CHAPTER - II
REVIEW OF RELATED STUDIES

2.1.0 INTRODUCTION

The present study aimed at finding out the effect of Multi-dimensional activity based integrated approach in enhancing cognitive and creative abilities in social studies of elementary school children. Only a few studies have been conducted in India and abroad relating to the present study. And, for laymen's understanding of the available studies relating to present study, a brief description of such studies are given under the following broad heads:

(i) Teaching-learning strategies used for developing creative abilities.
(ii) Teaching-learning strategies used for developing cognitive abilities/achievement in cognitive area.
(iii) Teaching-learning strategies used for developing cognitive and creative abilities simultaneously.
(iv) Teaching-learning strategies used for teaching-learning of social studies / environmental studies.

2.2.0 TEACHING-LEARNING STRATEGIES USED FOR DEVELOPING CREATIVE ABILITIES

Gomes (2005) conducted a study on the problem entitled “Using a creativity focused science programme to foster general creativity in young children”. The purpose of the study was to discern if a creativity focused science curriculum for the kindergarteners at a Montessori early learning centre could increase creativity in students. This action research study included observation of students in two classrooms, one using creativity focused science curriculum and the other using the existing curriculum. The data collected for this interpretative study included interviews with students, surveys and interviews with their parents and teachers, teacher’s observation, and administration of Torrance’s (1981) Thinking Creatively in Action and Movement (TCAM) test. The interpretation of data indicated that the enhanced science curriculum played a role in enhancing the creativity of children in the creativity focused group. The qualitative data
revealed a heightened interest in science and the observation of creative traits, processes and products in the creativity focused group children.

Grawitch; Munz & Kramer (2003) studied the effect of member mood states on creative performance in temporary work groups. The results indicated that positive mood increased creative performance and implementation efficiency, whereas negative mood had no effect.

Niu & Sternberg (2003) in their study maintained that Chinese students’ creativity is increased when given direct instructions to be creative or guidance on how to be creative. Their present study also states that high-stakes standardized tests could impair the development of students’ creativity. They also pointed out that three different factors are posted to be responsible for the discrepancy in rated creativity between Chinese and American students, namely, social values, school pedagogic practices and educational testing systems.

The study conducted by Haward-Jones; Taylor & Sutton (2002) investigated whether the experience of unstructured play in a preceding task may influence the creativity of the young children in subsequent activity. 52 children in the age range 6–7 were randomly allocated to two groups. The first group was allowed to play with salt dough for 25 minutes while the other group followed a structured exercise involving the copying of text from the board. All children were then asked to produce a cottage of a creature, using a controlled range of tissue-paper materials. The procedure was then repeated some days later, with the two groups experiencing the other preceding task. 10 judges judged the creative quality of the work arising. The range of colours and total number of pieces used by each child in each college was recorded. Analysis of the results revealed a significant positive effect of preceding task upon creativity and range of colours.

Svensson; Norlander & Archer (2002) conducted three experimental studies with high school students and university students as subjects in order to investigate the effect of different conditions on the performance of creative task. The effect of working individually (single work group) was compared with working in a group (group-work group). The results of the studies evident that group work showed higher fluency and originality, although the single group showed a greater mean value of fluency.
Bourassa & Vaugeois (2001) examined the effect of regular vs. novice marijuana use on divergent thinking. Ss (aged 21–30 yrs) comprised 60 regular and sixty novice users of marijuana, who completed questionnaires concerning marijuana usage and underwent medical and psychological examination. Ss smoked marijuana, then completed 1 of 3 abridged forms of the Torrance Test of Creative Thinking (E.P. Torrance, 1966) concerning the four divergent thinking factors of fluency, flexibility, originality and elaboration. Results showed that marijuana excerpted no positive effect on divergent thinking in novice users and reduced it in regular users.

Fasco (2001) reviewed the literature concerning the relationship of US public school education and students’ creativity (aged<16 years). Important research areas include: (i) the relationship of cognitive and learning style to creativity; (ii) the transferral of creative thinking skills across domain; (iii) the use of authentic task; (iv) the role of motivation in creative thinking; (v) teachers’ attitude; and the relationship of meta-cognition and creativity. Findings suggest the need to increase the teaching of creativity.

Morse; Morse & Jones (2001) examined the influence of time press, specific stimulus and type of creative prompt on fluency and flexibility scores of 75 under graduates randomly assigned to condition in divergent production tasks. Three stimuli were administered in three-time allotment (2.5, 5 and 7.5 min.), counter balanced with three types of prompts intended to elicit higher fluency, flexibility or originality scores. Dependent variables were fluency and flexibility scores. The results suggest that the time press has a strong and typically linear influence on both fluency and flexibility scores. When the scores were adjusted by time allowed, there was a significant difference across stimuli for flexibility but not for fluency scores. Prompts had very small and non-significant effects. Performance did not differ for groups exposed to longer / shorter Vs. shorter / longer time patterns on successive tasks.

Antonietti (2000) conducted a test-re-test experiment with 450 primary school students ranging in age from 5-7 years. The aim was to assess the effectiveness of a programme devised in 3 different versions to train creative analogical thinking in children. The set of tasks employed to measure
improvements induced by the programme included a test of proportional analogies, a test of ability to map a narrative schema from a familiar to novel tale, an analogical problem solving test and an association test which required Ss to list objects and situations similar to given one and to look for similarities between pairs of given objects or situations. Results show that these activities succeeded in enhancing analogical thinking and that the dimension, which benefited mostly by this training was creativity. In conclusion, the author suggests practical applications that can be used to attempt to train analogical thinking in children.

