



Need of Activity Method of Teaching Mathematics at Primary Level

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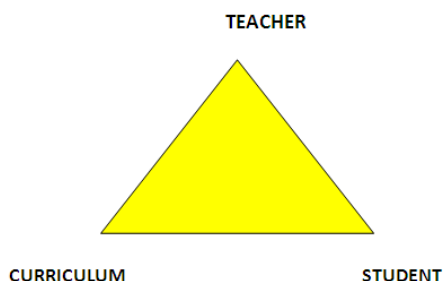
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I. INTRODUCTION

To make mathematics teaching interesting and attractive at Primary level, *Activity methods* of teaching is adopted, where the children will get direct experiences and the content is directly related to real-life situation. This method makes learning interesting and it will be helpful for the students to remember the content for a long time as every student is involved actively in teaching learning process. So it is a Child-centered approach. It is a method in which the child is actively involved in participating mentally and physically” *Learning by doing*” is the main focus in this method.

CONCEPT OF METHOD

“How to teach” is a really difficult problem for the teacher. Teaching has three poles Teacher, Students, and Curriculum. These are interrelated to each other. Teaching cannot go smoothly in the absence of any one of these three. These three points make a triangle, which is impossible including one of these here.



To achieve the aims and objectives of teaching mathematics different methods of teaching are available.

According to W.F. Mackey:

“A method determines, what and how much is taught, the order in which it is taught, how the meaning and form are conveyed and what is done

to make the use of the subject matter unconscious”.

“Why to teach mathematics” and “What to teach in mathematics” are two important aspect of teaching mathematics. But Methods deals with “How” of mathematics. How the children will learn effectively, depends on the method of the teacher adopts. How to impart mathematical knowledge” ? and How to enable the children to learn mathematics” ? are the questions. Methods of teaching have an intimate relationship with teaching and instructional objectives. So the main aim of teaching is to bring about socially desirable behavioural changes in the children. So it is essential that , every teacher should be acquainted with Activity Method of teaching mathematics for concept clarity. Method deals with “How” of mathematics. How the children will learn effectively, depends on the method the teacher adopts.

The word “Method” has been derived from Latin Word, which means “Mode” or “Way” Therefore here “Method” means method of delivering knowledge and transmitting mathematical skills by a teacher to his pupils and their comprehension and application by them in the process of learning mathematics.

According to Talleyrand

“Method is the master’s master”

According to Kothari Commissions

“If mathematics is done bodily, it is worse than unless

According to George W. Hunter

“A teacher may be of great value, may lose much of its value in the hands of another teacher, especially, If that teacher believes that a different method is used”.

In a very restricted sense, it means “What to teach” ? and “How to teach mathematics” ? or “How to approach it” ? Hence, “The process of interpreting the world of knowledge to pupils’

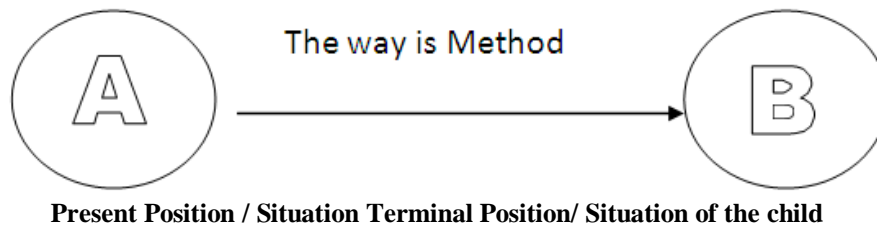


mind is called the method of teaching". It is just a way to teach.

Here the world of knowledge includes, the Knowledge, Interest, Attitude and Skill etc. and all

the three domains -Cognitive, Affective, and Psychomotor.

Another way to define a method of teaching may be as follows :



Teaching is an art, **“Methods are the ways or mode to understand and practice the art”**. A method is well thought of plan for presenting the subject matter systematically and scientifically. Method is a style of the presentation of content in class room. Method is nothing but a scientific way of presenting the subject, keeping in mind the psychological and physical requirements of the children.

Secondary Education Commission has rightly observed

“Even the best curriculum and the most perfect syllabus remain dead unless quickened into life by the right methods of teaching and right kind of teaching”.

According to Brondy (1963)

“Method refers to the formal structure of the sequence of acts commonly denoted by instructions. The word term method covers both strategies and techniques of teaching an involves the choice of what is to be taught”.

According to Schulman (1999)

A teaching method is a way in which a teacher organises and manages the teaching learning situation, presents clear explanations and vivid descriptions, assigns and checks if learning interacts effectively with learners through questions and probes, answers and reactions, and praise and criticism.

