

CHAPTER - 2

REVIEW OF RELATED LITERATURE.

CHAPTER II

REVIEW OF RELATED LITERATURE.

2.1.0 Introduction and Review of Related Studies

The review of the literature is an important part of research and is also carried out in educational research. The review of the literature in educational research provides us with the means of getting to the particular fields of knowledge. Until researcher learn what are the studies already under taken and what remains still to be studied, he/she cannot develop a research project that will contribute to furthering knowledge in that field. Thus, the literature in any field forms the foundation upon which all- future research work must be built.

As in this study an attempt has been made to investigate the influence of constructivist approach on achievement of class V students in geometry-concept pertaining to angle. The researches related directly or indirectly to it were reviewed.

In the present chapter the researcher to present the literature and research studies pertaining to variables under study. The review is presented fewer than four areas, such as.

- Studies related to Instructional Material
- Studies related to Achievement In Mathematics.
- Studies related to Activity- Based Teaching Learning Strategy.
- Studies related to Classroom Teaching/Instructional Process.

Studies Related to Instructional Material

- ❖ Shah, J.C. (1981). To develop and try out programmed material in mathematics for student of class V. The main objectives were: (I) To develop programmed material on various units of the mathematics syllabus of class V. (II) To try out the same on children of class V from the selected schools. The findings of the study were : (I) Programmed material on the selected units was effective. (II) The reaction of the student and the teacher was favourable.

- ❖ Bhagwat, Sunita A. (1992). To prepare a package of Divergent production Type problems in mathematics and to study the Effectiveness of the package Against level of Intelligence and Sex Differences for standard VII Students in Pune City. Ph.D. Education. The main objectives were: (I) To prepare different production type problems on the standard VIII mathematics syllabus in Maharashtra state. (II) To test the effectiveness of the package against the level of intelligence for standard VIII students. (III) To test the effectiveness of the package against the sex differences of standard VIII students. An incidental sample of 50 students (25 boys and girls) was chosen for pilot study. A similar procedure was followed for the main study sample was divided into two groups of 50 each on the basis of level of intelligence. The tools used to collect data included, a standardized test measuring creativity in mathematics, Reven's Progressive Matrices, a package of divergent production type problems prepared by the researcher. The experiment was concluded using the pre test, post test group design. The data we analyzed by using correlated "t" test and analysis of co-variance. The Major Findings were : (i) There was a significant increase in the post test scores in the case of both girls and boys.(ii) Taking into consideration the three levels of intelligence, it was found that there was a significant increase in the post test scores in the case of both boys and girls.

- ❖ Bhatia & Kusum (1992). Identification and Remedy of Difficulties in Learning Fractional with Programmed Instructional material. Objectives : (i) To develop programmed instructional material on fractional number for student of class V. (ii) To use programmed instructional material as a remedial material. (iii) To test the effectiveness of programmed instructional material in classroom teaching for the students of class V (iv) To test the significance difference between the traditional method of teaching and teaching through programmed, instructional material. The Major Findings were : (i) Teaching and learning through programmed instruction could definitely help both students and teachers. (ii) Students receiving the programmed instruction material did better in post test as compared to the other group. (iii) The programmed instructional material worked

effectively as a remedial tool. (iv) programmed instructional material not only helped the students to learn better but also helped the teacher to know how the students learn better

Studies Related to Achievement in Mathematics

- ❖ Vyas, C.S. (1983). Development of Symbol Picture Logic Programmed (SPLP) and to study its effect on Mathematics Achievement -A system approach. Objectives : (i) To develop a SPLP on the basis of the fundamental of symbolic logic.(ii)To study the effectiveness of the SPLP on the achievement in mathematics.(iii)To identify the effect of the SPLP in the context of variables like intelligence and syllogistic reasoning ability.(iv)To find the effectiveness of the SPLP in the context of other variables like parent education, sex and the Choice of mathematics course at the S.S.C. level.

The SPLP was developed keeping in mind the basis element of logic to be included in set programmed and the basic connectives in symbol picture logic, the equivalent group technique was adopted. The tool was used to measure Intelligence K.G. Desai, Intelligence test to find the effect of SPLP in relation to achievement, parent's education and sex. The Major Findings were : (i) The student of the experimental group who were given a treatment of the SPLP showed better achievement in mathematics than the control group students. (ii) The students with high intelligence benefited more by SPLP by better achievement in mathematics than those who possessed low intelligence. (iii) The students possessing high reasoning ability benefited more by the SPLP by better achievement in mathematics than these who possessed low reasoning ability. (iv)There was no interaction between treatment and intelligence. (v) There was no interaction between treatment and syllogistic reasoning ability. (vi) There was no interaction effect of intelligence and syllogistic reasoning ability of the students. (vii) There was no interaction among the programmed, intelligence, and syllogistic reasoning ability. This showed that the achievement in mathematics was independent of these three variables. (viii) The students of the experiment group

possessing high intelligence and high reasoning did better in achievement in mathematics.

- ❖ Weeb & Cullain (1983) conducted a study on relationships among students and group characteristic, group interaction and achievement in small groups in mathematics classroom and found that group's interaction tended to be stable overtime, both in average frequency and in individual students relative levels of participation.
- ❖ Varma (1998). 'A study of the school mathematics project : towards freedom from fear. *Objectives* : (i) Acknowledge that the present way of teaching mathematics particularly in the primary classes leaves something to be desired.(ii) Understand the specific doses of the fear of mathematics in children. (iii) Move towards a curriculum that removes these causes and improves the learning of mathematics.