Fleith (1999) studied the effect of a creative training programme on creative abilities and self-concept in monolingual and bi-lingual elementary classroom. Data were collected through a pre-test–post-test control group design. The quantitative findings of the study indicated that the creativity-training programme slightly improved the creative abilities of students in the treatment group. The results also indicated that the effect of creativity training programme on the self-concept of students in the treatment group was small, and the control group students experienced a substantial decline in self-concept between pre-test and post-test. Qualitative analysis of the study generated three core categories that helps to explain how the creativity training programme as well as the school environment influenced students' creative abilities and self-concept, which are the implementation of the creativity training programme, the degree of bi-lingualism of Brazilian students, and cultural issues.

Eisenberger; Armeli & Pretz (1998) conducted two experiments involving 436 pre-adolescent school children in order to know the effect of promised reward on creativity. In the first study the non-specific promise of reward increased the creativity of picture drawing if children had previously received divergent thinking, training (generating novel uses for physical objects). In the second study, promised reward increased the creativity of children's drawings if current task instructions clarified the necessity of creative performance. Promised reward evidently increases creativity if there is currently or was previously, an explicit positive relationship between creativity and reward.

Hobbs Trapp (1998) studied the effect of an art criticism-training model on the creative productions of selected junior high school students. The purpose of
the study was to determine to what extent an art criticism procedure accounts for variations in junior high and middle school art students' creative productions, as measured by Torrance Test of creative thinking. Following an experimental approach, the treatment group was given art criticism training whereas the control group was not. Results suggest that teaching Feldman's art criticism model may not have significant effect on art students' creative productions.

Bansal & Agarwal (1997) attempted to find out the difference in creative ability of young children of rural and urban community before and after exposure to computers over a period of time. The sample of the study comprised of 24 children studying in Grades – IV & V belonging to both rural and urban areas of primary schools of Banasthali Vidyapitha, Rajasthan. The major findings of the study were: (i) that creative ability improved by pre-test and post-test scores for the treatment group which was given exposure to computer, (ii) it was found that at the initial stage, no significant differences existed in the creative ability of children of rural and urban community, but post-testing increased creative ability of both groups to a great extent, and (iii) it was observed that the rural group was affected more in positive direction as far as means were concerned but the two groups did not differ significantly when compared by post-test.

Gulati (1995) studied the effectiveness of instructional materials to promote creativity in the classroom. The sample of the study comprised of 42 students studying in class-V from a central school. The major findings of the study were as follows: (i) that differences between mean scores of pre-test and post-test were consistently significant both in the case of flexibility and originality, and (ii) as regards to training, the effects were more easily observable in case of flexibility than originality but significant effect was found on measures of originality.

Sharma (1995) designed a study to assess the effectiveness of developed instructional material for facilitating creativity among elementary school children. The sample of the study comprised 160 students (98 boys and 62 girls) of Class-VII, drawn from IDUBSH High School, Bombay. It was concluded from the study that the developed instructional material was found to be effective among the students of flexible time group as well as fixed time group on verbal fluency, verbal flexibility, verbal originality, non-verbal elaboration, non-verbal creativity as well as in developing curiosity.
Gujarathi (1992) conducted a study referring to the problem-preparation of an integrated programme of training in scientific creativity and experimental study of its effects on students of grade-IX.

The objectives of the study were: (i) to prepare an integrated programme of training in scientific creativity, and (ii) to test it experimentally on secondary school students studying in Grade-IX.

Major findings of the study were: (i) on the scientific creativity test, the experimental group received higher Z than expected. The results were highly significant, and (ii) on results for the researcher's scientific test, as the experimental Z score was much higher than the table value of Z on all the four scores of creative abilities, the results were highly significant.

Jawaharalal (1990) conducted a study to find out whether the structured creative teaching programme taught in brainstorming sessions will be useful for fostering creativity among primary school students.

Methodology: Thirty primary school children of standard – IV and V from the Saurashtra school, Madurai constituted the sample of the study.

Major findings: (i) creativity was enhanced in primary school children when they were taught through brainstorming sessions (ii) Both the male and female primary school children had similar enhancement in creative abilities such as fluency, flexibility and originality when they were taught through specially prepared creative programmes.

Kumari (1990) studied the instructional and nurturing effect of synectics model of teaching on creative ability in language. A school with three sections of classes – VII, VIII and IX was selected from the urban areas of Shahabad, Markanda District, Kurukshetra was the sample of study. Experimental method was followed for the study.

Some of the major findings of the study were: (i) with regard to instructional effect, grade levels effected the improvement in language creativity (Hindi, English & General), and (ii) the synetic model of teaching effected the improvement in all the five aspects of language creativity in Hindi, English and General, viz. plot building, dialogue writing, poetic dictation, descriptive style and vocabulary test.
Malhotra (1990) conducted a study in the area of development of language creativity and the main objective of this study was to find out the effects of the synetics method of teaching on the improvement of fluency, flexibility, originality and elaboration factors and their summated scores with respect to (a) plot building, (b) dialogue writing, (c) poetic dictation (d) descriptive style, (e) vocabulary test, and (f) total language creativity. The present study was conducted on class – IX students of Arya Girls High School, Shahabad Markanda (Haryana).

