

CHAPTER-1

INTRODUCTION

1.1 Introduction: -

Education is a process, which begins at the cradle and ends at coffin. It helps the individual to develop his /her talents, powers, interests and ambitions in an integrated and harmonious way. Education aims at developing the innate potentialities and unique individuality of each child according to his/her abilities. To realize this, attempt is made at every level to provide planned & systematic learning experience called curriculum.

The **National Policy On Education (1986)** in para. 1.10 clearly states “In the Indian way of thinking, a human being is a positive asset and a precious national resource which needs to be cherished nurtured and developed with tenderness and care, coupled. Each individuals growth presents, a different range of problems and requirements, at every stage of education. This complex and dynamic growth process needs to be planned meticulously and executed with great sensitivity.”

According To Diwan (1987), A child being an adult in the making is a precious national resource, which needs to be moulded and nurtured in order to make him/her functional component of the scientifically conscious emerging society of India. To achieve this the child has to be introduced to the scientific culture right from the elementary stage.

The progress of our nation depends to a very great extent on the quality of human resources. Only by building up this rich cognitive capital can we forge ahead as a nation to meet the challenges of the coming thousand years. The thrust shall have to be on launching a crusade for quality, on improving the internal efficiency of the system, making the teaching learning process more purposive joyful and child centered galvanizes the promoters of quality and achievement. Synergistic momentum towards the goal of quality of elementary education for all.

In school curriculum, mathematics plays an important role. Every-body needs some knowledge of mathematics in one way or the other. But it is felt that for an ordinary man, the knowledge acquired during the primary and middle stage will suffice. In school curriculum, there is some basic subject, such as

language, social science, and science, mathematics, in which the place of mathematics is vital.

Why should every body learn mathematics? Why should this subject be taught to everybody? What is the place of mathematics in any scheme of education? What is the importance of this subject in life and in school curriculum? Above all, what is mathematics? It is very difficult to answer satisfactorily all the questions, yet according to various definitions, mathematics is the science of measurement, quality and magnitude. According to **New English Dictionary-“ Mathematics – in a strict sense is the abstract science which investigates deductively the conclusions implicit in the elementary conceptions of the spatial and numerical relations.”** It has also been defined as the science of number and space. Its Hindi or Punjabi name is ‘**Ganita**’ which means the science of calculation; it is a systematized organized and exact branch of science.

Locke has said, “ **Mathematics is a way to settle in the mind a habit of reasoning.**” **Lindsay** says, “ **Mathematics is the language of physical sciences and certainly no more marvelous language was ever created by the mind of man.**”

Mathematics has a practical value in life. We can neither know things, correctly nor can we have practical utility of calculation, unless, we have the knowledge of mathematics. Counting, addition, subtraction, multiplication, division, weighing, measuring, selling, buying and many more are simple and fundamental processes of mathematics which have got an immense practical value in daily life. Apart from the personal life, mathematics has an importance in social life as well. Mathematics does not have a practical value only, it has a cultural & disciplinary value also and i.e. why it occupies an important place in the elementary primary secondary & senior secondary curriculum. **Napoleon** said, “**The progress and the improvement of mathematics are linked to the property of the state.**” According To **Socrates-“Mathematics is the gate and key to all sciences.”**

In India, since ancient time great emphasis has been placed on mathematics teaching and learning. The Education Commission (1964-66) recommended mathematics as a compulsory subject for students at school level. The Commission seemed to have been influenced by international opinion at that particular time and favored new mathematics, which later prevailed Secondary education. That was the era of facts and the algebra of sets.



According to ten-year school curriculum (1975) Mathematics has helped men to quantify ideas to be precise and to utilize spatial concepts in his day-to-day living. Its place in the sciences and in practical arts forms the informational and computational stand points. In a society, which is rapidly transforming itself into an industrial and technological society, Mathematical literacy is essential for every citizen. The objectives of the Mathematics teaching in school as per this curriculum were-

- (a) To cultivate Mathematical way of thinking among students i.e. in terms of carrying our experiments with numbers & geometric forms making hypothesis, verifying them with further observation and experiments generalizing them, trying to find profits and making abstractions etc.
- (b) The student should be able to quantify their experience of the world around them and to understand the process of applying mathematics to real life problems. The significance of mathematics for the school curriculums has been accepted by all educationists of both per and pot independence era.

The NPE-1986., has also emphasized the importance of mathematics as-
“Mathematics should be visualized as the vehicle to train a child to think, reason, analyze and to articulate logically. A part from being a specific subject, it should be concomitant to any subject involving analysis and reasoning.”

Earlier, the stress was given on quantitative development of education but now a day all educationists and education policy maker are more concerned regarding the qualitative development of education. To achieve this goal, National Policy On Education 1986 in para 5.6-clearly state “a warm, welcoming and encouraging approach, in which all concerned share a solicitude for the needs of the child, is the best motivation for the child to attend school and learn, a child centered and activity based processes of learning should be adopted at the primary stage. Child centered education is concerned with various teaching-learning strategies which makes learning environment interesting and joyful.”

