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Topic-Lecture
method Merits
and Demerits

Teaching Techniques and Methods for Physics Teaching

Need of Methods in Physics Teaching

Currently many methods in the teaching of physics are used. The teacher can make the selection of some proper method for the teaching of physics. There are psychological facts hidden in the bottom of every teaching method. The pupil teachers should likely obtain the understanding of psychological facts well under every method. Education philosophy helps us to make the aims of education stable, whereas psychology helps us in adopting the proper and suitable teaching method. The mutual relation of curriculum, teacher and students is shown under educational process. Since, the child is the central point of teaching process. Keeping this view in attention, the teacher should adopt the teaching method according to the interests, capacities and needs, nature of the subject etc. Although it is correct that every teacher decides his teaching art according to his personality and understanding and fixes his own strategies and method, yet it is necessary that he must have the understanding of those teaching methods to which many teachers have found suitable on the basis of their experience by their own experiment.

Teaching art is an ability to be which can be learnt. A highly educated scholar may not be a good teacher.

So, it can be said that the skill of study may be different. A teacher should not always follow the same method. A suitable method for physics teaching should be used according to the situation, topic and need.

It is necessary for physics teacher to have the knowledge of teaching methods by which he decides the wide shape of teaching on the basis of his teaching method. Teaching method is that process by which some target is gained. Teaching methods are the torch bearer of a teacher how should they provide education to their students. It is truth that as a man can not reach his fixed place for the shortage of right path, similarly correct knowledge can't be provided to students without using the proper method. Reading matter is important in teaching method. Teaching method is selected according to the nature of reading matter, i.e. the style of presentation of reading matter is called teaching method. "It is the style of the presentation of content in class room."

Alongwith teaching methods a teacher has to take the support of the teaching strategies, teaching techniques and teaching skills also in order to obtain the aims of physics teaching.

The direction and motion of teaching is fixed under various methods and they have direct relation with aims of teaching. Their selection is based on the nature of reading matter. They regard teaching as art. Their main function is to make the presentation of the lesson more effective. The scale of evaluation of teaching methods is to obtain the right upon subject matter.

The selection of teaching strategies is made on the basis of aims. They regard teaching as science. The place of conducts and connections among these is important. Their main function is to create proper circumstance of learning. The scale of their evaluation takes place by attainment of aims. There use is made as following the micro teaching. The teacher uses the teaching techniques to make his teaching effective, interesting and clear. The teacher uses them according to the needs and circumstance of the class. Their function is to make the inner action, between the teacher and student, effective.

According to **Stones and Morris** – “Teaching methods are related with aims and effect the conduct of the teacher. How does a teacher behave in some prominent situation ? How does he accomplish the work with different roles among the students in the class ? What is its reaction among the student, teacher and subject matter ? All these things are hidden in it.”

Now the question arises that which method is more useful. Its decision should be left on the teacher because the teacher alone has the nearest relation with teaching process. The principal methods of physics teaching are the following :

(1) Lecture Method, (2) Demonstration Method, (3) Project Method, (4) Heuristic Method, (5) Inductive–Deductive Method, (6) Laboratory Method, (7) Problem solving Method.

1. Lecture Method

This method is being used from the very beginning of the obtained history of teaching methods. Even today the use of this technique is equally wide. To express, expression this method is as current, it is not so easy. The teacher works as a skilled speaker in this method and the students keep on hearing his speech sitting as inactive listeners fully. By this method, the teacher describes literally alone to students all kinds of knowledge about physics. No attention is paid upon the activity of students. To teach through the medium of this technique, the teacher performs fine preparation of the subject matter before going in the class room and presents that revised and repeated knowledge in the class in the form of his speech. Hearing attentively his speech during the students try to note of its important facts. The students may also ask questions according to need for the solution of their suspicious and the teacher may take the help of black board and other pictures to introduce his skill.

The success of lecture method in teaching process depends at a large extent upon the preparation and skill of the teacher. Often, the following three concepts should be adjusted in a fine speech :

3Ps

Preparation

Presentation

Personality

At first any teacher, after getting full knowledge and necessary study in context to the subject taught in the class room, prepares a lesson plan of his own. After the lesson plan having been prepared, the teacher presents the reading matter in the class by paying attention upon children's interests, capacities, individual difference and needs. Presentation is regarded a complicated and necessary part of lecture method the teacher presents his lesson plan in an arranged and respective manner in it. A skilled teacher makes his speech interesting by suitable examples for children even to the complicated knowledge (matter) of the subject by which the students easily understand it, can adopt it permanently. Thus, the success of speech mostly depends upon the teacher's personality. A properly dressed and skilful teacher can effect the students easily and naturally by his speech.

Many such chances come across in teaching process where lecture method proves to be more useful. As for starting some new topic, in the end of the lesson while revising the subject as the substance, when some such information are needed which the student can't obtain soon just then through some other source. The teacher has to fulfil all these things. Whenever informations given in books are to be searched for, then torch bearing is performed soon through this method. Thus lecture method, the critical appreciation of inspiring aspects of physics education is accomplished more effectively. If the teacher may work hard, he can make this method more effective in a planned manner. Therefore lecture method may be partly used in the following situations at secondary and higher secondary standard :

- (1) To present the biographies and historical back ground of scientists.
- (2) To present the introduction of the lesson.
- (3) For the clarification of those teaching points, which could not be represented.
- (4) For the generalisation of conclusions obtained through representation.
- (5) To present the substance of the lesson.

Merits of Lecture Method

- (1) This method proves to be very useful to provide the understanding of facts and revise them.

(2) The subject matter can be clarified to its utmost form in this method.

(3) This method develops reasoning power among students and improves the pronunciation of students.

(4) The arrangement of this method is easy. There is no more spending of labour and money in it.

(5) The teacher makes the plan of his lectures by psychological method.

(6) An organised knowledge is presented for children in a definite sequence and in a shorter time by this method.

(7) Lecture method is the best to present new lesson, its reference and introduction of subject.

(8) Good lectures are creator of inspirations.

(9) To finish the curriculum in a short time is possible in it and there is need of a few means only.

(10) A teacher gets many occasions to represent his earned knowledge and skill.

(11) Student control is easy. There is no possibility of indiscipline in it.

Demerits of Lecture Method

(1) This method is pecially useless for physics teaching because practical experiments are included in physics teaching, which are not possible in lecture method.

(2) Much engorcement is given on the theoretical side of the subject in this method. Importance to practical side of learning is not given in it.

(3) The aim of physics teaching is not fulfilled by this method because it does not develop the power of thinking, reasoning and taking decision among students.

(4) This method is not suitable for the development of scientific view point and the scientific method.

(5) There is no place of learning by doing, in this method.

(6) This method does not function successfully for lower classes. It can be used only at higher level.

(7) To learn the concepts fully is hard due to the inactiveness of students.

(8) This method is one sided by educational viewpoint. Inspite of the student, the teacher has to work more in this method.

(9) The students do not get encouragement to challenge the established recognitions and results by this method which is opposite to scientific sense.

(10) The curriculum can be finished soon by it, but there is shortage of real teaching.