Some of the major findings of the study were : (i) the students who were exposed to the synetic method of teaching showed significant improvement on all the four factors, viz. fluency, flexibility, originality and elaboration as well as on their total scores of the plot building aspect of language creativity, and (ii) the synetics method of teaching affected the improvement of the students on all the four factors, viz., fluency, flexibility, originality and elaboration as well as different other aspects of language creativity like dialogue writing, poetic dictation and descriptive style aspect.

Tripathy & Shukla (1990) conducted a study in creativity area and tried to address itself by developing instructional material for promoting creativity and to see its effectiveness on students’ achievement as well as their capacity for the development of creative thinking.

Methodology : Two groups (experimental and control groups) identified on the basis of pre-testing involving intelligence and achievement in biology and creativity – formed the sample of the study.

Major findings : (i) there were certain dimensions of creativity that could be developed through a training programme, however, there were certain other dimensions which failed to register any noticeable impact on the training programme, and (ii) the training programme did not show any significant gains in terms of originality scores, which are so crucial to creativity.

Shan (1989) examined the effectiveness of certain curricular activities in the development of certain creative thinking of high school students of the backward hill regions of Jammu.
**Major findings**: The overall findings of the study was that – the groups of students who were taught science using various curricular activities, namely brainstorming, problem solving, quiz and project activity gained significantly in verbal fluency, verbal flexibility, verbal originality, elaboration, non-verbal originality, total non-verbal creative thinking and total creative thinking (verbal and non-verbal) as compared to the groups taught by traditional methods of teaching.

**2.3.0 Teaching Learning Strategies Used For Developing Cognitive Abilities / Achievement in Cognitive Area**

Satapathy & Dash (2003) studied the effectiveness of a activity based classroom transaction in terms of quality of achievement of pupils and retention of the competencies learned. The study was carried out in a class-IV in two schools, one large sized urban school and the other, a small sized rural school in and around Bhubaneswar. A two group pre-test and post-test design was adopted. The result of the study states that there was significant increase in the achievement score following activity based teaching as compared to traditional method in both small sized classes of rural and large sized classes of urban school. Similarly, the retention capacity developed through activity based teaching is more than the retention capacity developed through traditional method of teaching.

Cekolin (2001) investigated the effects of self-regulated learning strategy instruction on strategy use and academic achievement in middle school science classes. The findings from this study emphasize the importance of self-regulated learning strategy instruction especially for middle school students.

Din & Calao (2001) studied the effects of playing educational video games on kindergarten achievement. Using a pre-test – post-test design, this study investigated whether 47 kindergarten students who played sony play station (Light span) educational video games learned better than peers who did not play such games. Ss in the experimental group played the games for 40 min. per day in school for 11 weeks. The Wide Range Achievement Test – R3 was used for measuring achievement. Results indicated that the experimental group gained significantly more than the control group in spelling and de-coding areas. No difference was found in the math area.
Messman & Jones-Corley (2001) explored relationships among immediacy, communication apprehension, and learning outcomes between 2 class formats: mixed size sections (i.e., large lecture / break out sections) vs. self-contained sections. The results from 991 undergraduates indicated that students' cognitive learning outcomes were slightly greater in the mixed sized sections. In addition, affective learning decreased for all students from the first day of class, though it decreased slightly more for students in large – lecture / breakout sections.

Yu (2001) studied the effect and implication of embedding the elements of competition in computer assisted co-operative learning situation on cognitive affective and social outcomes for 192, 5th graders studying science topics in Taiwan. The results show that co-operation without inter-group competition endangered better attitudes towards the subject matter and prompted more positive inter-personal relationship within and among the learning groups. Further more, the exchange of ideas and information both within and among the learning groups tended to be more effective and efficient when co-operation did not take place in the context of inter-group competition. Students in the co-operation / no competition condition tended to have higher scores on post-tests than those in the cooperation / competition condition. It is suggested that to promote constructive interactions and to enhance student's affective and social development, cooperation without inter-group competition might be the preferred instructional strategy to adopt.

Iwami (2000) conducted a study having the title 'Direct effect of school based communicative learning'. The purpose of this highly quantitative study is to manifest the direct effects of communicative learning in the contexts of public high school teaching in Japan. A small scale (n=12) experiment was conducted to reveal inter-group differences. The experiment was based on the assumption that there are clear differences in the amount of input from and kinds of interaction with native speakers of English in a communication based learning environment and a traditional, regular learning environment. From the data analysis, it was found that, communicative learning does enhance learners' performance, but not in the way it has been generally assumed or expected. Rather than making the
learners more fluent as might be expected, the direct effect identified were the followings: more active involvement in interactions, provision of rich information, greater degree of encoding, and a more extensive use of clause containing and minimal / phrasal acts.

Panda & Chaudhury (2000) studied the effect of Computer Assisted Learning (CAL) in achieving higher cognitive skills. The sample consisted of 40 students (23 boys and 17 girls) within the age group of 15-17 years selected from Class-XII using cluster sampling method. The findings of the study suggest that computer assisted learning (CAL) resulted in greater learning achievement in all hierarchies of cognitive domain. Male students were found to be superior to female students, in learning physics.