The major objectives of teaching mathematics cannot be achieved through the approach being followed commonly in schools. It is observed that a teacher-centered method of teaching is commonly used in classroom in which the teachers states the rules and makes the pupils memorizing them by heart and

repeat them in application over and over again. While teaching geometry, teacher often states and proves theorems and then expects the pupils to use them in exercises. In this case, learning is equated with producing exact copy of what is in teacher's mind. Is this the real aim of teaching? Should we produce dependent imitators rather than creative innovators? The answer is definitely No, with a capital "N".

Modern active teaching methods are learner centered. By these methods, important concepts and properties are distinguished and fixed in the mind by being encountered repeatedly and in varied and effective situations. This provides an opportunity to pupils to experience, the joy of independent learning. The final outcome of the pupils should also not merely satisfy the teacher. He should be curious to know, how the pupils learn.

From ongoing research of child center learning strategy, learner- learner interaction learning strategy may be one of the effective contributors to wards the enhancement of the quality of education.

The learner-learner interaction may be as old as civilization itself. Sociologist and anthropologist generally agree, that languages and society must have been developed from Co-operative endeavors of early man.

Johnson et al (1984) stressed on four basic elements, which must be included for small group learning to be truly co-operative. The first is positive inter dependence of students within the group i.e. students must be truly dependent on one another. Second aspect is face-to-face interaction. The interactions and verbal interchange among the students that are promoted by positive interdependence have the greatest effect on educational outcomes. The third is individual accountability in which all students within the group are responsible for learning material and the fourth component is the appropriate use of interpersonal skills in the group. These skills must be taught, students must be given time for analyzing how well their groups are functioning. **"Group work for improving academic achievement"**.

It is well known that how method of teaching takes place. Methods and techniques of teaching used by regular teacher are rooted in verbal teaching at its best using the B.B. Traditional teaching is characterized, by imparting of knowledge through statements, dictation talk and a few at all demonstration.

The existing system has failed to solve the problem of participation and achievement due to several reasons. Some of the major reasons for this anomalous state has been.

- Pupils act as a passive learner or listener or receptors of knowledge.
- 40 to 50 students are Jam packed in to a room called classroom.
- The teacher talks for most of the time say 70% to 90% of the time.
- Pupils seldom get opportunity to initiate questions.
- The teacher emphasizes on rote memorization.
- Only a few people from each grade have the limited opportunity to participate actively.
- Due to pressure of time, the teacher expects pupils' reply, to the questions, posed by the teacher in only one or two words or a small sentence. It obstructs their appropriate learning, creativity & thought.

1.2 Need and Importance of the study: -

To overcome drawbacks of the present day school system, a new approach is needed for overall development of the learner. New approaches to learning are needed for qualitative improvement in the educational system. Research on various approaches to learning has been conducted in the west. But such experiments in India are very few. In view of the advantages of some new approaches to learning it is essential that new learning approaches should be investigated in India also.

There are various approaches to learning, such as peer tutoring, individual learning or independent learning, Co-operative learning etc., which have been experimented in the west. This approach has produced significantly good results when tried on handicapped and nonhandicapped students in the integrated education setting.

Generally in classroom, we use traditional teaching method. By traditional teaching method, we mean any teaching-learning situation, which does not require strict dyadic interaction among pupils and where the teacher 90% of the

time dominates the teaching learning process. In traditional method of teaching there is hardly any scope for interaction among students. As we know that every coin has two faces, similarly traditional teaching also has some advantages and disadvantages as well.

When the number of students in class is very large, this method is the only way-out. When a vast syllabus is to be covered in a short time. This method is suitable. The situation becomes impressive. When the teacher is delivering his teacher fluently, the students are listening attentively and there is pin drop silence among them. An outsider forms a good impression of the discipline in the school. The method is convenient for the teacher. All of these can be defined as the advantages of this method.

On other hand, many disadvantages may be defined as follows. The method gives a false sense of satisfaction, which is dangerous and harmful. Receiving and memo rising bits of information is not so import a purpose of the study of mathematics as it is thought to be. Rather, its study is more concerned with the thinking and reasoning power of the learner. The students may remain inattentive during lecture. They remain passive. Experimentation is totally neglected. There is no opportunity for the students to discover and find out facts for them selves. Homework is likely to be very heavy.

Learner-learner interaction strategy is characterized by active participation of the learner and include problem solving, inquiry approach and learning by doing. In this approach, instead of adopting a centralized teaching role, learning in dyads involving face-to-face interaction between pupils-pupils and between pupils-teachers is stressed. Slaving, Guskey and Johnson & Johanson have carried out extensive research on cooperative learning. There is an urgent need for Experimenting with different learning approaches in order to see their effectiveness in comparison with traditional method of learning. Learner-learner interaction strategy of learning is one of the learning approaches, which is modified form of the cooperative learning, peer tutoring, & problem solving method. It can be easily used and adapted in Indian classroom.

