesis, analysis of covariance (ANACOVA) was used to analyse pupils' performance on each of the creativity measures i.e., fluency, flexibility and originality and total creative scores.

Results:

The main effect of treatment was significant for total creativity scores, moreover the treatment effect was also significant for fluency and flexibility but not for originality.

3.2.2. General:

Study – 2:

An Experiment with a programme for Creativity Development.

This study was carried out by Jarial in 1981.

Both the forms of the programme (verbal and non-verbal) include 25 lessons each. Each lesson contains 2-6 items. The items pertaining to the verbal form of programme have the content from the immediate environments of the students i.e., home and school and the non-verbal form of programme contains the geometrical figures. Such as points, triangles, squares etc., and sketches as its content. The experimental part of the study followed a pre-test, post-test experimental controlled group design. The group undergoing treatment in verbal form of the programme consisted of 80 students who were divided into two comparable (on the basis of I.Q. scores and the scores

on the component of verbal creativity) groups experimental and controlled. The students of the experimental group were given treatment in verbal instructional materials, whereas no treatment was given to the students of controlled group. The non-verbal treatment group also consisted of 80 students who were divided into two comparable groups (on the basis of I.Q. and the scores on the components of non-verbal creativity). One of three groups was named as the experimental group and the other was named as the controlled group. Like the verbal treatment group, here too the students of the experimental group were given treatment in non-verbal instructional material, whereas no treatment was given to the students of the controlled group.

The treatment given to the students of both experimental groups continued for 50 days utilising one period of 35 minutes duration per day. On one set of alternate day the students were administered the lessons from the instructional material, and on the other set of alternate days, discussion around the already completed lessons was done. The TTCT. Form A (verbal and Figural) were administered to the students of the respective groups at present stage, and their parallel test (TTCT Form B) were administered to the similar students at post-test stage.
Results:

The results showed a significant effectiveness of the programme in developing different components of verbal creativity and various components of non-verbal creativity of the students.

The development of the various components of verbal creativity, as a result of training in the programme was observed to be independent of the effect of sex, socio-economic status and initial creativity levels.

The development of the different components of non-verbal creativity was not influenced by the variation in socio-economic status of the students.

The sex and initial creativity levels did not seem to effect the development of different components of students' non-verbal creativity except elaboration, with respect to which the female students and the students of initially low creativity levels gained signed significantly higher than male students and the students of initially high creativity levels respectively.

Study - 10:

Effectiveness of creative Thinking Programme.

This study was done by J.Z. Patel at the Sardar Patel University, Vallabhb Vidyanagar.

10. J.Z. Patel, An Investigation into the effectiveness of Purdue Creative Thinking Programme on the Creative Ability of Elementary School Children. A report of the Research Project financed by UGC, New Delhi, to Deptt. of Edn. S.P.
The PCTP consists of 32 programmes focussing on the life of great people and on events in American history. Out of these, the investigator translated 18 programmes into Gujarati with necessary modifications. Further he developed other similar programmes based on Indian history. The series of 25 International people and events in essentially oriented to Social Studies since it is a biographical series, it also relates very closely to school curriculum. Each programme consists of one creative activity worksheet. It also contains 3 or 4 similar exercises.

Sample:

A total of 315 fifty grade students from 8 classes of 14 schools in three talukas of Kheda district, participated in this study. Out of 8 classes, four classes were treated as experimental classes, (CTP) and four classes were treated as controlled classes.

Procedure:

The creative ability test developed as a part of this programme by J.Z. Patel was administered to all students of 8 classes with a view to framing equal groups. Then the creative thinking programme (CTP) was implemented in experimental group followed by discussion once a week. For first 3 weeks and then twice a week for the rest 11 weeks. CAT to all students under study.
Statistical Analysis:

The equal groups were formed on the basis of the creativity test (pre-test) scores. A 2 x 2 x 2 (Treatment x I.Q. x Sex) factorial design was used and the analysis of variance (ANOVA) was used to analyse the pupil performance on creativity and its components measure: Fluency, Flexibility and Originality.