De Russe (1999) compared the academic progress of the student groups taught by teachers who took the cooperative learning – training using the learning index in the area of reading and mathematics, with those of teachers who did not receive the training. Teacher group scores were gathered, recorded and analysed over a three-year period. The study involved 90 teachers over the three years period. Results of the study showed that Mexican–American students taught by teachers trained on cooperative learning scored slightly higher by Texas learning Index (TLI) percentage point on the Texas Assessment of Academic Skills (TAAS) than students whose teachers were not trained on cooperative learning.

Tzuriel; Kaniel; Kanner & Haywood (1999) evaluated the effectiveness of a 10 month early education programme designed to increase learning effectiveness and prepare children with the cognitive tools for school learning in 82 pre-school socio-economically dis-advantaged children (mean age 4.71 years). 52 children (mean age 4.81 years) in a comparison group received a skill based but not cognitively oriented programme. Static and dynamic assessment tests were used to evaluate the effectiveness of the programme along with tests of task–intrinsic motivation and meta-cognitive activity. A 1 year follow up was carried out to study the programme’s effect on cognitive performance and on achievement tests in math and reading comprehension. Ss improved their performance on different cognitive tasks and showed more task intrinsic
motivation and meta cognitive behaviour than did those in the comparison group. In spite of their low intellectual functioning, Ss also closed the gap with the comparison group on all cognitive tasks and showed superiority towards the end of 1st grade.

Volk & Ritchie (1999) conducted a study in order to assess the relative effectiveness of two generative learning strategies (concept maps and manipulation of objects) and to determine if either works better with individual learners or in co-operative learning groups. The study resulted that students starting with concept maps showed higher achievement on delayed post-test than students beginning with manipulation of objects. No difference was found between students working as individuals or co-operative student teams.

Biegler (1998) studied the effectiveness of dramatization as an effective story telling method to increase comprehension. Biegler's study examined two different methods used to increase story comprehension. These methods were implemented on two kindergarten classes. Students from one class listened to stories proceeded by dramatization. Retelling techniques used were role-playing, puppet theatre, flannel board and pantomiming. The other sample had the same stories orally read to them, however, these were followed by teacher instruction and an art activity related to the story. Both the groups were given reduced photocopies of the main parts of the story and asked to put these sequencing strips in correct order by giving them on to construction paper. Results indicated that those students who used dramatization had greater comprehension.

KinCannon; Gleber & Kim (1998) examined the effect of teaching meta cognitive strategies on performance in a self-directed situation. Meta-cognitive awareness was measured before and after treatment. Results indicated that the treatment had a positive effect on learning. The change in meta-cognitive awareness led the researcher to conclude that instructional strategies that teach students to practise meta-cognitive skills while learning course content improves the use and awareness of these skills as well as performance.

Mao & Chang (1998) summarized two companion studies that were designed to investigate the impact of an inquiry teaching method on earth science students' achievement and attitude towards earth science in secondary schools. The experimental group (n=284) received inquiry oriented instruction while the control group (n=237) received a more traditional approach over an
eight week period. Two earth science units including the topics of astronomy and meteorology were developed and taught to both the groups. Analysis of covariance revealed that (i) the inquiry-oriented instructional method produced significantly greater achievement among ninth grade earth science students than the conventional teaching approach on both astronomy content (F=9.45, P<0.01); (ii) and meteorology contents (F=8.41, P<0.01) students in the experimental group developed significantly more positive attitudes towards earth science than did those in the control group (F=9.07, P<0.01). In the light of these two studies, it is therefore suggested that students can learn earth science through the enquiry approach. In addition, these findings support the notion that effective instruction of earth science such as inquiry-oriented instruction should be proposed and implemented in secondary schools.

Bansal & Suvidha (1997) assessed the effectiveness of computer as a tool for testing the cognitive ability of primary school children and for cognitive development. One important objective of the study was to study the developmental changes in the mode of cognitive functioning as the children are exposed to computers for a given period. One of the major findings of that study was that, cognitive ability was significantly increased when the children were exposed to computers for a considerable period of time. Also, the study resulted that computer exposure enhanced the self-monitoring ability of children to a great extent.

Brauer; Grady; Matthews & Wilhite (1997) studied the effect of problem solving on academic achievement in elementary education. Elementary students in an industrial, urban Illinois community constitute the sampling group. The resulting intervention consisted of four important types of problem related activities, i.e. (i) peer mentoring programme, (ii) co-operative learning activities, (iii) conflict resolution activities, and (iv) training in critical thinking. Findings indicated an increase in student critical thinking skills, an improvement in interpersonal skills and an increase in the use of conflict resolution skills.

Householter & Schrock (1997) in their action report project described a programme for enhancing thinking skills to improve the problem solving and decision making of primary school students. Participants were 25 second and 22 third graders in regular education classrooms, but including students with special needs. The intervention consisted of: (i) language arts and mathematics materials
designed to foster problem solving and decision making such as deductive reasoning, analysis, and drawing conclusions as well as activities including co-operative learning, social skills training, family homework activities, student journals of math problems, and co-operative activities with nursing home residents; (ii) a re-design of the language arts and mathematics curricula to reflect skill infusion into the curriculum. The teacher’s role was to guide thinking skills and decision making through questioning and modeling. The results indicated that, there is an increase in student use of problem solving and decision making. Higher order thinking increased in the targeted mathematics and language art skills. Majority of the children improved in reasoning about time, estimates, patterns, mental math and money.