According to Carl (1995)

“A teaching method is a way of facilitating interaction between the teacher and learners in order to realise set goals”.

Mathematics is a challenge to teach. Unlike reading and writing, math is a totally different language for children to learn. Symbols represent operations. Operations are performed in different ways for different formulas. Symbols can be interchangeable and require different operations in different situations. Hence, the reading, writing,

interpreting of mathematical symbols and their application, can cause confusion for Primary students. So they are struggling to understand new and abstract concepts relating to numbers and operations.

Generally, mathematics is considered to be a difficult subject. So it is the responsibility of the teacher to present it in a way that the student, can understand it easily. So the teacher has to use appropriate methods of teaching to achieve goals in the minimum time.

Teaching methods are not meant to provide only knowledge to students but to bring variety to teacher-student relationship. A teacher with the help of teaching methods enhances student’s personality, intelligence, emotions, values, and character. The teaching methods helps to achieve objectives easily.

Mathematics, along with reading and writing, is one of the three main content area that elementary school students are expected to master during the elementary grades. Many students find mathematics intimidating, difficult to understand and most difficult to master.

As studied by the researcher, all people thought that, mathematics is a very difficult subject to understand and they have a phobia of mathematics and they thought that mathematics is a boring subject. In most of the school, teacher teaching style is only lecture method and students will bored to learn mathematics. If teacher apply different methods, then students will take interest in mathematics.

Majority of people think that mathematics is a cold, dry and boring subject with the result that students take very little interest in mathematics. It is the duty of a mathematics teacher to create interest in a mathematics class. He should know that **“A pupil who is learning mathematics is also learning to like mathematics”**. The interest of the students is capricious. As a rule students readily become interested in things which are new or exciting, the



things which has practical values, or applications to situations. The students tend to remain interested in those things which they can do most successfully and which they understand most completely. Concepts are almost invariably cleared and strengthened by concrete illustration or demonstration and interest accompanies understanding. So a mathematics teacher should teach mathematics through different activity by which students can learn effectively.

As per Wakefield (2001)

A mathematics teacher should consider three principles while teaching mathematics **“Encourage children to think, Encourage children to think about thinking and encourage representation of thinking”**. The teacher is the primary decision maker in planning the specific method to accommodate the needs of every learner.

DEFECTS IN CONVENTIONAL METHOD

An evaluation earlier, the teacher is the sender or the source, the educational material is the information or message and the student is the receiver of the information. In terms of delivery, medium, the teacher can deliver the message via the **“Chalk-and-Talk”** method, which is a very popular technique, which has been used for decades as an educational strategy in all institution of learning. It is a teacher centred teaching process where students are passive listeners only. Some limitations which may prevail in conventional teaching method are

- Teaching in class room using **“Chalk and Talk”** is **“One way Flow”** of information.
- Teachers often continuously talk for an hour without knowing students response and feedback.
- The material presented is only based on teachers note and textbooks.
- Teaching and learning are concentrated on **“Plug and Play”** method rather than Practical aspects.
- The hand writing of the teacher decides the fate of the student.
- There is insufficient interaction with students in classroom.
- More emphasis has been given on theory without any practical and real life situations.
- Learning from memorisation but not understanding.
- Marks rather than result oriented.

The Conventional Method of teaching mathematics is based on rote learning. Children

learn a number of rules to be applied to various problems. The series of rules goes on and on and finally the children find themselves in the mathematics of rules and do not know which rule should be applied in the given problem.

This mechanical method of teaching soon leads to a void in their understanding of the subject and eventually to confusion, fear, and finally hatred towards mathematics. The Conventional Method of teaching is designed for dropping out (Pushing up) 90% of the students of the school and not succeeds well in its objectives.

II. CONCEPT OF ACTIVITY METHOD

As per *Collins Dictionary*

“Activity method is a type of teaching in which students acquire knowledge and understanding by participating in a set of specially designed activities, rather than by passive listening to the teacher”.

The dictionary definition of **“Activity”** especially for elementary school students is **“Work that involves direct experience by the students rather than text book study”**. Thus Activity Method should allow students to engage with and process information in such a way that he understands and builds his knowledge about a particular subject. An outcome successful learning would be that the student has acquired the basic literacy skills and is able to apply this knowledge or skill learnt in a relevant situation.

Activity Method is also known as **“Activity Based Learning”**. This Method was adopted by an **Englishman David Hansburgh**.
As per Suydam & Higgins (1977)

Activity Method may be defined as a method of instruction where activity of different types, suitable and relevant to specific subjects are integrated seamlessly into the regular instructional materials and methods to involve students in the teaching-learning or instructional processes and engage them fruitfully.