In view of the fact that with large number of students and on account of failure of traditional teaching approaches, a new learning approach in developing the needed competencies in students must be experimented with keeping in mind the Indian classrooms. Learner-learner interaction strategy of learning provides greater freedom in learning and students are encouraged to learn through mutual cooperation.

Planning teaching learning in small groups provides a potential learning environment. It has the advantages such as the following.

- The pupils who generally remain quiet and inactive in the whole class teaching talk and participate in small group.
- They can be initiated into their own learning style and thinking aloud.
- They can develop confidence in themselves as learner.
- They can develop awareness to compare with each other and improve.
- The pupil gets more opportunities to reinforce their previous concepts. The pupils learn to organize their own experience and thoughts.

On the basis of the above advantages of learner - learner interaction strategy of learning, its need and importance in the present context is obvious.

1.3 Statement of the problem: -

The present study is under taken keeping in view the influence of learner-learner interaction on students mathematics achievement with respect to conventional method of teaching and hence titled as follows: -

“ A Study of The Influence of Learner-Learner Interaction on Mathematics Achievement of Class V Students of D S Bhopal.”

1.4 Objectives of the study: -

The objectives of the study were-

1. To study the influence of learner –learner interactions on mathematics achievement as compared with traditional method of teaching.

2. To compare the influence of learner-learner interaction on mathematics achievement on boys and girls of class Vth.
3. To study the influence of learner-learner interaction on mathematics Achievements on boys of class Vth.
4. To study the influence of learner-learner interaction on mathematics achievements on girls of class Vth.
5. To compare the influence of traditional method of teaching on mathematics achievement on boys & girls of class V.
6. To analyze the levels of improvement among class Vth students in achievement after teaching learner-learner interaction strategy.
7. To analyze the levels of improvement among class Vth boys in achievement after using learner-learner interaction strategy.
8. To analyze the levels of improvement among class Vth girls in achievement after using learner-learner interaction strategy.
9. To analyze the levels of improvement among class Vth students in achievement after using traditional method.
10. To analyze the levels of improvement among class Vth boys in achievement after using traditional method.
11. To analyze the levels of improvement among class Vth girls in achievement after using traditional method.

1.4 Hypothesis of the study: -

The null hypothesis of the study was as follows.

1. Learner-learner interaction strategy and traditional teaching methods have the same effect on the mathematics achievement of class Vth students.

2. Learner-learner interaction strategy has same effect on boys and girls of class Vth.
3. Learner- learner interaction strategy and traditional teaching methods have same effect on the mathematics achievement of class Vth boys.
4. Learner-learner interaction strategy and traditional teaching methods have same effect on the mathematics achievement of class Vth girls.
5. Traditional method. Of teaching has same effect on boys and girls of class Vth.
6. There is no improvement in achievement of students after teaching through learner-learner interaction strategy.
7. There is no improvement in achievement of boys after teaching through learner-learner interaction strategy.
8. There is no improvement in achievement of girls after teaching through learner-learner interaction strategy.
9. There is no improvement in achievement of students after teaching through traditional method of teaching.
10. There is no improvement in achievement of boys after teaching through traditional method of teaching.
11. There is no improvement in achievement of girls after teaching through traditional method of teaching.

1.5 Definition of Key terms: -

1. **Learner-learner interaction:** -means that after giving the concepts on the decided topic, the interaction on the topic by the two or more pupils is called learner-learner interaction. It can also be defined as the modified co-operative learning situation, attaining dyadic interaction (among learners) leading to the teacher suggested task completion.

2. **Influence:** - Influence in this study may be defined as the resulting state or condition as a consequence of using learner-learner interaction learning approach.

3. **Mathematics Achievement:** - Scores obtained by the students in the mathematics test paper is taken as achievement of the students & performance in school or college in a standardized series of education tests. The term is used more generally to describe performance in the subjects of curriculum.

4. **Traditional teaching method:** - The regular teachers generally use inductive, deductive, synthetic, analytic methods. We can define traditional teaching method by following the law of negation for definition as that teaching learning situation, which does not require strict dyadic interaction among pupils and where the teaching learning process is dominated 90% of the time by the teacher.

1.6 Limitations of the study: -

Following were the limitations of the study:

- * The small sample was taken due to limited scope and time of the study.
- * The study was conducted on only one class of one school only in Bhopal.
- * Random selection was not possible because authorities of school did not permit random selection of students.
- * Standardized tools were not available for this study, so investigator constructed tool.
- * Sophisticated statistical technique for testing the reliability and validity couldn't be used because of the limited facilities.