Lane (1997) examined whether cross grade peer tutoring increased student performance on weekly spelling test. Subjects, 07 sixth grader and 19 second graders attending Coal City Elementary School in Raleigh County, West Virginia, spent 10 minutes each day for 09 weeks working on spelling. The experimental group used cross grade peer tutoring and the control group used the traditional method. Results indicated that weekly spelling test scores were substantially higher for those students who used cross grade peer tutoring method.

Kumari & Chhikara (1997) studied the effect of intervention on cognitive function of pre-school children. Experimental design was followed to study the effect of intervention programme. For intervention programme manipulative material was prepared. The result of the study indicated that there was significant improvement in acquisition of cognitive skills of experimental group. The control group did not show improvement.

Lee (1997) studied the effectiveness of an intensive, long-term use of a cooperative learning programme. In that study, the effects of team reward compared to individual reward on students’ academic achievement, attitudes and their feelings of liking or being liked in the English as a second language (ESL) classroom were investigated. Sixty-six fifth grade female students were randomly assigned to two experimental groups: a cooperative learning group and a traditional learning group. Result showed that the cooperative learning group had greater gains in achievement and their attitude towards others and school than a traditional learning group. In contrast, the cooperative learning group and the
traditional learning group showed no difference in their feelings of liking or of being liked.

Joshi & Mohapatra (1995) examined the effectiveness of computer software on the higher mental abilities of school children. The sample of the study comprised of 65 students studying in Class-II from Indore Public School and Rising Star Higher Secondary School, Indore. The finding of the study suggests that – the adjusted mean higher mental ability scores in science of the students taught through developed software package was significantly better from those taught through traditional method when intelligence was taken as co-variate.

Mohanty (1992) studied the relative effectiveness of using the jurisprudential Inquiry Model and the Concept Attainment Model in the cognitive development in moral judgement, moral concept and personal values of secondary school students. Experimental method was followed for the study. The finding of the study states that–JIM was more effective on the development social, economic, knowledge and power values than CAM.

Singh (1992) studied the effectiveness of teaching mathematics through computer assisted instruction and conventional method of instruction on cognitive and non-cognitive variables.

*The main objectives of the study were:* (i) to compare the results of the two groups in mathematical achievement, (ii) to compare the results of the two groups in mathematical achievement sex wise, and (iii) to compare the attitudes towards mathematics of the two groups as whole and also sex wise.

*Major findings of the study were:* (i) the groups taught through CAI in all the schools showed a substantial progress, (ii) the gains in achievement of the pupils of good schools are higher than those of pupils of average and poor school, (iii) the CAI method of teaching mathematics had proved to be more effective, (iv) both boys and girls gained more from the computer treatment, (v) a significant favourable change in the attitude of the pupils of the experimental group over the control group was observed, and (vi) the change in attitude towards mathematics was independent of gender.

Majumdar (1990) examined the impact of story telling on the formation of science concepts among the students of primary classes.
The major objectives of the study were: (i) to study the impact of story telling (stories based on scientific topics) on the formation of science concepts and on the scholastic achievement of primary school children, and (ii) to compare the performance of students on a science concept formation test and scholastic achievement measures.

Methodology: Experimental method was followed for this study. The sample comprised of 32 students of Class – VII drawn from urban primary schools.

Major Findings: The experimental group was significantly better in academic performance than the control group. The experimental group was significantly better in conceptual development than the control group.

Panda (1990) attempted to study the composite effect of a package of certain curricular strategies on selected cognitive and non-cognitive characteristics of the rural primary school students of Orissa. Following an experimental method, the study was conducted. The subjects of study were drawn from a pooled sample of 105 students selected from three oriya medium primary schools situated in rural areas of Bolangir District, Orissa.

Some of the major findings were:

(i) the students who were taught with effective use of the selected curricular strategies achieved more in the subjects of oriya, math., social studies, general science and english as well as in the aggregate in comparison to those who were taught by teachers training without the effective use of these strategies, and

(ii) the students of these treatment groups exhibited a significant increase in study habits and decrease in test anxiety from beginning to the end of the academic session irrespective of the fact whether they were taught with or without effective use of selected curricular strategies.

Jaikhani (1988) studied the effect of an enrichment programme upon IQ scores of lower class children.

The objectives of the study were:

(i) to study the IQ levels of lower class children,
(ii) to formulate an enrichment programme for the cognitive development of children, and

(iii) to study the impact of the enrichment programme upon the IQ scores of lower class children.

Methodology: Using experimental and control groups an enrichment programme of eight weeks duration was administered to the experimental group comprising 35 boys and 35 girls belonging to low socio-economic status.

Major Finding: The experimental group gained significantly more IQ scores but not the control group.

Patnaik (1988) attempted to study the cognitive and linguistic development processes in children's stories.

Some of the main objectives of the study were: (i) to study the effect of different modes of story telling on the memory and comprehension of class-V children, and (ii) to study the co-relation between children's academic achievement, non-verbal intelligence and story writing ability.