Activity method is a technique adopted by a teacher to emphasize his or her method of teaching through activity in which the students participate rigorously and bring about efficient learning experience. It is a child centred approach. It is a method in which the child is actively involved in participating mentally and physically. **“Learning by Doing”** is the main focus in this method. Learning by doing is imperative in successful learning, since it is well proved that more the senses are stimulated, more a person learns and longer he or she retains.



This method made the students as an active learner and not as a passive listener. Here the teacher should provide activities and experiments for each subject theme. The activities should be appropriate to constraints like age of the students, concept of the subject. The activity should not deviate the child from learning the concepts. Such activities gives a pleasure of learning and develops an self-reliance in students. Gradually it encourages the student to learn new concepts and makes the learning in a joyful manner. Mathematics can be taught using this method in a nice manner.

Pine, G (1989) mentions that in an activity based teaching, learners willingly with enthusiasm internalize and implement concepts relevant to their needs. So, our understanding on the activity method by now should mean any learning that is carried out with a purpose in a social environment, involving physical and mental action, stimulating for creative action or expression.

Educators have varying conceptions of what activity method of teaching is, when they hear or use the method. The common element across these conceptions or definitions appears to be student involvement in the process of learning mathematics. This involvement is more than intellectual. The student is actively involved in doing or in seeing something done. On a broad scope, activity based instructions is concerned with a teaching strategy, may encompass a program, and frequently involves the use of manipulative materials.

Activity method is an approach to education, focussing on the idea that students should be engage through actions. In this teaching, an educator serve the function of facilitator assisting students through the learning process and providing them with guidance. Various actions and tasks can be used in this type of programme, allowing students to become directly involve in the learning process, rather than remaining passive. The purpose of activity based teaching is for an educator to engage students directly, drawing them into a lesson so, that they become a participant in their own learning.

According to **Khanzode (1995)**

“Previously teaching means nothing more than giving information and imparting knowledge. It was regarded as a Bi-Polar process. Teacher and Subject being its two poles, Child was all together ignored. But now teaching has become Tri-Polar process of teaching and learning. Teachers, Students and Subjects, are the three poles”. Thus in teaching learning process, teacher, learner as well as the teaching style of the subject, all these

components are very important”.

Activity methods of teaching as suggests is a process whereby learners are actively engaged in the learning process, rather than “passively” absorbing lectures. It is based on the core premise that learning should be based on doing some hands on experiments and activities rather than just listening to lessons only. Activity method involves discussion, practical activities, engagement in solving problems, analysis, synthesis and evaluation.

As per **Bonwell & Eison (1991)**

“Active Learning is also defined as any strategy that involves students in doing things and thinking about the things they are doing”.

According to **Wikipedia (2012)**

“If a child is given opportunity to explore the learning Environment, then learning becomes Joyful and long lasting”.

As a teaching strategy, activity method of teaching means that the teacher in corporate activities of some type in planning lessons. But under this general umbrella lie a range of specific:

- The activities vary widely, from actual real world experiences to working within group to accomplish a work.
- The activity may serve to motivate, to introduce, to provide reinforcement or practice, to help children apply a mathematical idea to the real world.
- The activity may be integral to the mathematical content or to the instructional objectives, or may be used Performa, simply because the teacher believes or it told that the use of activities is necessary,
- The Activity may or may not involve the use of objects or manipulative materials. It requires active problem solving by students in finding patterns in the information through their investigation and analysis. With continued practice in these processes, students learn not the content of the lesson, but also develop many other skills as follows
- It enhances creative aspect of experience
- It gives reality for learning
- Uses all available resources
- Provides varied experiences to the students to facilitate the acquisition of knowledge, experience, skill and values.
- Builds the student’s self-confidence, and develops understanding through Work in his or her group.
- Gets experiences, develops interest, enriches



- vocabulary, and provides stimulus for reading.
- Develops happy relationship between students and students, teacher and students.
 - An activity is said to be the language of the child. A child who lacks in verbal expression can make up through use of ideas in the activity.
 - Subjects of all kind can be taught through activity.
 - Social relation provides opportunity to mix with others.