Results and Discussions:

The main effect of treatment - The Training of Creativity by Creative Thinking Programme was significant for the creativity and its two component measures: Fluency and Originality.

The main effect of I.Q. was significant but that of Sex was not significant.

Thus it could be said that creativity training could be profitably imparted to the children in the developing countries like India.

Study – 11:

To study the effectiveness of Creative Thinking Programme on the Creativity level of the school children in relation to the programmes correlates.

This study was undertaken by M.J. Amin for his doctoral work.

Sample:

A total of 282 students from Std. V of the five schools in semi urban area of three talukas in Kheda district participated in this study. There are four classes as a experimental group and two classes as a control group. Each of experimental groups are dichotomised in two groups. Thus there are eight groups plus one control group. Thus there were 8 experimental groups with 219 students and one control groups with 104 students in all.

Objectives:

The objectives of the study are as follows:

(1) To study the effect of Creative Thinking Programme on the creativity of the school children.

(2) To study the effect of Creative Thinking Programme on the creativity of the school children, with respect to time duration for implementing the programmes.

(3) To study the effect of CTP on the creativity of the school children with respect to their programme instructor i.e., teacher variability.

(4) To study the effect of CTP on the creativity of the school children with respect to discussion in a group.

(5) To study the effect of CTP on the components of creativity viz., Fluency, flexibility and originality.
To study the effect of CTP on the components of creativity in relation to the programme correlates.

Tools:

The following test and tool were used for the study:

(1) Creative Ability Test (CAT) developed by J.Z. Patel.
(2) Creative Thinking Programme (CTP) prepared by J.Z. Patel.

Results:

(1) The main effect of the treatment - the training of creativity by creative thinking programme - was significant for the creativity and its components measures: Fluency and Originality.

(2) There is no significant interaction, i.e., combined effects of more than one factor. But the main effect of the two factors, viz., Time duration and Group discussion were found significant on creativity and fluency thinking ability.

(3) The main effect of programme instructor was not significant. Though the programme instructors who were less acquainted with CTP should take active participation in the group discussion followed by each programme.

Study - 12:

A study of the effect of the programme for developing Creative Thinking Ability of students of Std. V - by V.A. Valand.

Sample:

A total sample consisted 40 students, selected by matching equally on pre-test score from the general population i.e., students studying in the class V. Initially, the sample consisted of 160 pupils of class V of three schools of the town Moholel in Kheda district, to whom the Creative Ability Test was administered as a pre-test to match the groups equal for the study from this total sample some were rejected, not being sufficient on matching the groups initially, or being not regular during the programme implementation.

Objectives:

The chief objectives of the study are as follows:

(1) To study the effect of Creative Thinking Programmes on the Creativity of the school children.

(2) To study the effect of CTP on the components of creativity viz., Fluency, flexibility and originality.

(3) To study the effect of sex differences of students on their creativity, viz., Fluency, Flexibility and Originality.

(4) To study the effect of CTP on the components of creativity in relation to the programme correlates.

Findings:

(1) There is no significant difference in Creative Thinking Ability of groups based on sex.
(2) The experimental group is found superior to the controlled group in Creative Thinking Ability.

(3) There is no significant effect of treatment and sex on C.T.A. of the students.

(4) There is no significant difference in fluency, flexibility and originality of groups based on sex.

(5) The experimental group found superior to the controlled group in fluency and originality score.

(6) There is interaction effect of treatment and sex on the fluency, flexibility and originality of the students.

(7) There is no significant difference in flexibility of groups based on treatment and without treatment.

3.3 Creativity and Its Correlations:

The systematic past study of researcher in creativity found out the relationship among intelligence, and academic achievement and several others in past years has been made as follows:

(a) Creativity and Intelligence:

There were the times when creativity and intelligence were thought as one and the same thing. But it is not so now. Now-a-days researchers have tried to establish a class
relationship between these two different mental abilities. Creativity and its components are affected by Intelligence and relationship of intelligence and fluency among students are included in the field.