The major findings were: (i) the subjects reading text of the story produced significantly better memory and comprehension than seeing pictures only, and (ii) the co-relation between children's intelligence and story writing was positive but not significant.

2.4.0 TEACHING-LEARNING STRATEGIES USED FOR DEVELOPING COGNITIVE AND CREATIVE ABILITIES SIMULTANEOUSLY

Mishra & Basantia (2003) designed an experiment in order to assess the effect of organised creative activities on the development of students' abilities i.e. knowledge, skill, application, creativity etc. at the elementary stage. The study was conducted on 100 pupils who were taken from three classes i.e. Class-III, Class-IV and Class-V. Single group pre-test-post-test design was followed for this experiment. The result of the study indicated that well organised creative activities can enhance different abilities in our school children.

Blumen-Pardo (2002) conducted a study on the effect of teacher-training workshop on creativity, cognition and school achievement of gifted and non-gifted second grade students in Lima Peru. Participants were 231 second graders (125 gifted & 106 non-gifted students) of Lima Public school. Results reveal a significant ability x time interaction in figural creative performance and a condition
Schlichter & Palmer (2002) put forth their view that thirty years of classroom research on the Talent Unlimited Model demonstrates its effectiveness in enhancing creative and critical thinking skill of K-12 students' diverse intellectual ability and achievement, socio-economic level, and interests. Twenty two specific skills described in student-friendly language define the research based cognitive strategies of productive thinking, decision making, planning, forecasting and communication that students use in creative problem solving. These skills in concert with academic skills and knowledge are applied to the curriculum to enrich and enhance students' creative thinking about all areas of instruction. Teachers in both general education and special education including gifted education, engage in the rigorous training of the Talent Unlimited staff development model and contribute to the ongoing research in creative thinking skills instruction.

Singer & Lythcott (2002) stated that various forms of pretend play can enhance school readiness, social skills and creative accomplishment. They also suggested ways in which such play can be linked to cognitive theories of J. Bruner and S. Epstein and to R.J. Sternberg's conception of the triplicate dimensions of successful intelligence, especially the creative and practical components.

Tennyson & Breuer (2002) presented an instructional method to improve problem solving and creativity by employing computer based simulation. The instructional method has been shown to improve higher order thinking strategies. The simulation presented the contextually meaningful problem situations that require learners to analyse and prepare solution proposal(s). The focus of complex-dynamic simulations is to improve and elaborate learner cognitive abilities employed in the service of problem solving and creativity.

Chaudhari, Vaida, Navalakha & Mohapatra (1999) studied the effect of synetics model (SM), gaming strategy (GS) and traditional method upon the self-concept, creativity, and achievement of the learners. A sample of 162 learners of
Grade – VI were divided in to two experimental and one control group drawn from a Govt. School of Indore City.

Some of the major findings of the study were: (i) the SM, the GS and the traditional method produced no significant variations on the mean gain-creativity scores of learners but it did produce significant variations among the mean achievement scores of learners of three groups, and (ii) no significant difference was found between the mean achievement scores of the synetics model and gaming strategy groups of learners, and (iii) the gaming strategy and synetics model treatments were found superior to traditional method on achievement scores.

Kim (1998) studied the effect of creative dance instruction on creative and critical thinking of seventh grade female students in Seoul. This research study aimed to show whether creative dance activity might be better than traditional dance instruction in promoting the conscious problem solving features of (i) creative responses, and (ii) critical thinking. An experimental study was conducted for this purpose. Creative dance proved superior to traditional programme in creative measures according to the results of the study. The study also resulted that the creative dance instructional impact on critical thinking showed inconclusive result.

Mandal (1992) conducted a study to evolve an autonomous creativity cultivation programme for school students and to assess effectiveness of the programme.

The objectives of the studies were: (i) to design and construct an autonomous creativity cultivation programme (ACCP) on the prescribed topics for students of Class – IX in literature, science, mathematics and to introduce it in classroom situation, (ii) to assess its effect on the students in terms of enhancement in creative scores and in academic achievement scores, (iii) to explore the practical implications of the findings, and (iv) to suggest measures for the effective introduction of such programmes in secondary schools.

The major finding indicates that: (i) students of the experimental and control groups did not differ in terms of verbal and composite creative scores. However, a marked improvement of non-verbal creativity was observed among
students of two schools due to the impact of autonomous creativity cultivation programme (ii) the experimental group did not gain in case of english only, and (iii) schools differed in respect of gains in creativity and academic achievement level.

Shah (1992) studied the effectiveness of educational programmes for developing skills of thinking.

The main objectives of the study were: (i) to develop programmes for developing decision making skills and creative thinking skills, (ii) to develop test for measuring decision making skills, and (iii) to examine the effect of the programmes on decision making skills, creative thinking skills and intellectual skills.

Methodology: A 2 x 2 factorial experimental design comprised of 144 boys and girls of grade – IX was followed.

Major findings: (i) the effect of the decision making programme was found to be more highly placed among girls than boys in the samples characterized by a lower intelligence, (ii) the creative thinking skills development programmes led to the development of fluency and originality skills in all the groups, and (iii) the intelligence scores of all the groups showed a significant increase particularly for items of opposite words, class identification, mathematical reasoning and social reasoning.

Jaimini (1991) investigated the effect of two major teaching strategies and their interaction with creativity on learning outcomes in terms of learning efficiency and retention.