According to *Morablein Okwudishu (2011)*

Activity Method of learning offers the following benefits:

- Reinforces course content
- Develops team building skills
- Enhances learning self esteem
- Promotes participation learning
- Allows for creative problem solving
- Promotes the concept of discovery learning
- Energizes & invigorates the participant
- Strengthens learners bond
- Offers variety that accommodates divers learning styles
- Allows for practical application of course content
- Enhances communication with diverse learning
- Offers an enjoyable and exciting learning environment
- Helps improve learners retention and motivation
- Provides an avenue for learners recognition and reward

III. NEED OF ACTIVITY METHOD

Children count cricket scores at lightening speeds. The children working with carpenters never make mistakes while making a right angle or a plane. The child is familiar with the word big, small, first, second, tallest, older etc. All these words have real meaning for him. There are countless examples of children using mathematics and mathematics skills, in their day to day life. The same children went to school fail in mathematics at primary level. The problem lies not in the children's capabilities or in mathematics as a subject but in the method of teaching mathematics.

Student's weaknesses in mathematics is a major factor, which cause gap between the expected achievement and actual achievement in

mathematics. These levels of achievement, and achievement gaps, was caused due to lack of understanding of mathematics at earlier stages.

Chel (1990) found that under achievement in mathematics was caused due to lack of understanding at mathematics at earlier stages. Thus weaknesses of students in mathematics at lower stage hinder progress in learning mathematics at higher stage of mathematics.

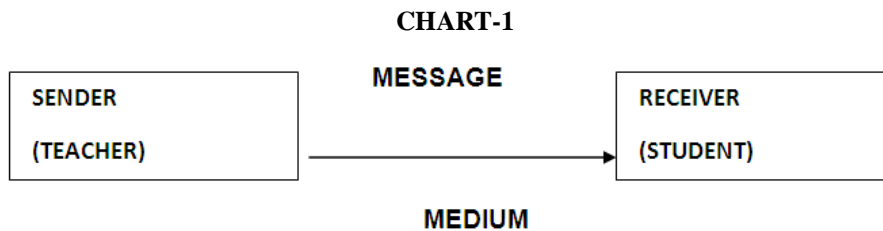
Kasat (1991) found that, low intelligence, poor numerical ability, poor comprehension and recall ability, no interest in mathematics and poor study habits were the causes of large failure in mathematics. So, achievement in mathematics is low.

Mathematics is a challenge to teach. Unlike reading and writing, mathematics is a totally different language for children to learn. Symbols represent operations. Operations are performed in different ways for different formulas. Symbols can be interchangeable and require different operations in different situations. Hence, the reading, writing, interpreting of mathematical symbols and their application in different situations, can cause confusion for 3rd grade students. So they are struggling to understand new and abstract concepts relating to numbers and operations through conventional method.

The Conventional method of teaching mathematics i.e. through "**Chalk and Talk**" is "**One way Flow**" of information. This is teacher centred method where pupils are the passive listeners. It has been observed that there are some defects or disadvantages in the conventional method of teaching and learning. In this type of teaching, students have to observe class room under tight control and rigid supervision. Many types of diversions occur due to various factors such as poor performance of the students, poor numerical ability, poor application ability, etc. This method is based on rote learning not understanding. So, this leads to a void in their understanding of the subject and eventually to confusion, fear and finally hatred towards it. They cannot be an active learner. To measure the outcomes of teaching of mathematics, this conventional method is unable in raising the standards of teaching and learning. It fails to make diagnostic and prognostic study of children.



- Teacher in classroom using “Chalk and Talk” is a one way flow of information.

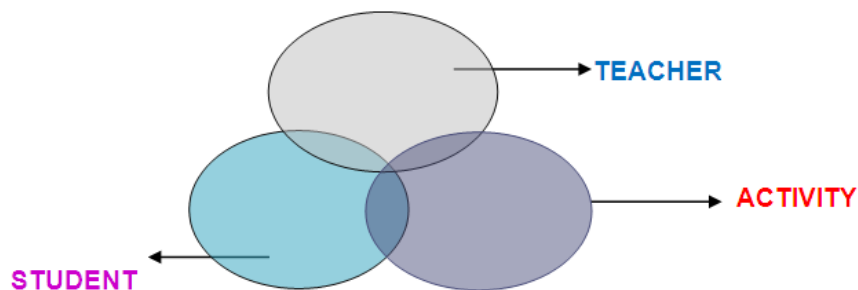


- Conventional and Activity method the difference.

CHART -2 : Conventional method---A one way flow.