The investigator founded that in the alternative scheme that they are proposing, the introduction of operations with fractions is delayed till children are at least a full year older and correspondingly that much more mature. They are then more likely to understand that the rules for operations on fractions are consistent with the rules for whole numbers and decimals. We believe this will lead to greater understanding, better performance, less frustrations and a consequent reduction in the fear of mathematics among children goals we would all dearly wish to achieve.

Studies Related to Activity Based teaching learning strategy :

- ❖ Jain (1994) had taken up a study on effectiveness of activity based teaching strategies using O.B. science kit. *Objectives* : (i) To design activity- based strategies using O.B. kit. (ii) To study the effectiveness of activity based classroom strategies using O.B. Kit.

The sample included 46 boys and 42 girls of grade IV. For various purposes of the study the tools were used standard progressive matrices and achievement test in EVS constructed by the investigator. The Major Findings were : (i) The activity based teaching strategies are far more effective than the traditional method. (ii) Oral responses of

the students at the primary stage are better than their written responses.

- ❖ Deshmukh (1997) designed a study to develop alternative strategies and support activities, as well as instructional material to facilitate learning of the unit "vulgar fraction" in the mathematics syllabus of standard V. ' It was found that if the child learns through games, he does not feel the stress of learning, and learning becomes easier and enjoyable.
- ❖ Rao (1999) Conducted a study on the effectiveness of activity packs in teaching environmental studies II in improving the achievement levels of students. Objectives : Study the effect of teaching through the use of activity- packs in eight unit of class IV MLL competencies in environmental studies II. (i) Study the effectiveness of activity- packs on the achievement of mastery of learning in the competencies. (ii) Compare the efficacy of activity packs in experimental approach with the teaching strategies followed by the teachers. (iii) See the effect of activity packs in attainment levels of students. The major findings were : (i) The activity packs used had shown as very effective in achieving target performance. (ii)The activity- packs provided opportunities to the students for self learning which increased learning efficiency among the student. (iii) The activity- packs were encouraged independent study habits among the students, as they were provided with directions which were helpful for independent study.
- ❖ Reddy and Ramer (1995), The effectiveness of multimedia based modular approach in teaching mathematics to low achievers. The present study is an attempt to develop multimedia modules for mathematics for the use of low achievers studying in standard VIII and to measure their effectiveness and also asses their advantage over the traditional lecturer method. Findings revealed that the experiment group performed significantly better than the control group on the post test.

Studies Related to Classroom Teaching/Instructional process :

- ❖ Dutta, A (1990) has discussed diagnosis and prevention of learning disabilities in the reasoning powers of the students in geometry. Dutta, A (1990) finds that the disabilities are there because the teaching of geometry is geared to the needs of the most able students; there are no experiments to strengthen the teaching of geometry and the relation of geometry and physical space is not explored. Dutta, A (1990) finds that the use of audio-visual materials leads to greater interest, clearer understanding and longer retention of geometrical concepts. The teaching of geometry has been a subject of debate and Dutta, A (1990) has made some contribution to it.
- ❖ Duren & Cherrington (1992) Studied the relative effect of co-operative bases independent practices following the instructional period of introducing mathematical problem solving strategies. The result of the test indicated that the students who worked co-operatively were able to remember and apply the problem solving strategies better than the students for the independent practices classes. Results also shows that the students were more willingly to take a problem longer in the co-operative groups from teacher observation and notes, students in the co-operative group classes were more open to alternative strategies and received much more corrective feedback from peers.
- ❖ Bussama (1993) conducted a study to examine the effect of simulation technique in the teaching of mathematics with reference to one subject area "matrices". This study was conducted on 30 students, aged between 12 and 13 years, who were divided into experimental and control groups. An objective type test was administered in order to collect the relevant data. The data were analyzed using mean, SD and 't' test. In study the simulation technique was found better in learning mathematical topics than the traditional method.
- ❖ Knubfer (1993) Conducted a study to investigate the effect on students of ability grouping on geometry learning transfer after a semester of Instruction with Logo Environment. The Logo Distinction took place during the first three months of the second semester over

all geometry post test revealed a significant difference in the main effect based ability no significant differences in heterogeneous grouping pattern were found. The lowest mean Score was accomplished by the low ability students who were grouped homogeneously. The mean post test percentage score on the overall geometry test shows high ability students scored higher in the homogeneous group, while average and low ability students scored higher in the heterogeneous group.

An Overall View :

The researcher has presented an extensive elaborate review of the related studies done in the field of activity based teaching learning strategy; and pertaining to instructional material, instructional process & achievement in mathematics. The researcher found some gaps and deficiencies after a thorough study of the past research studies. An overall view of the review reveals the fact that even though there is a lot of research conducted in the field of activity- based teaching by Jain (1994), Dash (1996), Deshmukh (1997), Pandhi (1998), Rao (1999), Meera (2005) but in which very few studies were conducted to find out the effect of activity based teaching learning strategy in mathematics and no study was done influence of constructivist approach on achievement of class V students in geometry. It is also clear from the review that interventional studies are at a decrease. There is a wide scope for the further research.