The major objectives of the study were: (i) To study the relative effectiveness of teaching through the Advance Organiser Model (AOM), Concept Attainment Model (CAM) and Conventional Model (CM) on (a) conceptual learning, and (b) retention of concepts in relation to their divergent thinking (High and Low divergent thinking).

The major findings of the study indicated that:

(i) AOM and CAM were both more effective than the conventional method (CM) in terms of fostering conceptual learning efficiency in terms of comprehension and application.
(ii) AOM and CAM were both equally effective in concept learning.

(iii) interaction of teaching strategies and divergent thinking was significant in the concept learning of the pupils, and

(iv) the concept retention of the pupils was not significantly influenced by their divergent thinking ability rather it was significantly influenced by the teaching strategy. AOM was more effective than CAM in the retention of concepts by the pupils of high as well as low divergent thinking.

2.5.0 TEACHING-LEARNING STRATEGIES USED FOR TEACHING-LEARNING OF SOCIAL STUDIES / ENVIRONMENTAL STUDIES

Natarajan & Natesan (2004) conducted a study, which aimed at experimenting a quality educational video programme relevant to environmental science subject. Pre-test–post-test equivalent group design was followed for the study. A set of children studying in class-V standard in an urban middle school were taken for the study.

*The findings of the study indicated that:* (i) attainment of concepts and mastery of the competencies can be possible through videocassette technique at primary level, (ii) competency based performance tests provide maximum exposure to the children and motivate them to concentrate on the required competencies, which help them to reach the mastery level, and (iii) competency based teaching of environmental science through videocassette method help in acquisition of different performance skills and enhances the level of listening and reading abilities among students.

Panda & Basantia (2004) studied the effectiveness of activity based joyful learning approach (ABJL) over traditional method of teaching (TMT) in achieving inter-disciplinary minimum level of learning (MLL) competencies in the selected four areas of language, awareness to physical and social environment, health and hygiene, and art and craft through the teaching of environmental studies. Randomised two group pre-test and post-test design was followed for this experiment. Forty children for experimental group and forty children for control group were selected. The study was conducted on Cass-III students. The experimental group was taught through ABJL approach and the control group
was taught through TMT approach. The findings of the experiment resulted that ABJL is a suitable strategy for achieving inter-disciplinary MLL competencies through the teaching of environmental studies at the primary level than the TMT approach.

Mishra & Basantia (2003) attempted to examine the effect of competency based evaluation on students' attainment at primary level. The study was conducted on Standard-II students in the subject environmental studies. Single group pre-test–post-test design was followed for this experiment. The experiment group was comprised of 74 children. The result of the study indicated that systematic and well-planned competency based evaluation has profound implication on the attainment of achievement of the students.

Sharma & Renu (2003) studied the effectiveness of social inquiry model on pupils' achievement in social science. The main objective of the study was to study the effectiveness of social inquiry model and conventional teaching method in relation to pupils' achievement in social sciences. The research investigation was carried out on eighty students of Class-VII selected from a Government High School of Rahtak. Control group pre-test–post-test design was followed to conduct the experiment. The result of the study indicated that students taught social science through social inquiry model produced the superior performance as compared to students taught by conventional method of teaching.

Holliday (2001) conducted a study referring to the use of co-operative learning in a middle school computer laboratory. In this study, 4 heterogeneous groups were formed from 52 students, with male and female partners in each group. The task was the incorporation of virtual field trip in to group projects for social studies. Students were assigned the planning and creation of virtual travel to a foreign country, and they were to report to the computer laboratory once a week for this project. At the end of the virtual field trip students were asked to apply the lessons they had learned to an individual experience. This exercise, a "visit" to an individual location, served as the application part of the 9 week term grade. An overall result of the project was that the computer skills of all students improved. There was a significant relationship between cooperative learning and students' academic achievement.

Beam (2000) compared the social studies concepts of fifth grade students involved in two different modes of instruction in a public school setting.
The two modes of instruction, the theory of multiple intelligences and traditional textbook-teacher instruction were the bases for determining if there is a difference in the mean scores of the control and the experimental group. Twenty-four fifth grade students participated in the five-week study. The control group was taught in the traditional textbook-teacher mode of instruction and the experimental group was instructed by using the process of the theory of multiple intelligences. Result of the present study indicated that two modes of instruction were effective in teaching social studies concepts.

Holliday (2000) conducted a study referring to a problem entitled “the development of Jigsaw IV in a secondary social studies classroom”. Holliday mentioned that the history of cooperative learning at the elementary level is well documented. The research and utilization of cooperative learning at secondary level is limited. The present research of Holliday (2000) aimed at contributing to the literature on cooperative learning, especially Jigsaw II at the secondary level. The research also represented a continuation of research conducted on Jigsaw II and III subsequently leading to the development of Jigsaw IV as a cooperative learning strategy. Subjects in all three researches were 100 nineth grade geography students at inner city school situated in a gulf coast state. Findings suggest that Jigsaw IV answered the concerns of students and teachers using Jigsaw II and had a positive impact on the students’ academic achievement.

Al-Shadifat (1999) studied to determine the attitudes of selected teachers towards the use of computers in teaching social studies at elementary school level in the same school system and to asses the degree to which computer technology was being utilized in teaching social-studies at elementary school level in the Lincoln Public Schools in Lincoln, Nebraska. The researcher was able to make recommendations based on findings and provided an understanding for the instructional applications of the use of computers in the social studies programme.