CHART -3: Activity based learning: --- An interactive learning process



Generally, mathematics is considered to be a difficult subject to understand and they have a phobia of mathematics and they thought that mathematics is a cold, dry, and boring subject with the result that students take very little interest in mathematics. A mathematics teacher should use suitable method which makes the subject matter more clear and easily understandable. The teacher should know that **“A pupil who is learning mathematics is also learning to like mathematics”**. The interest of the students is capricious. The students tend to remain interested in those things, which they can do most successfully and which they understand most completely. Concepts are almost invariably and strengthened by concrete illustration or demonstration and interest accompanies understanding. So, a mathematics teacher should use activity method to teach mathematics at primary level according to his own abilities, interests and experiences, to make teaching attractive, interesting and joyful.

A child likes to play from morning till

evening. He does not like his play to be interfered by anybody. To a child play is life itself. Let the child play, but let it be real play i.e the child is allowed to play with real games and toys, the teacher will be able to give reality to the language of numbers. He gains his first notions of number through his eyes and his fingers. He handles real things. He counts beans and beads. Abstract idea of number develop out of great amount of concrete, meaningful experiences with real life situation. The child must be taught to count things and to find out the various processes experimentally in the concrete, before he is given any abstract rule, or is put to abstract.

Children like to play, sing, dance, dramatize and converse in a peculiar manner. As long as the same is not reflected in the classroom, the child is sure to be a failure in mathematics which turns into long absence.

According to *Dhand (1995)*

“Child Centered education aids to foster self-learning and allows a child to study according to



his aptitude and skill. Activities in each mile stone include games, rhymes, drawing, and songs to teach a letter or a word, or understands a concept”.

It is found that, carefully planned units, that include group work through some activities i.e. by direct observation increase students curiosity, enjoyment and success in learning mathematics.

“No horse gets anywhere until he is harnessed ;

No stream or gas ever drives anything until it is confined ;

No Niagara is ever turned into light and power until it is tunnelled ; No life ever grows great until it is focused, dedicated, and disciplined”.

So, every child should be motivated to get them interested in learning mathematics through Activities, Discovery and Exploration in a child-friendly and child-centered manner from an early age i.e. from primary level. The Activity method makes the child free of fear, trauma and anxiety and helps the child to express views freely.

Activity based learning can be used as a motivational tool to address the inadequacies of conventional teaching. Since the conventional method do not encourage students to clarify the abstract concepts of mathematics. So Activity method encourage students to learn, how to learn, via real life situation. Activity method develops in learners a sense of worth, as well as confidence, to undertake problem solving tasks, not only in classroom but in various life situations outside school.

So, to make mathematics teaching interesting and attractive, activity methods of teaching is adopted, where the children will get direct experiences. At present extensive research work is going on in this field. Activity method is more effective, systematic and valid. Activity based approach makes learning interesting and it will be helpful for the students to remember content for a long time as every student is involved actively in teaching learning process. Activity is some physical action on the part of the child which acts as a precipitator or aid for mental level.

As per **NCERT (2000)**

“Mathematics learning should be imparted through activities from the very beginning of school education i.e. from the primary stage itself. These activities may involve the use of concrete materials, models, charts, patterns, pictures, posters, games, puzzles and experiments. The importance of using learning aids needs to be stressed. This may be done by involving students and teachers by mobilising community resources to this end”

The Activity method at primary level is to

introduce many mathematical activities to make mathematics teaching interesting. It is strongly recommended that different mathematical activities are very good means of teaching mathematics. It can make teaching interesting, attractive, and permanent lasting.

The commission points out that “in the teaching of mathematics, emphasis should be more on the understanding of basic principles than on the mechanical teaching of mathematical components”.

It is very important to try innovative strategies i.e. Activity Method in the teaching and learning of mathematics for several reasons. It

- Encourages “**Learning by Doing**” through active participation.
- Promotes better understanding of a lesson.
- Encourages pupils free and active participation in classroom situation.
- Provide pleasure to the learners while learning.
- Develop power of imagination and creative thinking to arose motivation towards learning.
- Encourages independent and team learning.
- Provides a wide variety of manipulative open ended and creative activities.
- Make students advance at their own rate--the rate that is with their abilities, interest and motivation
- Encourages self-reliance, self-confidence and development of initiative in an atmosphere of trust.
- Encourages children to follow many of their own interest and desires to learn.
- Problem solving, critical and creative thinking and deep understanding are emphasised.
- Learners are encouraged to explore the new knowledge.

- Promotes fun.

Like the Arrow goes forward only after pulling into backwards, Bullet goes forward only after pressing the trigger backward. So, Activity method of teaching mathematics helps the students to gear up their knowledge, which will push them forward. As per popular Chinese Proverb

***When I hear, I Forget When I see, I remember
When I do, I understand***

This means that, until a child practices a concept or participates in the learning process, he cannot understand the abstract concept clearly. “***So, every child should experience the joy of discovery***”