

## METHODS OF TEACHING



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### Abstract

*Teachers use variety of methods and techniques in their classrooms to make their teaching more interactive and operative. Here, the determination of this article is to focus on certain teaching methods like Deductive and Inductive method, Analytical and Synthetic method and Problem Solving method. To develop their interaction with students, an educator uses these methods to make learning beneficial. The teachers only select the most relevant method keeping in view of their topic, contents and needs of the learner. All the methods have their advantages and disadvantages. It has been observed that learners solved many problems rapidly by using a different method to which they have already learnt in the classroom. Inductive and deductive teaching is very important in education. The biggest differences between the two methods are the focus and flow of the information as well as the roles of the teacher and student.*

**Keywords:** Deductive method, Inductive method, Analytical method, Synthetic method and Problem solving method.

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### Inductive method

Inductive teaching and learning means that the direction of the flow of information is from specific to general. In terms of teaching, the lesson is started with activities or experiments. It is mostly focused on the students and their capacities and abilities rather than the teacher.

### Merits

- Students acquire knowledge naturally by exposure.
- Students are encouraged to utilize their reasoning skills.
- Students learn the concept of remembering and understanding.
- Knowledge is self-acquired and is soon transformed into wisdom.
- The child develops independence and self-confidence.
- This is a psychological method.

- It helps understanding
- It is a logical method
- It gives opportunity for active participation
- It reduces dependence on memorization and home work.

### **Limitations**

- It is laborious and time consuming.
- It is not suitable for advance stage.
- It leaves the learning process at the stage of abstraction or generalization, which may many time be erroneous and off the track. It has to be verified by deduction.

### **Deductive Method**

In this method, the rule of the teacher is prominent as they give all the information. The flow of information in this method is from general to specific. It is the traditional method of teaching and learning and is used to a large classroom setting. It introduces a concept and its process before applying it in a test or activity.

### **Merits**

- This method is easy to follow.
- The work of the teacher is simplified
- This is a time saving method.
- It increases the speed and efficiency in solving problem.

### **Demerits**

- This is unpsychological and unnatural
- This method does not help the child to assimilate and turn the knowledge to his own use.
- It is not suitable for the development of thinking reasoning and discovery.
- Here memory is more important than understanding and intelligence.

## **Methods and Techniques of Teaching Mathematics**

### **Analytic and Synthetic**

#### **Analytical Method**

The meaning of the word analysis is to 'separate things that are together'. In this method, we start from what is to be found or proves. Analysis also means- 'breaking up of a given problem so that it connects with what is already known'. In analysis, we proceed from 'unknown to known'. Analysis is 'unfolding a problem to find its hidden aspect'. This method is used under the given conditions:

- When we prove any theorem.
- Can be used for construction problems.
- To find out solutions for new arithmetic problems.
- The merits of this method are as follows:

- Logical and leaves no room for doubt.
- Facilitates understanding as we discover facts.
- Each step has reason and justification.
- Student gains confidence and understanding.
- Method suits the learner and the subject.

**The Demerits of this method are as follows**

- Lengthy method and also time-consuming.
- Difficult to acquire efficiency and speed.
- Not applicable to all topics.
- Not suitable for students with weak conceptual knowledge.

**Synthetic Method**

The word synthesis simply means 'to place things together or to join separate parts'. In this method, we proceed from 'known to unknown'. It is the process of relating known bits of data to a point where the unknown becomes true. It is a method of formulation, recording and presenting concisely. It is a solution without any trials and errors.

**The Merits of this Method are as follows**

- Short and precise method.
- Saves time and labour.
- Suits the needs of majority of topics in mathematics.
- Omits trial and error as in analysis method.

**The Demerits of this Method are as follows**

- It becomes a teacher centered method where students are passive listeners.
- Students rely on rote memory.
- No opportunity to develop thinking and reasoning skills, understanding is hampered.
- Students lack confidence to do other type of sums.

From the above discussions, we can see that both the methods of analysis and synthesis by themselves have their advantages and disadvantages.

**Problem-Solving**

Life is full of problems and we term one as successful, who is able to use the knowledge acquire and reasoning power to find solutions to these problems. Problem-solving may be purely mental difficulty or it may be physical and involve mental manipulation of data. Problem-solving method aims at presenting the knowledge to be learnt in the form of a problem. It begins with a problematic situation and consists of continuous, meaningful and well-integrated activity. The problems are a test for the

student in natural ways and it is ensured that the students are genuinely interested to solve them.

**The Merits of this Method are as follows**

- The method is scientific in nature.
- Develops good study habits and reasoning power.
- Helps to improve and apply knowledge and experiences.
- Stimulates thinking of the student.
- Students learn virtues such as patience, cooperation and self-confidence.
- Learning becomes more interesting and purposeful.
- Develops qualities of initiative and self-dependence in the students as they have to face similar problematic situations in real life too.
- Develops desirable study habits in the students.

**The Demerits of this method are as follows**

- Ineffective use of the problem solving method.
- Teacher dominated atmosphere causes failure for this method.
- Difficult to organize contents of syllabus according to this method.

**Conclusion**

Teachers understand and use a variety of teaching methods to promote student learning. Every student has a natural desire to learn on their own. Every student is unique, they learn according to their abilities. Hence, any teaching system based on presentation of information to a group cannot take into account the wide variation in the rates at which an individual student learns.

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