Aviles (1999) made a qualitative study of mastery learning instruction versus non-mastery instruction in an undergraduate social work class. A quasi-experimental group design with repeated measures was used to contrast mastery learning and non-mastery learning instructions for 137 under-graduates in 4 sections of an introductory social work course. One instructor taught two course sections with mastery learning and another instructor taught two sections with
non-mastery learning but the sections had identical contents, examinations and texts. Both the methods resulted in similar achievement, retention, instructor hours spent and changes in attitude towards course topic.

Sharma (1994) studied the effectiveness of certain teaching techniques on the higher order learning outcomes. The study was focussed on teaching of social science comprising geography and civics through the techniques of brain-storming, problem solving, project and conventional method for engendering higher order taxonomic categories of application, analysis, synthesis and evaluation, and to measure the effect of evolved higher order learning outcomes through the self developed test of higher order learning outcomes.

Some of the major findings of the study were: (i) all the techniques i.e. brain-storming, problem solving, project and conventional method had significantly positive effect on the development of category wise as well as sum total higher order learning outcomes in teaching of geography and civics in social science on comparison of their gainful post-test scores with pre-test scores, and (ii) for the development of analysis level of higher order learning outcome in teaching of geography, the project techniques proved significantly more effective; and in the teaching of civics for the enhancement of synthesis level of higher order learning outcomes all the four techniques were found equally effective.

Patnaik & Mohanan (1993) investigated the relative effectiveness of the advance organizer model of teaching and conventional method on the attainment of historical concepts by class-VII students. Forty-eight students of Class – VII ranging in age from 12 to 14 years were selected from the Demonstration Multi-purpose school, Mysore.

The major findings of the study were: (i) the results in terms of students’ achievement taught by the use of advance organizer were better than the students taught by conventional method, and (ii) there was no significant difference between the experimental and the control group in case of retention.

Pahuja (1992) conducted an experimental study and that study aimed at assessing the effectiveness of peer tutoring on verbal and spatial abilities and academic achievement of secondary stage students in geography.

Major findings of the study were: (i) the peer tutoring strategy had a significant role in increasing the verbal and spatial abilities as well as in raising the level of entire academic achievement of the students in the subject, (ii)
teaching strategy was found to be more suitable for low and average achievers and learning disabled students, (iii) peer tutoring was helpful in developing a sense of accomplishment, and (iv) peer tutors made progress in mastering the subjects.

Gangopadhyaya (1991) studied the relative effectiveness of teachers' classroom techniques in relation to students' achievement. The objectives of the study were to find out the relative effectiveness of four techniques of teaching (i) lecturing, (ii) lecturing and explanation, (iii) lecturing and explanation with question answering, and (iv) Lecturing and explanation with question-answering by using the feed back on development of the achievement of the pupils in history of Class-IX in the teaching-learning situation.

Major findings of the study indicated that : Learning and explanation showed more effectiveness than lecturing method. Similarly, lecturing and explanation with question-answering showed more effectiveness than lecturing and explanation method. Similarly, lecturing and explanation with question-answering by using feed back sequence showed more effectiveness than the other three methods of teaching.

Kulkarni (1991) studied about the use of drama in improving teaching-learning process. The main objective of the study was to find out the effects of dramatic method over traditional method of teaching in improving the learning achievement and related values in the subject history of Class–V.

Major finding indicated that : The children studied through dramatic method secured more marks than the children studied through traditional method of teaching. The students under the dramatic method had been able to express their ideas through various creative abilities. Similarly, the study also revealed that a large portion (95%) of children felt that they could now develop other different textual themes through drama.

Shahi (1989) made a comparative study of inductive and deductive programming and the traditional teaching of physical geography at the secondary stage. The sample consisted of 180 school final students, 60 each in the control group, in experimental group–I and in experimental Group–II from randomly drawn schools in Patna.
Some of the major findings of the study were: (i) experimental group – I following inductive programme was found to be significantly better than the control group following the traditional method, (ii) experimental group – II following the deductive programme was found to be significantly better than control group, (iii) the subjects following inductive programme performed significantly better as compared to the subjects following deductive programmes, and (iv) the subjects following inductive programme were found to be significantly better as compared to the subjects following the traditional method.

Das Gupta (1988) conducted a study, which focused on teaching school economics by the personalised system of Instruction (PSI). The sample of the study consisted of 50 students from Class–IX of a school situated at Chand Nagar in the district of Hooghly, West Bengal.

The major findings of the study were: (i) there was significant difference between PSI group and the traditional lesson plan method in six unit end tests out of a total 15 unit end tests, and (ii) on comprehensive retention and attitude tests, there was no significant difference between the two groups.

Dhamija (1985) studied the effectiveness of three approaches of instruction-conventional, radio-vision and modular approach on achievement of students. The study was conducted on class-VI students and the main objective of the study was to find out the relative effectiveness of three methods i.e. conventional, radio-vision and modular approach on the achievement of the students of social studies.

The major findings indicated that: It was found that modular approach has greater effect upon the achievement of pupils than the radio-vision approach. Similarly, the radio vision approach has greater effect upon achievement of pupils than conventional method of teaching.