There is no consensus regarding the relationship between creativity and intelligence and still it is a debatable issue.

(b) Creativity and Achievement:

Fostering Creativity did not have a negative effect on achievement. It gives confidence to the investigators that their attempts for developing creativity may not in any way affect the students' achievement. The under-achievers are given the procedure of problem-definition and problem-solution, the creativity training, motivated then to solve their own problems. Among bright students, the most highly creative ones excel in achievement to as great a degree as do the highest 9.02 students.

(c) Creativity and Personality:

It is related to personality of 9 creative child, creativity and personality growth and trends of creativity components, personal variable and second order personality correlates of creativity, Creativity as related to the values of the Indian adolescent students. The personality structure
of a person also plays an important role in the invention, imagination or production of a creative work.

(d) Creativity and Teacher Training:

Attempts were also made to give some training for the changing behaviour of teachers in their classroom for the development of creative thinking in students. The perspective teachers improved in fluency and flexibility, during the training period, and originality and personal worth during student teaching. Pupils improved in fluency, flexibility and originality but declined in elaboration. Inservice - training should be continued in the operational phase to improve the teachers' familiarity with those progressive educational strategies. Beside the training for teachers, training for administrators was also found to be successful.

(e) Creativity and Education:

The goal of Education is to develop capabilities. Individual expressions, inventiveness and gifted leadership. This cannot be fully attained without the adequate and accurate knowledge of creativity.

There are indications that our whole educational structure is unable to assess creativity. But actually it is a biased notion. Most of teachers do not care much for the unusual 'off-beat' child who give answers. That do not conform to same predetermined idea of what is correct.
Different researches give reviews about teachers creativity and family background - a study of relationship. Creativity and academic achievement among school pupils. Creativity is significantly related to achievement, anxiety, independent education and occupation.

(f) Creativity and Its Measurement:

This includes the trends and status of testing in creativity problems in measurement of creative thinking and their uses.

(g) Researches on Creativity Development:

This is a branch of research in the field of creativity which is the most important. Only a few researches have been done. Some well known researches are listed here, e.g., Special Programme for Developing Creativity, Techniques for Development of Creativity, Creative Problem Solving and also Divergent Thinking Programmes etc.

From the classifications given above, some researches related to the creativity development are discussed here-under in the following categories:

(1) Creativity Development Program
Creative Thinking Programmes.

(2) Creativity Development Studies:
Productive Thinking Programme.
3.4 Rationale of Present Study:

The aim of education in a democratic society is the development of mental abilities and thinking power of the students. The traditional concept of mental ability has been considerably expanded by modern research findings and Guilford's concept of convergent thinking ability - related largely to intelligence and of divergent thinking ability related largely to creativity have same theoretical weight and practical utility. School activity programmes will have to be geared to both convergent and divergent achievements. But it can be seen that as compared to convergent thinking, very little is being done for the development of divergent thinking ability in our schools.

It is found that the gain to creativity can be achieved within a comparatively shorter time of creative instruction in any school subject area or in school endeavour. Creative ability will be more effective if the teaching method includes the strategies which are designed to create favourable conditions. The consistent and systematic attempts put by the teachers to provide these conclusive conditions during teaching, can improve the quality of thinking of the students. It is seen that as compared to convergent thinking, very little is
There are several major problems concerning the programmes utilization and effects, in which further researches are needed.

1. What influence does active teacher participation have on the effectiveness of the problems?

2. What influence does the programme instructor have on the effectiveness of the programme?

3. What influence does distribution of training (time duration to implement the programme) have on the effectiveness of the programme?

The review of the related researches help the investigator to select the independent variable and a research method pertaining to the problem in hand. Moreover, it also helps the investigator to prepare a research design appropriate for the present problem and its objectives.

Thus, this chapter has the details regarding some creative Thinking Development Programmes and its impact in relation to specific psycho-socio variables. On the basis of these studies, it has become easier for the investigator to planning the study procedure systematically.